



San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT



HEALTHY AIR LIVING™

AUG 25 2014

Joey Airoso
Circle A Dairy
P O Box 1087
Tipton, CA 93272

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: S-6986
Project Number: S-1065221

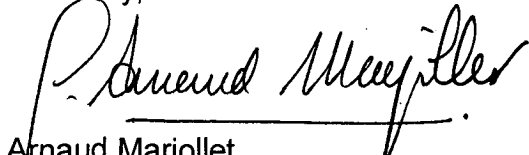
Dear Mr. Airoso:

Enclosed for your review and comment is the District's analysis of Circle A Dairy's application for an Authority to Construct for a milking operation with a 72-stall rotary milking parlor, five freestall barns housing a maximum of 2,900 mature cows, commodity barns, and the implementation of District Rule 4570 emission mitigation measures, at 11275 Road 96, Pixley.

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

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Jonah Aiyabei of Permit Services at (559) 230- 5910.

Sincerely,



Arnaud Marjollet
Director of Permit Services

AM:jka

Enclosures

cc: Mike Tollstrup, CARB (w/ enclosure) via email

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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San Joaquin Valley Air Pollution Control District

Authority to Construct Application Review

New Source Review Requirements for Milk Barn, Freestall Barns, and Commodity Barns; and Implementation of Rule 4570 Mitigation Measures

Facility Name:	Circle A Dairy	Date:	August 19, 2014
Mailing Address:	P O Box 1087 Tipton, CA 93272	Engineer:	Jonah Aiyabei
Contact Person:	Joey Airosa, Owner/Operator	Lead Engineer:	Martin Keast
Telephone:	(559) 688-5694		
Application #s:	S-6986-1-1 through 4-1 and 7-0		
Project #:	S-1065221		
Deemed Complete:	June 7, 2010		

I. Proposal

Circle A Dairy has applied for Authority to Construct (ATC) permits for a milking operation with a 72-stall rotary milking parlor, five freestall barns housing 2,550 milk cows and 350 dry cows, and commodity barns. In addition, the proposed modifications will include implementation of the emission mitigation measures required by District Rule 4570 for all permit units.

Although the dairy has already been constructed and is currently in operation, ATC permits are required in order to bring the affected emission units into compliance with New Source Review (NSR) requirements. The dairy started construction shortly before farming operations became subject to District permit requirements on January 1, 2004 (pursuant to Senate Bill 700). Construction continued after January 1, 2004; until the dairy became operational later in 2006. The District conducted a commencement of construction determination (see Appendix A) and established that construction of the milking barn, freestall barns, and commodity barns did not commence prior to January 1, 2004, hence ATC permits should have been obtained prior to construction of these emission units. The three permit units did not qualify to be grandfathered into permit as existing units, and are therefore subject to all applicable NSR requirements.

However, the District determined that construction of the cow housing corrals, liquid manure storage and handling facilities, solid manure storage and handling facilities, and silage pads commenced prior to January 1, 2004. These permit units were therefore determined to be existing units that are not subject to NSR requirements.

The project will result in an increase in VOC, NH₃, and PM₁₀ emissions at the site, including increases of more than 2.0 lb/day from the milking operation and cow housing. Therefore, BACT is triggered for VOC, NH₃, and PM₁₀ emissions from these new permit units.

The project triggers the public notice requirements of District Rule 2201. Therefore, the preliminary decision for the project will be submitted to the California Air Resources Board (CARB), a public notice will be published in a local newspaper of general circulation in the

county of the project, and a 30-day public comment period will be completed prior to issuance of the ATC permits.

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 (4/21/11)
Rule 2410 Prevention of Significant Deterioration (6/16/11)
Rule 2520 Federally Mandated Operating Permits (6/21/01)
Rule 2550 Federally Mandated Preconstruction Review for Major Sources of Air Toxics (6/18/98)
Rule 4101 Visible Emissions (2/17/05)
Rule 4102 Nuisance (12/17/92)
CH&SC 41700 Health Risk Assessment
Rule 4550 Conservation Management Practices (CMP) (8/19/04)
Rule 4570 Confined Animal Facilities (CAF) (6/15/06)
CH&SC 42301.6 School Notice
Senate Bill 700 (SB 700)
California Environmental Quality ACT (CEQA)

III. Project Location

The facility is located at 11275 Road 96 in Pixley, Tulare County. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

The primary function of Circle A Dairy is the production of milk, which is used to make various products for human consumption. Production of milk requires a herd of mature dairy cows that are lactating. In order to produce milk, the cows must be bred and give birth. The gestation period for a cow is 9 months, and dairy cows are bred again 4 months after calving. Thus, a mature dairy cow produces a calf every 12 to 14 months, which is why there will be different ages and types of cows at the dairy, including calves, heifers, lactating cows, dry cows, and mature bulls.

The milk cows at a dairy usually generate anywhere from 130 to 150 pounds of manure per day. Manure accumulates in confinement areas such as barns, open corrals (dry lots), and the milking center. Manure is primarily deposited in areas where the herd is fed and given water. How the manure is collected, stored and treated depends directly on the manure management techniques used at a particular dairy.

Dairy manure is collected and managed as a liquid, a semi-solid or slurry, and a solid. Manure with a total solids or dry matter 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.

Milking Parlor

The milking parlor is a separate building, apart from the lactating cow confinement. The milking parlor is designed to facilitate changing the groups of cows milked and to allow workers access to the cows during milking. A holding area confines the cows that are ready for milking. The holding area is covered with open sides and is part of the milking parlor, which in turn, is located in the immediate vicinity of the cow housing. The milking parlor has concrete floors sloped towards a drainage system. Manure that is deposited in the milking parlor is sprayed or flushed into the drainage using fresh water after each milking. The effluent from the milking parlor is carried through pipes into the liquid manure treatment system.

Cow Housing

Lactating cows and dry cows will be housed in freestall barns with flushed manure lanes. In freestall barns, cows are grouped in large pens with free access to feed bunks, water, and stalls for resting. A standard freestall barn design has a feed alley in the center of the barn separating two feed bunks on each side.

The rest of the support stock (mature bulls, heifers and calves) will be housed in open corrals with flushed lanes. An open corral is a large open area where cows are confined with unlimited access to feed and water. The open corrals at this dairy include structures that provide shade for the cows.

The special needs area serves the gestating cows at the dairy or any cows that are in need of medical condition. This area acts as a veterinary area. It is also the area in which cows are given special attention as they progress from dry cow, a mature cow that is gestating and not lactating, to maternity, to milking status or until their health improves.

Feed Storage and Handling

The feed storage and handling area is used for the storage of ingredients for preparing daily rations. Silage, the main ingredient in dairy feed rations, is stored in large elongated piles on concrete slabs. The required amount is extracted daily from one end of the pile. Other ingredients such as hay, grains and cotton seed are stored in covered barns (commodity barns) to prevent damage from exposure to weather elements. The feeds area is also used for mixing daily rations. Front-end loaders retrieve the required proportions of the different ingredients and add load them into a feed truck with a built-in mixer. Once the ingredients are thoroughly mixed, the feed truck drives over to the cow housing areas (corrals and freestall barns) to spread the feed along the feed lanes.

V. Equipment Listing

S-6986-1-1: MODIFICATION OF COW HOUSING - 450 LARGE HEIFERS (15 - 24 MONTHS), 450 MEDIUM HEIFERS (7 - 14 MONTHS), 450 SMALL HEIFERS (4 - 6 MONTHS), AND 35 MATURE BULLS HOUSED IN FLUSHED CORRALS; AND 250 CALVES (0 - 3 MONTHS) HOUSED IN SCRAPED CORRALS; ADD 2,550 MILK COWS AND 350 DRY COWS HOUSED IN 5 NEW FREESTALL BARNs WITH A FLUSH SYSTEM; INCORPORATE RULE 4570 MITIGATION MEASURES.

- S-6986-2-1: MODIFICATION OF LIQUID MANURE MANAGEMENT SYSTEM CONSISTING OF A MECHANICAL SEPARATOR, TWO SETTLING BASINS (895' X 70' X 16'), AND ONE STORAGE POND (1192' X 170' X 18'): INCORPORATE RULE 4570 MITIGATION MEASURES.
- S-6986-3-1: MODIFICATION OF SOLID MANURE MANAGEMENT SYSTEM CONSISTING OF MANURE STOCKPILES AND WINDROW COMPOSTING; MANURE IS HAULED OFFSITE: INCORPORATE RULE 4570 MITIGATION MEASURES.
- S-6986-4-1: MODIFICATION OF FEED STORAGE AND HANDLING OPERATION CONSISTING OF SILAGE PILES: ADD COMMODITY/FEED STORAGE BARN; INCORPORATE RULE 4570 MITIGATION MEASURES.
- S-6986-7-0: 2,550 COW MILKING OPERATION WITH ONE 72-STALL ROTARY MILKING PARLOR.

VI. Emission Control Technology Evaluation

PM₁₀, VOC, and NH₃ are the major pollutants of concern from the emission units under review. Gaseous pollutant emissions from a dairy are due to the ruminant digestive processes (enteric emissions), the decomposition and fermentation of feed, and the decomposition of organic material in dairy manure. Volatile Organic Compounds (VOCs) are formed as intermediate metabolites when organic matter in manure decomposes. Ammonia volatilization is the result of the microbial decomposition of nitrogenous compounds in manure. The quantity of enteric emissions depends directly on the number and types of cows. The quantity of emissions from manure decomposition depends on the amount of manure generated, which also depends on the number and types of cows. Therefore, the total herd size and composition is the critical factor in quantifying emissions from a dairy.

Various management practices are used to control emissions at this dairy. Some of these practices are discussed below:

Milking Parlor

This dairy uses a flush/spray system to wash out the manure from the milking parlor after each group of cows is milked. Since the milking parlor is constantly flushed, there will be no particulate matter emissions from the milking parlor. Manure, which is a source of VOC emissions, is removed from the milking parlor many times a day by flushing after each milking. Because of ammonia's high affinity for and solubility in water, volatilization of ammonia from the milking parlor will also be reduced by flushing after each milking.

Cow Housing – Freestall Barns

Particulate matter emissions from freestall barns are greatly reduced because the cows will be on a paved surface rather than on dry dirt. Additionally, flushing of the freestall lanes creates a moist environment, which further decreases particulate matter emissions.

Frequent Flushing

Manure, which is a source of emissions, will be removed from the freestall and corral lanes by flushing. Because of ammonia's high affinity for and solubility in water, flushing the lanes and walkways will also reduce volatilization of ammonia from the manure deposited in the corral lanes. The lanes and walkways in the new housing areas for the mature cows (lactating and dry cows) will be flushed four times per day and the lanes and walkways in the housing areas for the heifers will be flushed twice per day.

Feeding Animals in Accordance with the NRC Guidelines

All animals will be fed in accordance with National Research Council (NRC) guidelines using routine nutritional analysis for rations. Feeding the cows in accordance with NRC guidelines minimizes undigested protein and other undigested nutrients in the manure, which would emit NH_3 and VOCs upon decomposition. Refused feed will be removed from the feed lanes on a daily basis to minimize gaseous emissions from decomposition. The surface area of silage exposed to the atmosphere will be minimized by enclosing silage or covering it with tarps, except for the face of the pile from where feed is withdrawn.

VII. General Calculations

A. Assumptions

- Potential to Emit for the dairy will be based on the maximum design capacity of the number and types of cows that can be housed.
- Only emissions from IC engines and lagoons will be used to determine if the facility is a major source since these units are considered to be the only sources of non-fugitive emissions at dairies, as discussed in section VII.C.5.
- Emissions from grandfathered units are calculated only for reference purposes and for use in other parts of the evaluation such as SSPE and major source determination; otherwise such emissions are not subject to NSR requirements.
- The PM_{10} control efficiencies for the proposed practices and mitigation measures are based on the SJVAPCD memo – *Dairy and Feedlot PM_{10} Mitigation Practices and their Control Efficiencies*.
- All PM_{10} emissions from the dairy will be allocated to the cow housing permit.
- All H_2S emissions from the dairy will be associated with the lagoons and storage ponds.
- Because of the moisture content of the separated solids, PM_{10} emissions from solid manure handling are considered negligible.
- The PM_{10} emission factors for the dairy animals are based on a District document entitled "Dairy and Feedlot PM_{10} Emissions Factors", which compiled data from studies performed by Texas A & M ASAE and a USDA/UC Davis report quantifying dairy and feedlot emissions.
- The VOC and NH_3 emission factors for milk cows are based on an internal document entitled "*Breakdown of Dairy VOC Emission Factor into Permit Units*". The VOC and

NH₃ emission factors for the other cows were developed by taking the ratio of manure generated by the different types of cows to the milk cow and multiplying it by the milk cow emission factor.

- Feeding animals in accordance with the National Research Council (NRC) guidelines is a feed formulation practice used to improve animal health and productivity. This typically limits the overfeeding of certain feed that have the potential of increasing emissions. This mitigation measure has the potential of reducing a significant amount of emissions, however, since there is not much data available, a conservative control efficiency of 5% will be applied to the overall dairy EF.
- Flushing or hosing down the milking parlor immediately prior to, immediately after, or during each milking has the potential of reducing a significant amount of emissions since many of the compounds emitted from the fresh manure, such as alcohols (ethanol and methanol) and many Volatile Fatty Acids (VFAs), are highly soluble in water and the fresh excreted manure is almost immediately flushed out of the milk barn. However, a conservative control efficiency estimate of 75% will be applied at this time. This control efficiency does not apply to the enteric emissions generated from the cows themselves. Taking that into account, the overall control efficiency for the milk barn is approximately 16.7%. (EF from milk barn is = 0.9 lb/hd-yr; EF from fresh waste is equal to 0.2 lb/hd-yr; 75% of 0.2 lb/hd-yr = 0.15 lb/hd-yr; $0.15 \text{ lb/hd-yr} / 0.9 \text{ lb/hd-yr} = 16.7\%$ control).
- Flushing the feed lanes four times per day is expected to reduce emissions since manure degradation and decomposition in the feed lanes is reduced. Increasing the frequency of the flush will remove manure, which is a source of VOC emissions. Many of the compounds emitted from the fresh manure, such as alcohols (ethanol and methanol) and many Volatile Fatty Acids (VFAs), are highly soluble in water. Based on calculations in the Final Dairy Permitting Advisory Group's (DPAG) Report - "Recommendations to the San Joaquin Valley Air Pollution Control Officer Regarding Best Available Control Technology for Dairies in the San Joaquin Valley" dated January 31, 2006 (http://www.valleyair.org/busind/pto/dpag/dpag_idx.htm), a 47% control will be applied to flushing the corral lanes four times per day, until better data becomes available. This control efficiency only applies to the manure and does not apply to the enteric emissions generated from the cows themselves. Taking that into account, the overall control efficiency for the cow housing is approximately 18.2%. (Milk Cow EF from cow housing is = 12.4 lb/hd-yr; EF from fresh waste = 4.8 lb/hd-yr; $47\% \times 4.8 / 12.4 \text{ lb/hd-yr} = 18.2\%$ control).

B. Emission Factors

The emission factors used for all calculations are shown in Appendix B

C. Calculations

1. Pre-project Potential to Emit (PE1) and Post Project Potential to Emit (PE2) calculations

PE1 and PE2 calculations are shown in Appendix B.

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

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (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 that have occurred at the source, and which have not been used on-site.

The SSPE1 for this facility is as shown in the following table:

Pre-Project Stationary Source Potential to Emit (SSPE1)							
Permit Unit	NO _x (lb/yr)	SO _x (lb/yr)	PM ₁₀ (lb/yr)	CO (lb/yr)	VOC (lb/yr)	NH ₃ (lb/yr)	H ₂ S (lb/yr)
S-6986-1: Cow housing	0	0	13,712	0	6,760	15,523	0
S-6986-2: Liquid manure	0	0	0	0	1,322	4,988	357
S-6986-3: Solid manure	0	0	0	0	257	990	0
S-6986-4: Feed	0	0	0	0	21,933	0	0
S-6986-5: GDO	0	0	0	0	12	0	0
S-6986-9: IC Engine	451	0	8	60	30	0	0
S-6986-11: IC Engine	4,078	23	146	6,596	96	0	0
SSPE1:	4,529	23	13,866	6,656	30,410	21,501	357

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

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) 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 that have occurred at the source, and which have not been used on-site.

The SSPE2 for this facility is as shown in the following table:

Post-Project Stationary Source Potential to Emit (SSPE2)							
Permit Unit	NO _x (lb/yr)	SO _x (lb/yr)	PM ₁₀ (lb/yr)	CO (lb/yr)	VOC (lb/yr)	NH ₃ (lb/yr)	H ₂ S (lb/yr)
S-6986-1: Cow housing	0	0	17,686	0	32,188	63,771	0
S-6986-2: Liquid manure	0	0	0	0	7,669	22,909	357

Post-Project Stationary Source Potential to Emit (SSPE2)							
Permit Unit	NO _x (lb/yr)	SO _x (lb/yr)	PM ₁₀ (lb/yr)	CO (lb/yr)	VOC (lb/yr)	NH ₃ (lb/yr)	H ₂ S (lb/yr)
S-6986-3: Solid manure	0	0	0	0	1,389	8,539	0
S-6986-4: Feed	0	0	0	0	39,465	0	0
S-6986-5: GDO	0	0	0	0	12	0	0
S-6986-7: Milking	0	0	0	0	1,020	349	0
S-6986-9: IC Engine	451	0	8	60	30	0	0
S-6986-11: IC Engine	4,078	23	146	6,596	96	0	0
SSPE2:	4,529	23	17,840	6,656	81,869	95,568	357

4. Major Source Determination

Rule 2201 Major Source Determination:

Pursuant to Section 3.25 of District Rule 2201, a major source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the threshold values.

In determining whether a facility is a major source, fugitive emissions are not counted unless the facility belongs to certain specified source categories. 40 CFR 71.2 (Definitions, Major Source (2)) states the following:

(2) A major stationary source of air pollutants or any group of stationary sources as defined in section 302 of the Act, that directly emits, or has the potential to emit, 100 tpy or more of any air pollutant (including any major source of fugitive emissions of any such pollutant, as determined by rule by the Administrator). The fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source for the purposes of section 302(j) of the Act, unless the source belongs to one of the following categories of stationary source: (i) Coal cleaning plants (with thermal dryers); (ii) Kraft pulp mills; (iii) Portland cement plants; (iv) Primary zinc smelters; (v) Iron and steel mills; (vi) Primary aluminum ore reduction plants; (vii) Primary copper smelters; (viii) Municipal incinerators capable of charging more than 250 tons of refuse per day; (ix) Hydrofluoric, sulfuric, or nitric acid plants; (x) Petroleum refineries; (xi) Lime plants; (xii) Phosphate rock processing plants; (xiii) Coke oven batteries; (xiv) Sulfur recovery plants; (xv) Carbon black plants (furnace process); (xvi) Primary lead smelters; (xvii) Fuel conversion plants; (xviii) Sintering plants; (xix) Secondary metal production plants; (xx) Chemical process plants; (xxi) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input; (xxii) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels; (xxiii) Taconite ore processing plants; (xxiv) Glass fiber processing plants; (xxv) Charcoal production plants; (xxvi) Fossil-fuel-fired steam

electric plants of more than 250 million British thermal units per hour heat input; or (xxvii) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act.

Because agricultural operations do not fall under any of the specific source categories listed above, fugitive emissions are not counted when determining if an agricultural operation is a major 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."

Since emissions at the dairy are not actually collected, a determination of whether emissions could be reasonably collected must be made by the permitting authority. The California Air Pollution Control Association (CAPCOA) prepared guidance in 2005 for estimating potential to emit of Volatile Organic Compounds from dairy farms. The guidance states that "*VOC emissions from the milking centers, cow housing areas, corrals, common manure storage areas, and land application of manure are not physically contained and could not reasonably pass through a stack, chimney, vent, or other functionally-equivalent opening. No collection technologies currently exist for VOC emissions from these emissions units.*" The District has researched this issue and concurs with the CAPCOA assessment, as discussed in more detail below.

Milk Barn:

A mechanical ventilation system can be utilized to capture the gases emitted from the milk barns. However, in order to capture all of the gases, and to keep an appropriate negative pressure throughout the system, the holding area would also need to be entirely enclosed. No facility currently encloses the holding area since cows are continuously going in and out of the barns throughout the day. The capital required to enclose this large area would also be significant. Since the holding area is primarily kept open, the District cannot reasonably demonstrate that emissions can pass through a stack, chimney, or vent, or other functionally equivalent opening.

Cow Housing:

Although there are smaller dairy farms that have enclosed freestall barns, these barns are not fully enclosed and none of the barns have been found to vent the exhaust through a collection device. The airflow requirements through dairy barns are extremely high, primarily for herd health purposes. The airflow requirements will be even higher in the San Joaquin valley, where temperatures reach in excess of 110 degrees in the dry summer. Collection and control of the exhaust including the large amounts of airflow have not yet been achieved by any facility. Due to this difficulty, the District cannot reasonably demonstrate that emissions can pass through a stack, chimney, or vent for the purpose of reducing emissions.

Manure Storage Areas:

Many dairies have been found to cover dry manure piles. Covering dry manure piles is also a mitigation measure included in District Rule 4570. However, the District was not able to find any facility, which currently captures the emissions from the storage or handling of manure piles. Although many of these piles are covered, the emissions cannot easily be captured. Therefore, the District cannot reasonably demonstrate that these emissions can pass through a stack, chimney, or vent for the purpose of reducing emissions. In addition, emissions from manure piles have been shown to be insignificant from recent studies.

Land Application:

Emissions generated from the application of manure on land cannot reasonably be captured due to the extremely large areas, in some cases thousands of acres, of cropland at dairies. Therefore, the District cannot reasonably demonstrate that these emissions can pass through a stack, chimney, or vent for the purpose of reducing emissions.

Feed Handling and Storage:

Although there are potentially significant emissions from the feed handling and storage operation, an emission factor has not been established. The majority of dairies store the silage piles underneath a tarp or in an AgBag. The entire pile is covered except for the face of the pile. The face of the pile is kept open due to the continual need to extract the silage for feed purposes. The silage pile is disturbed 2-3 times per day. Because of the ongoing disturbance to these piles, it makes it extremely difficult to capture any of the emissions from these piles. A system has not been designed to extract the gases from the face of the pile to capture them. Therefore, the District cannot reasonably demonstrate that these emissions can pass through a stack, chimney, or vent for the purpose of reducing emissions.

Liquid Manure Storage Lagoons/Ponds:

The District has determined that control technology to capture emissions from lagoons (biogas collection systems, for instance) is in use; therefore, these emissions can be reasonably collected and are not fugitive. Therefore, only emissions from the lagoons, storage ponds, and IC engines will be used to determine if this facility is a major source.

The following table compares the non-fugitive Post-Project Stationary Source Potential to Emit to the major source thresholds:

Major Source Determination (lb/year)					
Permit Unit	NO_x	SO_x	PM₁₀	CO	VOC
S-6986-1 Cow housing	0	0	0	0	0
S-6986-2 Liquid manure	0	0	0	0	3,692
S-6986-3 Solid manure	0	0	0	0	0
S-6986-4 Feed	0	0	0	0	0
S-6986-5 GDO	0	0	0	0	12
S-6986-7 Milking operation	0	0	0	0	0
S-6986-9 IC Engine	451	0	8	60	30
S-6986-11 IC Engine	4,078	23	146	6,596	96
Non-Fugitive SSPE	4,529	23	154	6,656	3,830
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No

As shown in the table above, the facility is not a major source.

Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore the following PSD Major Source thresholds are applicable:

PSD Major Source Determination (tons/year)						
Category	NO₂	VOC	SO₂	CO	PM	PM₁₀
Estimated Facility PE before Project Increase	2.3	0.3	0.0	3.3	0.1	0.1
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source?	N	N	N	N	N	N

As shown above, the facility is not an existing major source for PSD for any pollutant.

5. Baseline Emissions (BE)

BE = Pre-project Potential to Emit 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 Section 3.23

As shown in Section VII.C.5 above, the facility is not a Major Source for any criteria pollutant. Therefore, BE = PE1 for all pollutants and emission units.

6. SB 288 Major Modification

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

Since this facility is not a major source for any of the pollutants addressed in this project, this project does not constitute an SB288 major modification.

7. Federal Major Modification

As shown above, this project does not constitute a Major Modification. Therefore, in accordance with District Rule 2201, Section 3.17, this project does not constitute a Federal Major Modification and no further discussion is required.

District Rule 2201, Section 3.17 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification. Additionally, since the facility is not a major source for PM10 (140,000 lb/year), it is not a major source for PM2.5 (200,000 lb/year).

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

Rule 2410 applies to pollutants for which the District is in attainment or for unclassified, pollutants. The pollutants addressed in the PSD applicability determination are listed as follows:

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

The first step of this PSD evaluation consists of determining whether the facility is an existing PSD Major Source or not (See Section VII.C.5 of this document).

In case the facility is an existing PSD Major Source, the second step of the PSD evaluation is to determine if the project results in a PSD significant increase.

In case the facility is NOT an existing PSD Major Source but is an existing source, the second step of the PSD evaluation is to determine if the project, by itself, would be a PSD major source.

Potential to Emit for New or Modified Emission Units vs PSD Major Source Thresholds

As a screening tool, the project potential to emit from all new and modified units is compared to the PSD major source threshold, and if total project potential to emit from all new and modified units is below this threshold, no further analysis will be needed.

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). Therefore the following PSD Major Source thresholds are applicable:

PSD Major Source Determination: Potential to Emit (tons/year)						
Category	NO2	VOC	SO2	CO	PM	PM10
Total PE from New and Modified Units	0	1.8	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 preceding table, the project potential to emit, by itself, does not exceed any of the PSD major source thresholds. Therefore Rule 2410 is not applicable and no further discussion is required.

9. Quarterly Net Emissions Change (QNEC)

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

VIII. Compliance

Rule 1070 Inspections

This rule applies to any source operation, which emits or may emit air contaminants. 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. Therefore, the following conditions will be listed on the permit 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 2010 Permits Required

The provisions of this rule apply to any person who plans to or does operate, construct, alter, or replace any source operation, which may emit air contaminants or may reduce the emission of air contaminants.

Pursuant to Section 4.0, a written permit shall be obtained from the APCO. No Permit to Operate shall be granted either by the APCO or the Hearing Board for any source operation described in Section 3.0, constructed or installed without authorization as required by Section 3.0 until the information required is presented to the APCO and such source operation is altered, if necessary, and made to conform to the standards set forth in Rule 2070 (Standards for Granting Applications) and elsewhere in these rules and regulations.

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 for the following*:

- 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 AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB288 Major Modification or a Federal Major Modification, as defined by the rule.
*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

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

The milk barn, freestall barns and commodity barns are new emission units. The following table is a summary of the daily emissions for each emissions unit:

Emissions unit	Daily Emissions (lb/day)					
	NOx	SOx	PM10	CO	VOC	NH3
S-6986-7: Milking Operation	0.0	0.0	0.0	0.0	2.8	1.0
S-6986-1: Cow Housing - Each Freestall Barn	0.0	0.0	2.3	0.0	16.7	34.7
S-6986-4: Feed - Commodity Barns	0.0	0.0	0.0	0.0	0.0	0.0

As shown in the table above, emissions exceed 2 lb/day and hence BACT is triggered for the following new emission units:

- Milking operation: VOC
- Cow Housing – Freestall Barns: PM10, VOC and NH3

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; therefore BACT is not triggered due to relocation of an emissions unit.

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

$$AIPE = PE2 - (PE1 * (EF2 / EF1))$$

The cow housing corrals, liquid manure management system, solid manure management system and feed handling (silage piles and TMR) are all existing emission units that are being modified to incorporate the mitigation measures of District Rule 4570. These modifications will result in a decrease in VOC and NH3 emissions; hence AIPE is expected to be 0 lb/day for VOC and NH3.

The modifications are assumed to have no quantifiable effect on H2S and PM10 (i.e. PE2 = PE1 for these pollutants). Since there's no change in the emission factors (i.e. HAPE = PE1), AIPE = 0 for these pollutants.

Since AIPE < 2 lb/day for all pollutants, BACT is not triggered for the cow housing corrals, liquid manure management system, solid manure management system and feed handling (silage piles and TMR)

d. SB 288/Federal Major Modification

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

2. Top-Down BACT Analysis

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

Pursuant to the attached Top-Down BACT Analysis in Appendix F, BACT has been satisfied with the following:

Milk Barn:

VOC: Flush/spray down milking parlor after each group of cows is milked

Cow Housing – Freestall Barns:

VOC: 1) Concrete feed lanes and walkways

2) Feed lanes and walkways flushed at least four times per day for mature cows and at least two times per day for support stock

- 3) All animals fed in accordance with National Research Council (NRC) or other District-approved guidelines utilizing routine nutritional analysis for rations
- 4) All exercise pens adequately sloped to promote drainage (minimum of 3% slope where the available space for each animal is 400 square feet or less and minimum of 1.5% slope where the available space for each animal is more than 400 square feet)
- 5) Scraping of freestall barn exercise pens every two weeks using a pull-type scraper in the morning hours except when prevented by wet conditions
- 6) VOC mitigation measures required by District Rule 4570.

NH3: 1) Concrete feed lanes and walkways

- 2) Feed lanes and walkways flushed at least four times per day for mature cows and at least two times per day for support stock
- 3) All animals fed in accordance with National Research Council (NRC) or other District-approved guidelines utilizing routine nutritional analysis for rations
- 4) All exercise pens adequately sloped to promote drainage (minimum of 3% slope where the available space for each animal is 400 square feet or less and minimum of 1.5% slope where the available space for each animal is more than 400 square feet)
- 5) Scraping of freestall barn exercise pens every two weeks using a pull-type scraper in the morning hours except when prevented by wet conditions

PM10: Freestall barn housing with concrete feed lanes and walkways

B. Offsets

Sources that are subject to federal NSR are required to offset the emissions they increase by providing emission reductions. This is generally done with emission reduction credits, or ERCs. There are strict federal requirements for ERCs that can be used to offset emissions increases under NSR. The emission reductions must be (1) real, (2) permanent, (3) quantifiable, (4) enforceable, and (5) surplus. Over time, EPA policies and court determinations have established fairly rigorous definitions and tests for each of these terms.

For certain agricultural operations, it is difficult to demonstrate that emission reductions are real, permanent, quantifiable, enforceable, and surplus – as those terms are defined by EPA and case law. Under SB 700, the air districts are prohibited from requiring offsets for sources for which the above demonstration cannot be made. These sources may include, for example, crop farm fugitive dust, agricultural burning, and non-equipment operations at CAFs. When it becomes possible to demonstrate that emissions (increases and reductions) are real, permanent, quantifiable, enforceable,

and surplus, ERCs may be granted and offsets required. A program to allow this would have to include a regulation that is approved by EPA and incorporated into the State Implementation Plan (SIP). Such regulations specify appropriate quantification methodologies, and other provisions that ensure the reduction meet all the applicable tests, and the regulatory process allows for public review and comment.

To date, California air districts have not succeeded in gaining EPA approval to issue ERCs for agricultural activities. This has been the case even for reductions from on-the-farm equipment that is similar to traditional stationary sources. Therefore, ERCs will not be granted, nor will offsets be required for agricultural sources until the District has adopted the needed regulations, and EPA has approved those regulations and incorporated them into the SIP.

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, and/or
- d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.
- 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 VII.C.7, 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 Potential to Emit greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. The following table is a summary of daily emissions for each new emissions unit:

Emissions unit	Daily Emissions (lb/day)					
	NO _x	SO _x	PM ₁₀	CO	VOC	NH ₃
S-6986-7: Milking Operation	0.0	0.0	0.0	0.0	2.8	1.0
S-6986-1: Cow Housing - Each Freestall Barn	0.0	0.0	2.3	0.0	16.7	34.7
S-6986-4: Feed - Commodity Barns	0.0	0.0	0.0	0.0	0.0	0.0

As shown in the table above, the proposed project does not include new emissions units with potential emissions exceeding 100 lb/day. Therefore, public notice is not triggered under this category.

c. Offset Threshold

The following table compares the SSPE1 and the SSPE2 to the offsets thresholds in order to determine if any thresholds have been surpassed due to this project:

Offsets Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	4,529	4,529	20,000 lb/year	No
SO _x	23	23	54,750 lb/year	No
PM ₁₀	13,866	17,840	29,200 lb/year	No
CO	6,656	6,656	200,000 lb/year	No
VOC	30,410	81,869	20,000 lb/year	No
NH ₃	21,501	95,568	N/A	No
H ₂ S	357	357	N/A	No

As shown above, no offsets thresholds have been surpassed due to this project; therefore public noticing is not required under this category.

d. SSIP > 20,000 lb/year

Public notice is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIP) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIP is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. SSIP = SSPE2 – SSPE1. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively.

The SSIP is compared to the SSIP public notice thresholds in the following table:

Stationary Source Increase in Permitted Emissions [SSIFE] – Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIFE (lb/year)	Public Notice Threshold (lb/yr)	Public Notice Required?
NO _x	4,529	4,529	0	20,000	No
SO _x	23	23	0	20,000	No
PM ₁₀	17,840	13,866	3,974	20,000	No
CO	6,656	6,656	0	20,000	No
VOC	81,869	30,410	51,459	20,000	Yes
NH ₃	95,568	21,501	74,067	20,000	Yes
H ₂ S	357	357	0	20,000	No

As demonstrated in the preceding table, the SSIFE for VOC and NH₃ is greater than 20,000 lb/year. Public notice for SSIFE purposes is therefore 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 under this category.

2. Public Notice Action

As discussed above, public notice is required for this project. Public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation in Tulare County prior to the issuance of the ATCs for the project.

D. Daily Emission Limits (DELs)

Daily Emission Limits (DELs) and other enforceable conditions are required to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.17.1 and 3.17.2, 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 by the number and categories of cows listed in the permit equipment descriptions. In addition, the following condition will be placed on the permit to enforce these requirements:

Cow Housing:

- The total number of cattle housed at the dairy at any one time shall not exceed any of the following limits: 2,550 milk cows, not to exceed a combined total of 2,900 mature cows (milk and dry); 1,385 support stock (heifers and bulls); and 250 calves (0 - 3 months old). [District Rule 2201]

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

Cow Housing:

Based on guidelines from University of Idaho in a document entitled "*Dairy Odor Management & Control Practices*"², the following conditions will be placed on the permit to ensure that emissions from the dairy are minimized:

- Inspection for potholes or other sources of emissions shall be performed on a monthly basis. [District Rule 2201]
- Firm, stable, and not easily eroded soils shall be used for the exercise pens. [District Rule 2201]
- A supply of fill soil shall be kept on site in order to fill areas where erosion and gouging occurs. This will help fill areas where puddles may form. This fill soil shall be covered with a tarp. [District Rule 2201]
- Clean rainfall runoff shall be diverted around exercise pens to reduce the amount of water that is potentially detained on the corral surface. [District Rule 2201]

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offsets, public notification and daily emission limit requirements of Rule 2201. Recordkeeping for the Milk Barns, the Liquid Manure Management System, and the Solid Manure Management System is satisfied with the records that must be kept to demonstrate compliance with the numbers and types of cows listed on the permit equipment description for the Cow Housing. The following conditions will be added to the permit for the Cow Housing:

- Permittee shall maintain a record of the number of animals of each production group at the facility and shall maintain quarterly records of any changes to this information. Such records may include DHIA monthly records, milk production invoices, ration sheets or periodic inventory records. [District Rules 2201 and 4570]
- Permittee shall maintain records of: (1) the number of times feed lanes are flushed per day and (2) the frequency of scraping and manure removal from

² <http://courses.ag.uidaho.edu/bae/bae404/Dairy%20Odor%20Mgmt.pdf>

open corrals; and (3) a log of pothole inspections performed at the dairy. [District Rules 2201 and 4570]

- {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

Additional recordkeeping requirements are shown under the Rule 4570 compliance section.

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis

Section 4.14.1 of this Rule requires that an ambient air quality analysis (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 Technical Services Division of the SJVAPCD conducted the required analysis. Refer to Appendix C of this document for the AAQA summary sheet.

The proposed location is in a non-attainment area for PM₁₀ State standards. The increase in the ambient PM₁₀ concentration due to the proposed dairy expansion is shown on the table titled Calculated Contribution. The District's Interim Significance Level for the State's AAQS, is shown in the table titled Significance Levels.

Significance Levels					
Pollutant	Significance Levels ($\mu\text{g}/\text{m}^3$) – District's Interim Significance Level for the State's AAQS				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
PM ₁₀	2.08	10.4	N/A	N/A	N/A

Calculated Contribution					
Pollutant	Calculated Contributions ($\mu\text{g}/\text{m}^3$)				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
PM ₁₀	0.38	5.40	N/A	N/A	N/A

As shown in the preceding tables, modeling results indicated that the calculated increase in the ambient PM₁₀ concentration due to the proposed dairy project did not exceed the District's significance level. The project is therefore approved.

Rule 2520 Federally Mandated Operating Permits

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

Rule 2550 Federally Mandated Preconstruction Review for Major Sources of Air Toxics

The provisions of this rule only apply to applications to construct or reconstruct a major air toxics source with Authority to Construct issued on or after June 28, 1998.

Under Section 112(g) of the Clean Air Act (administered locally through SJVAPCD Rule 2550, *Federally Mandated Preconstruction Review for Major Sources of Air Toxics*), newly constructed facilities or reconstructed units or sources at existing facilities would be subject to preconstruction review requirements if they have the potential to emit hazardous air pollutants (air toxics) in "major" amounts (10 tons or more of an individual pollutant or 25 tons or more of a combination of pollutants) and the new units are not already subject to a standard promulgated under Section 112(d), 112(j), or 112(h) of the Clean Air Act." Facilities or sources subject to Rule 2550 would be subject to stringent air pollution control requirements, referred to as Maximum Achievable Control Technology (MACT).

The federal Clean Air Act lists 189 substances as potential HAPs (Clean Air Act Section 112(b)(1)). Based on the current emission factor for dairies, the following table outlines the HAPs expected to be emitted at dairies. Since this dairy is complying with Best Available Control Technology (BACT) emissions control requirements, many of the pollutants listed below are expected to be reduced significantly; however, no control is being applied in the emissions estimates in order to calculate worst-case emissions. A conclusion that MACT requirements are triggered would necessarily involve consideration of controlled emissions levels:

Dairy Hazardous Air Pollutant Emissions		
HAP	lb/milk cow-yr	Source
Methanol	1.35	UC Davis - <i>VOC Emission from Dairy Cows and their Excreta</i> , 2005
Carbon disulfide	0.027	Dr. Schmidt - <i>Dairy Emissions using Flux Chambers (Phase I & II)</i> , 2005
Ethylbenzene	0.003	
o-Xylene	0.005	
1,2-Dibromo-3chloropropane	0.011	
1,2,4-Trichlorobenzene	0.025	
Napthalene	0.012	
Hexachlorobutadiene	0.012	
Formaldehyde	0.005	
Acetaldehyde	0.029	
Chloroform	0.017	California State University Fresno (CSUF) - <i>Monitoring and Modeling of ROG at California Dairies</i> , 2005

Dairy Hazardous Air Pollutant Emissions		
HAP	lb/milk cow-yr	Source
Styrene	0.01	
Vinyl acetate	0.08	Dr. Schmidt - <i>Dairy Emissions using Flux Chambers (Phase I & II)</i> & California State University Fresno (CSUF) - <i>Monitoring and Modeling of ROG at California Dairies</i> , 2005
Toluene	0.162	
Cadmium	0.009	Air Resources Board's Profile No. 423, Livestock Operations Dust
Hexavalent Chromium	0.004	
Nickel	0.026	
Arsenic	0.005	
Cobalt	0.003	
Lead	0.033	
Total	1.828	

The emission calculations for HAPs from the proposed dairy are as shown below:

HAP Emissions					
Category	Number of cows	x	Emission Factor lb/hd-yr*	=	lb/yr (tons/yr)
Milk cows	2,550	x	1.828	=	4,661 (2.3)
Dry cows and bulls	385	x	1.123	=	432 (0.2)
Heifers (15-24 mo)	450	x	0.786	=	354 (0.2)
Heifers (7-14 mo)	450	x	0.686	=	309 (0.2)
Heifers (4-6 mo)	450	x	0.621	=	279 (0.1)
Calves (0-3 mo)	250	x	0.584	=	146 (0.1)
Total					= 6,181 (3.1)

* The emission factor has been adjusted for each category of cows using the ratio of amount of manure generated by that category to the amount generated by milk cows.

As shown in the table above, total HAP emissions from this facility are less than 10 tons/year. This demonstrates that the facility is below the 10 tons/year individual HAP threshold as well as the 25 tons/year total HAPs threshold. This facility is therefore not a major air toxics source and the provisions of Rule 2550 do not apply.

There are several recently completed and ongoing research studies that will be considered in future revisions of the current emission factors for dairies. These studies have not been fully vetted or reviewed in the context of establishing standardized emission factors. For instance, although some studies indicate a high methanol emissions rate from fresh manure, the same studies also indicate that the flushing of manure may significantly reduce alcohol emissions, including methanol.

Future review of these studies may indeed result in a change in the current emission factors and/or control efficiencies for various practices and controls, but not until the scientific review

process is complete and the District has had an opportunity to consider public comment on any proposed changes.

Rule 4101 Visible Emissions

Section 5.0 stipulates 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 considered to be exempt.

Pursuant to District Rule 8081, Section 4.1, on-field agricultural sources are exempt from the requirements of Regulation VIII.

An on-field agricultural source is 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;

The units involved in this project are used solely for the raising of dairy animals. Therefore, these units are exempt from the provisions of this rule.

Rule 4102 Nuisance

Section 4.0 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public.

Dairy operation:

This project is proposing BACT and has proposed all mitigation measures required by Rule 4570. Therefore, this dairy is expected to comply with this rule.

California Health & Safety Code 41700 (Health Risk Assessment)

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

An HRA is not required for a project with a total facility prioritization score of less than or equal to 1.0. According to the Technical Services Memo for this project (Appendix C), the total facility prioritization score including this project was less than or equal to 1.0. Therefore, no further analysis is required to determine the impact from this project and compliance with the District's Risk Management Policy is expected.

Rule 4550 Conservation Management Practices (CMP)

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. The facility submitted a CMP Plan application on May 29, 2007. The application was processed and CMP plan issued under project S-1072817.

The facility's CMP plan is currently valid hence compliance with District Rule 4550 is expected.

Rule 4570 Confined Animal Facilities (CAF)

This rule applies to Confined Animal Facilities (CAF) located within the San Joaquin Valley Air Basin. The purpose of this rule is to limit emissions of Volatile Organic Compounds (VOC) from Confined Animal Facilities (CAF).

Section 5.0 Requirements

Pursuant to Section 5.1, owners/operators of any CAF shall submit, for approval by the APCO, a permit application for each Confined Animal Facility.

Pursuant to Section 5.1.2, a thirty-day public noticing and commenting period shall be required for all large CAF's receiving their initial Permit-to-Operate or Authority-to-Construct.

The applicant has submitted an application containing all the requirements above. Since public noticing is required for this project, a public notice will be published in a local newspaper of general circulation prior to the issuance of these ATC's.

Pursuant to Section 5.1.3, owners/operators shall submit a facility emissions mitigation plan of the Permit-to-Operate application or Authority-to-Construct application. The mitigation plan shall contain the following information:

- The name, business address, and phone number of the owners/operators responsible for the preparation and the implementation of the mitigation measures listed in the permit.
- The signature of the owners/operators attesting to the accuracy of the information provided and adherence to implementing the activities specified in the mitigation plan at all times and the date that the application was signed.
- A list of all mitigation measures shall be chosen from the application portions of Sections 5.5 or 5.6.

Pursuant to Section 5.1.4, the Permit-to-Operate or Authority-to-Construct application shall include the following information, which is in addition to the facility emission mitigation plan:

- The maximum number of animals at the facility in each production stage (facility capacity).
- Any other information necessary for the District to prepare an emission inventory of all regulated air pollutants emitted from the facility as determined by the APCO.

- The approved mitigation measures from the facility's mitigation plan will be listed on the Permit to Operate or Authority-to-Construct as permit conditions.
- The District shall act upon the Authority to Construct application or Permit to Operate application within six (6) months of receiving a complete application.

Pursuant to Section 5.1.6, the District shall act upon the Authority to Construct application or Permit to Operate application within six (6) months of receiving a complete application.

Pursuant to Section 5.3, owners/operators of any CAF shall implement all VOC emission mitigation measures, as contained in the permit application, on and after 365 days from the date of issuance of either the Authority-to-Construct or the Permit-to Operate whichever is sooner.

Pursuant to Section 5.4, an owner/operator may temporarily suspend use of mitigation measure(s) provided all of the following requirements are met:

- It is determined by a licensed veterinarian, certified nutritionist, CDFA, or USDA that any mitigation measure being suspended is detrimental to animal health or necessary for the animal to molt, and a signed written copy of this determination shall be retained on-site and made available for inspection upon request.
- The owner/operator notifies the District, within forty-eight (48) hours of the determination that the mitigation measure is being temporarily suspended; the specific health condition requiring the mitigation measure to be suspended; and the duration that the measure must be suspended for animal health reasons,
- The emission mitigation measure is not suspended for longer than recommended by the licensed veterinarian or certified nutritionist for animal health reasons,
- If such a situation exists, or is expected to exist for longer than thirty (30) days, the owners/operators shall, within that thirty (30) day period, submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the mitigation measure that was suspended, and
- The APCO, ARB, and EPA approve the temporary suspension of the mitigation measure for the time period requested by the owner/operator and a signed written copy of this determination shall be retained on site.

The following condition will be placed on each permit.

- {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 Rule 4570]

Section 7.0 Administrative Requirements

Section 7.2 General Records for CAFs Subject to Section 5.0 Requirements:

- Copies of all of the facility's permits
- Copies of all laboratory tests, calculations, logs, records, and other information required to demonstrate compliance with all applicable requirements of this rule, as determined by the APCO, ARB, and EPA.
- Records of the number of animals of each species and production group at the facility on the permit issuance date. Quarterly records of any changes to this information shall also be maintained, (e.g. Dairy Herd Improvement Association records, animal inventories done for financial purposes, etc.)

The following condition will be placed on the cow housing permit:

- {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 Rule 4570]

Specific recordkeeping and monitoring conditions are shown below under the appropriate mitigation measures.

Pursuant to Section 7.9, owners/operators of a CAF subject to the requirements of Section 5.0 shall keep and maintain the required records in Sections 7.1 through 7.8.4, as applicable, for a minimum of five (5) years and the records shall be made available to the APCO and EPA upon request. Therefore, the following condition will be placed on the permit:

- {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 Rule 4570]

Section 7.10 requires specific monitoring or source testing conditions for each mitigation measure. These conditions are shown below with each mitigation measure.

The dairy has chosen the following Mitigation Measures. All conditions required for compliance with Rule 4570 for the mitigation measures selected by the applicant are shown below. These conditions will be placed on the appropriate permits.

General Conditions

- {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 Rule 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 Rule 4570]

Feed Mitigation Measures Required

Required

Feed according to National Research Council (NRC) guidelines.

- {4454} Permittee shall feed all animals according to National Research Council (NRC) guidelines. [District Rule 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 Rule 4570]

Push feed so that it is within three (3) 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.

- {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 Rule 4570]
- {4457} Permittee shall maintain an operating plan/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]

Begin feeding total mixed rations within two (2) hours of grinding and mixing rations.

- {4458} Permittee shall begin feeding total mixed rations within two hours of grinding and mixing rations. [District Rule 4570]
- {4459} Permittee shall maintain an operating plan/record of when feeding of total mixed rations began within two hours of grinding and mixing rations. [District Rule 4570]

Store grain in a weatherproof storage structure or under a weatherproof covering from October through May.

- {4460} Permittee shall store grain in a weatherproof storage structure or under a weatherproof covering from October through May. [District Rule 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 Rule 4570]

Optional

Remove uneaten wet feed from feed bunks within twenty-four (24) hours after the end of a rain event.

- {4464} Permittee shall remove uneaten wet feed from feed bunks within twenty-four (24) hours after the end of a rain event. [District Rule 4570]
- {4465} Permittee shall maintain records demonstrating that uneaten wet feed was removed from feed bunks within twenty-four (24) hours after the end of a rain event. [District Rule 4570]

Silage

Utilize a sealed feed storage system (e.g., Ag-Bag) for bagged silage.

- {4468} For bagged silage/feedstuff, permittee shall utilize a sealed feed storage system (e.g., ag bag). [District Rule 4570]

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.

- {4469} 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]
- {4470} 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]

Build silage piles such that the average bulk density of silage piles 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, or 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, or incorporate the following practices when creating silage piles:

- Harvest silage crop at $\geq 65\%$ moisture for corn; and $\geq 60\%$ moisture for alfalfa/grass and other silage crops; and
- Manage silage material delivery such that no more than six (6) inches of materials are un-compacted on top of the pile.
- Incorporate the following parameters for Theoretical Length of Chop (TLC) and roller opening, as applicable, for the crop being harvested:

<u>Crop Harvested</u>	<u>TLC (inches)</u>	<u>Roller Opening(mm)</u>
Corn with no processing	$\leq 1/2$ in	N/A
Processed Corn <35% dry matter	$\leq 3/4$ in	1 – 4 mm
Alfalfa/Grass	≤ 1.0 in	N/A
Wheat/Cereal Grains/Other	$\leq 1/2$ in	N/A

- {4471} 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]
- {4472} 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]
- {4473} 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]
- {4474} 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]
- {4475} 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]

- {4476} 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]
- {4477} 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]
- {4478} 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]
- {4479} 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]

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 square feet.

Manage multiple uncovered silage piles such that the total exposed surface area of all silage piles is less than 4,300 square feet.

Maintain silage working face use a shaver/facer to remove silage from the silage pile.

Maintain silage working face; maintain a smooth vertical surface on the working face of the silage pile.

Silage Additives: 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.

Silage Additives: 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.

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.

- {4480} 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]
- {4481} 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]
- {4482} For each silage pile that Option 2 (Shaver/Facer or Smooth Face) is chosen as a mitigation measure for building 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]
- {4483} For each silage pile that Option 3 (Silage Additives) is chosen as a mitigation measure for building 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 manufacturer's instructions for application of the additive. [District Rule 4570]

Milking Parlor

Flush or hose milk parlor immediately prior to, immediately after, or during each milking.

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

Freestall Barn

Required

Pave feed lanes, 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.

- {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 Rule 4570]

Optional

Flush, scrape or vacuum freestall lanes immediately prior to, immediately after or during each milking.

- {4487} Permittee shall flush, scrape or vacuum freestall lanes immediately prior to, immediately after or during each milking. [District Rule 4570]
- {4488} Permittee shall maintain records sufficient to demonstrate that freestall lanes are flushed, scraped or vacuumed immediately prior to, immediately after or during each milking. [District Rule 4570]

For a LARGE dairy only (1000 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 seven (7) days.

- {4492} Permittee shall remove manure that is not dry from individual cow freestall beds or rake, harrow, scrape, or grade freestall bedding at least once every seven (7) days. [District Rule 4570]
- {4493} Permittee shall record the date that manure that is not dry is removed from individual cow freestall beds or raked, harrowed, scraped, or freestall bedding is graded at least once every seven (7) days. [District Rule 4570]

Corral

Required

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.

- {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 Rule 4570]

Inspect water pipes and troughs and repair leaks at least once every seven (7) days.

- {4499} Permittee shall inspect water pipes and troughs and repair leaks at least once every seven (7) days. [District Rule 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 Rule 4570]

Clean manure from corrals at least four (4) times per year with at least sixty (60) days between cleaning, or clean corrals at least once between April and July and at least once between September and December.

- {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 Rule 4570]
- {4502} Permittee shall record the date that animal waste is cleaned from corrals or demonstrate that manure from corrals are cleaned at least four (4) times per year with at least sixty (60) days between each cleaning. [District Rule 4570]

Implement one of the following three 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 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.

- {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 Rule 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 Rule 4570]

Optional

Scrape, vacuum or flush concrete lanes in corrals at least once every day for mature cows and every seven (7) days for support stock.

- {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 Rule 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 Rule 4570]

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. The facility must resume management of the manure depth of 12 inches or lower immediately upon the corral becoming accessible.

- {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 Rule 4570]
- {4519} Permittee shall measure and document the depth of manure in the corrals at least once every ninety (90) days. [District Rule 4570]

Solid Manure

Remove dry manure from the facility within seventy-two (72) hours of removal from housing.

Within seventy two (72) hours of solid manure removal from housing, 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 twenty-four (24) hours per event.

- {4526} Within seventy two (72) hours of removal of solid manure from housing, permittee shall either 1) remove dry manure from the dairy, or 2) 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 twenty-four (24) hours per event. [District Rule 4570]
- {4527} Permittee shall keep records of dates when manure is removed from the dairy 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 Rule 4570]
- {4528} Permittee shall maintain records, such as manufacturer warranties or other documentation, demonstrating that the weatherproof covering over dry manure are installed, used, and maintained in accordance with manufacturer recommendations and applicable standards listed in NRCS Field Office Technical Guide Code 313 or 367, or any other applicable standard approved by the APCO, ARB, and EPA. [District Rule 4570]

Liquid Manure

Remove solids from the waste system with a solid separator system, prior to the waste entering the lagoon.

- {4538} Permittee shall remove solids with a solid separator system, prior to the manure entering the lagoon. [District Rule 4570]

Land Application

Solid

Apply no solid manure with a moisture content of more than 50%.

- {4545} Permittee shall not apply solid manure with a moisture content of more than 50%. [District Rule 4570]
- {4546} Permittee shall maintain records of the moisture content of the solid manure each time solid manure is land applied. [District Rule 4570]
- {4547} Moisture content shall be determined using test Methods for the examination of compost and Composting (TMECC) Method 3.09 or any other alternative test method approved by the APCO, ARB, and EPA. [District Rule 4570]

Liquid

Allow liquid manure to stand in the fields for no more than twenty-four (24) hours after irrigation.

- {4550} Permittee shall not allow liquid manure to stand in the fields for more than twenty-four (24) hours after irrigation. [District Rule 4570]
- {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]

Based on the preceding analysis, compliance with this rule is expected.

California Health and Safety Code 42301.6 (School Notice)

The applicant states 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 Senate Bill 700 (SB 700)

Circle A Dairy is an agricultural operation that raises dairy cows for the production of milk for human consumption. Pursuant to Senate Bill (SB) 700, all agricultural operations, including Confined Animal Facilities (CAF), with emissions greater than ½ the major source emissions threshold levels (5 tons/year of NO_x or VOC), are required to obtain a District permit.

Both the pre-project and post-project emissions from the dairy exceed the 5 ton-VOC/year threshold and the dairy is classified as a large CAF by the California Air Resources Board (ARB). The facility has District Permits to Operate (PTO) for the existing dairy operation and has applied for ATC permits for the proposed expansion; therefore compliance with the requirements of SB 700 is expected.

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (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 San Joaquin Valley Unified Air Pollution Control District (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.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Greenhouse Gas (GHG) Significance Determination

It is determined that another agency has prepared an environmental review document for the project. The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381). As a Responsible Agency, the District is limited to mitigating or avoiding impacts for which it has statutory authority. The District does not have statutory authority for regulating greenhouse gas emissions. The District has determined that the applicant is responsible for implementing greenhouse gas mitigation measures, if any, imposed by the Lead Agency.

District CEQA Findings

The County of Tulare (County) is the public agency having principal responsibility for approving the project. As such, the County of Tulare served as the Lead Agency (CCR §15367). In approving the project, the Lead Agency prepared and adopted a Negative Declaration. The Lead agency filed a Notice of Determination, stating that the Negative Declaration was adopted pursuant to the provisions of CEQA and concluding that the project would not have a significant effect on the environment.

The District is a Responsible Agency for the project because of its discretionary

approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CCR §15381). As a Responsible Agency the District complies with CEQA by considering the environmental document prepared by the Lead Agency, and by reaching its own conclusion on whether and how to approve the project (CCR §15096).

The District has considered the Lead Agency's environmental document and finds that it characterizes the project's potential impact on air quality. In addition, all feasible and cost-effective control measures to reduce potential impacts on air quality resulting from project related stationary source emissions have been applied to the project as part of BACT. Furthermore, the District has conducted an engineering evaluation of the project, incorporated herein by reference, which demonstrates that Stationary Source emissions from the project would be reduced. Thus, the District finds that through a combination of project design elements, compliance with applicable District rules and regulations, and compliance with District air permit conditions, project specific stationary source emissions would be reduced to lessen the impacts on air quality. The District does not have authority over any of the other project impacts and has, therefore, determined that no additional findings are required (CEQA Guidelines §15096(h)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful Public Noticing period, issue Authorities to Construct S-6986-1-1, 2-1, 3-1, 4-1 and 7-0, subject to the permit conditions on the attached draft Authorities to Construct in Appendix E.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-6986-1-1	3020-06	Cow Housing	\$105
S-6986-2-1	3020-06	Liquid Manure Handling System	\$105
S-6986-3-1	3020-06	Solid Manure Handling System	\$105
S-6986-4-1	3020-06	Feed Storage and Handling	\$105
S-6986-7-0	3020-06	Milk Barn	\$105

XI. Appendices

- A: Commencement of Construction Determination Memo
- B: Emissions Calculations
- C: Summary of Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA)
- D: BACT Analysis
- E: Draft ATCs

APPENDIX A

Commencement of Construction Determination Memo



San Joaquin Valley Air Pollution Control District

OFFICE MEMO

DATE: September 15, 2008

TO: File #S-6986, 1065221

FROM: Jonah Aiyabei, Air Quality Engineer

SUBJECT: Determination of Commencement of Construction – Circle A Dairy

Pursuant to Senate Bill 700 and District Rule 2201, *New Source Review Rule*, all agricultural operations including Confined Animal Feeding Operations (CAFO) that commenced construction after January 1, 2004 with emissions greater than ½ the major source threshold levels (12.5 tons of NO_x or VOC) are required to obtain an Authority to Construct (ATC) permit.

Based on the permit application information, Circle A Dairy has a herd of 2,550 milk cows and 1,918 support stock. The estimated annual VOC emissions from the dairy using the VOC emission factor (12.8 lb/milk cow-year) that was in effect on January 1, 2004 are 43,692 pounds or 21.8 tons. Since emissions exceed the permit requirement threshold of 12.5 tons of VOC, the dairy became subject to District permit requirements on January 1, 2004.

The District will grandfather all permit units that commenced construction prior to January 1, 2004 and will issue a Permit to Operate for those permits. For those permit units that did not commence construction prior to January 1, 2004, an application for an Authority to Construct permit is required. These permit units will also be subject to District Rule 2201, *New and Modified Stationary Source Review Rule*, which requires Best Available Control Technology (BACT) for new emissions units which result in an increase in permitted emissions greater than 2.0 lb/day.

Commencement of construction as defined in Rule 2050, *Cancellation of Application*, states, "the owner or operator has all necessary pre-construction approvals or permits and either has:

- *Begun, or caused to begin, a continuous program of actual onsite construction of the source to be completed within a reasonable time; or*
- *Entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the source to be completed within a reasonable time."*

The District requested information from Circle A Dairy regarding its construction activities in order to determine if construction commenced prior to or after January 1, 2004. On July 25, 2008, the facility's consultant, submitted the requested information.

The information provided has been analyzed to determine if the key criteria for commencement of construction, as explained below, have been met:

- Pre-Construction Approvals - the applicant must demonstrate that all the necessary permits, such as conditional use permits and building permits, were obtained prior to the subject commencement of construction date.
- Binding contracts for construction, substantial planning and capital expenditure - the applicant must demonstrate that binding contracts for the construction of the emission unit were entered into prior to the subject date, and that reneging on those contracts would have resulted in significant financial loss. The applicant may also demonstrate that a significant amount of planning and expenditure, such as the purchase of construction materials, had been invested in the emission unit prior to the subject commencement of construction date.
- Actual Construction – alternatively, the applicant may demonstrate that a minimum level of actual construction (beyond rough grading and land clearing) had been started on the emission unit prior to the subject date. The applicant must also demonstrate that such construction was continuous (normal delays such as rainy weather are not counted in determining if construction was continuous).

The analysis of the information submitted is as shown under the following sections:

Project Timeline:

Project Approval:

3/10/1999 - Special Use Permit (98-055) issued by Tulare County. Project approval was based on a Negative Declaration CEQA document.

Following Special Use Permit issuance, Attorney General's office sued Tulare County challenging the approval of the project on a Negative Declaration.

8/19/1999 - A settlement agreement was reached. The settlement required Tulare County to add a Bovine/Dairy Animal Confinement Facilities Plan (ACFP) to the Environmental Resources Element of the of the County's General Plan and prepare a Program Environmental Impact Report (Program EIR) for the required General Plan amendment.

4/11/2000 - Tulare County adopted the General Plan Amendment after completion of the required EIR.

5/10/2000 - Center on Race, Poverty and the Environment (CRPE) sued Tulare County challenging the Program EIR.

6/12/2001 - Tulare County and CRPE entered into a settlement agreement, in which Tulare County agreed to prepare a supplement to the Program EIR.

Since the CRPE/Tulare County settlement stood in the way of the implementation of the original Attorney General/Tulare County settlement agreement, the parties involved elected to abandon the settlements and proceed with litigation.

3/06/2003 - Court ruled in favor of Tulare County's original project approval.

5/27/2003 - Attorney General's office filed a notice of appeal against the court's ruling.

6/25/2003 - The project proponent filed a notice of appeal.

11/24/2003 - Tulare County, Attorney General and project proponent enter into a new settlement agreement to resolve all pending legislation.

11/25/2003 - Tulare County adopted the settlement agreement, thereby granting approval for the project to proceed.

A copy of the project approval document is included as Attachment I.

Construction Activities:

11/1998 - Excavation of lagoon and separation ponds, land leveling, formation of corral and road pads for feedlot phase of the project.

11/1998 - Installation of liquid manure pipe system and flush valves.

11/1998 - Electrical work for fuel tank and feed (molasses, minerals) tanks pump motors.

12/1998 - Construction/completion of heifer corrals.

7/05/1999 - Installation of electrical connections for corral flush system and lighting.

1998 to 2003 - Various other site improvement activities were conducted at the project site. The improvement activities are related to the on-going crop farming at the site, the establishment of a heifer ranch, and preparations for the establishment of the dairy. The applicant indicated that a total of \$28,934 was invested in the dairy's milk barn; \$188,378 in dairy housing facilities; \$67,016 in liquid manure management facilities; \$11,488 in solid manure management facilities and \$122,324 in facilities for land application of manure. The applicant indicated that a further \$206,494 was invested in miscellaneous project expenses.

Copies of documents showing construction activities are included as Attachment II.

Pre-Construction Approvals:

Milk Barn:

In Tulare County, a Special Use Permit and a building permit are required for the construction of a milk barn. Circle A Dairy obtained a Special Use Permit prior to January 1, 2004, but did not obtain a milk barn building permit prior to January 1, 2004. Since the building permit was not issued prior to January 1, 2004, Circle A Dairy did not have all the required pre-construction approvals for the milk barn prior to January 1, 2004.

Cow Housing – freestall barns:

The proposed dairy uses freestall barns for housing milk cows.

A Special Use Permit and a building permit are required for the construction of freestall barns. Circle A Dairy obtained a Special Use Permit prior to January 1, 2004, but did not obtain any freestall barn building permits prior to January 1, 2004. Since the freestall barn building permits were not issued prior to January 1, 2004, Circle A Dairy did not have all the required pre-construction approvals for the freestall barns prior to January 1, 2004.

Cow Housing – corrals:

The proposed dairy uses open corrals for housing support stock (dry cows, heifers, calves and mature bulls).

Only a Special Use Permit is required for the construction of open corrals. Since Circle A Dairy obtained the Special Use Permit prior to January 1, 2004, it had all the required pre-construction approvals for the open corrals prior to January 1, 2004.

Liquid Manure Management System:

Only a Special Use Permit is required for the construction of a liquid manure management system. Since Circle A Dairy obtained the Special Use Permit prior to January 1, 2004, it had all the required pre-construction approvals for the liquid manure management system prior to January 1, 2004.

Solid Manure Management System:

Only a Special Use Permit is required for the construction of a solid manure management system. Since Circle A Dairy obtained the Special Use Permit prior to January 1, 2004, it had all the required pre-construction approvals for the solid manure management system prior to January 1, 2004.

Feed Storage and Handling System – feed storage/commodity barns:

A Special Use Permit and building permits are required for the construction of feed storage/commodity barns. Circle A Dairy obtained a Special Use Permit prior to January 1, 2004, but did not obtain any feed storage/commodity barn building permits prior to January 1, 2004. Since the feed storage/commodity barn building permits were not

issued prior to January 1, 2004, Circle A Dairy did not have all the required pre-construction approvals for the feed storage/commodity barns prior to January 1, 2004.

Feed Storage and Handling System – silage pads:

Only a Special Use Permit is required for the construction of silage pads. Since Circle A Dairy obtained the Special Use Permit prior to January 1, 2004, it had all the required pre-construction approvals for the silage pads prior to January 1, 2004.

Gasoline Storage Tank:

Only a Special Use Permit is required for the installation of a gasoline storage tank. Since Circle A Dairy obtained the Special Use Permit prior to January 1, 2004, it had all the required pre-construction approvals for the gasoline storage tank prior to January 1, 2004.

Binding Construction Contract and/or Significant Capital Expenditure:

The information provided did not demonstrate that Circle A Dairy entered into any binding construction contracts prior to January 1, 2004.

Actual On-site Construction:

Milk Barn:

The information provided did not demonstrate sufficiently that any actual construction of the milk barn occurred prior to January 1, 2004.

Cow Housing - Freestall Barns:

The information provided did not demonstrate sufficiently that any actual construction of the freestall barns occurred prior to January 1, 2004.

Cow Housing - Corrals:

The information provided demonstrated sufficiently that construction of the corrals commenced prior to January 1, 2004. Some of the work done prior to January 1, 2004 includes grading, paving, flush system installation, and electrical lighting.

Liquid Manure Management System:

The information provided demonstrated sufficiently that construction of the liquid manure management system commenced prior to January 1, 2004. The documents provided demonstrate that excavation of the lagoon and separation pits, laying down of piping and installation of flush valves were done in 1998. The documents provided also demonstrated that the electrical connections for the liquid manure flush system were done in 1999.

Solid Manure Management System:

The information provided demonstrated sufficiently that construction of the solid manure management system commenced prior to January 1, 2004. The documents provided demonstrate that majority of the concrete work, which typically includes solid manure processing areas and stacking pads, was done between 1998 and 2000.

Feed Storage and Handling System – Feed Storage/Commodity Barns:

The information provided did not demonstrate sufficiently that any actual construction of the feed storage/commodity barns occurred prior to January 1, 2004.

Feed Storage and Handling System – Silage Pads:

The information provided demonstrated sufficiently that construction of the silage pads commenced prior to January 1, 2004. The documents provided demonstrated that majority of the concrete work, which typically includes silage pads, was done between 1998 and 2000.

Gasoline Storage Tank:

The information provided demonstrated sufficiently that installation of the gasoline storage tank commenced prior to January 1, 2004. Some of the work done prior to January 1, 2004 includes installation of the electrical connection for the fuel pump.

Conclusion:

Milk Barn – Did not commence construction prior to January 1, 2004

Since all the necessary pre-construction approvals were not obtained prior to January 1, 2004, construction of the milk barn could not have commenced prior to January 1, 2004.

Cow Housing – Freestall Barns - Did not commence construction prior to January 1, 2004

Since all the necessary pre-construction approvals were not obtained prior to January 1, 2004, construction of the freestall barns could not have commenced prior to January 1, 2004.

Cow Housing – Corrals - Commenced construction prior to January 1, 2004

Construction of the corrals commenced prior to January 1, 2004, since all the necessary pre-construction approvals were obtained prior to January 1, 2004 and actual construction commenced prior to January 1, 2004. Corral housing is therefore an existing emission unit that should be grandfathered into permit.

Liquid Manure Management System – Commenced construction prior to January 1, 2004

Construction of the liquid manure management system commenced prior to January 1, 2004, since all the necessary pre-construction approvals were obtained prior to January 1, 2004 and actual construction commenced prior to January 1, 2004. The liquid manure management system is therefore an existing emission unit that should be grandfathered into permit.

Solid Manure Management System – Commenced construction prior to January 1, 2004

Construction of the solid manure management system commenced prior to January 1, 2004, since all the necessary pre-construction approvals were obtained prior to January 1, 2004 and actual construction commenced prior to January 1, 2004. The solid manure management system is therefore an existing emission unit that should be grandfathered into permit.

Feed Storage and Handling System – Feed Storage/Commodity Barns - Did not commence construction prior to January 1, 2004

Since all the necessary pre-construction approvals were not obtained prior to January 1, 2004, construction of the feed storage/commodity barns could not have commenced prior to January 1, 2004.

Feed Storage and Handling System – Silage Pads - Commenced construction prior to January 1, 2004

Construction of the silage pads commenced prior to January 1, 2004, since all the necessary pre-construction approvals were obtained prior to January 1, 2004 and actual construction commenced prior to January 1, 2004. The silage pads therefore constitute an existing emission unit that should be grandfathered into permit.

Gasoline Storage Tank – Commenced construction prior to January 1, 2004

Construction of the gasoline storage tank commenced prior to January 1, 2004, since all the necessary pre-construction approvals were obtained prior to January 1, 2004 and actual construction commenced prior to January 1, 2004. The gasoline storage tank is therefore an existing emission unit that should be grandfathered into permit.

Recommendation:

Authority to Construct permits are required for the Milk Barn, Cow Housing (Freestall Barns), and Feed Storage and Handling (Feed Storage/Commodity Barns). Permits to Operate are required for the Cow Housing (Corrals), Liquid Manure Management System, Solid Manure Management System, Feed Storage and Handling (Silage Pads), and Gasoline Storage Tank.

Attachments:

Attachment I: Copy of Project Approval Document

Attachment II: Summary of Construction and Site Improvement Activities

Attachment I

Copy of Project Approval Document

JUL 25 2008

Permits Srvc
SJVAPCD

BEFORE THE BOARD OF SUPERVISORS
COUNTY OF TULARE, STATE OF CALIFORNIA

**WORKING
COPY**

IN THE MATTER OF ANNOUNCEMENT
FROM CLOSED SESSION

RESOLUTION NO. 2003-0917

Agreement No. 21815

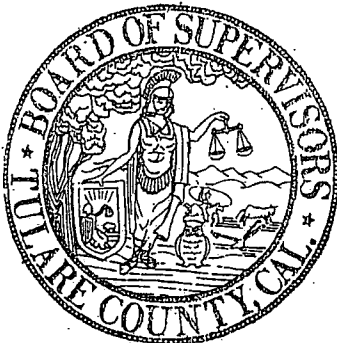
UPON MOTION OF SUPERVISOR CONWAY, SECONDED BY SUPERVISOR SANDERS, THE FOLLOWING WAS ADOPTED BY THE BOARD OF SUPERVISORS AT AN OFFICIAL MEETING HELD NOVEMBER 25, 2003, BY THE FOLLOWING VOTE:

AYES: Supervisors Sanders, Conway, Moheno, Worthley and Maples

NOES: None

ABSTAIN: None

ABSENT: None



ATTEST: JANET HOGAN
ADMINISTRATIVE OFFICER/CLERK
BOARD OF SUPERVISORS

BY: 

Deputy Clerk

In the matter of People v. Tulare County Resource Management Agency (Airosa), Tulare County Trial Court Case No. 99-186554, the Board voted to approve settlement, which is made final by the Board's action, which applies to certain density standards and monetary requirements to Mr. Airosa. There is no admission of liability. Reference should be made to the full settlement agreement for further particulars.

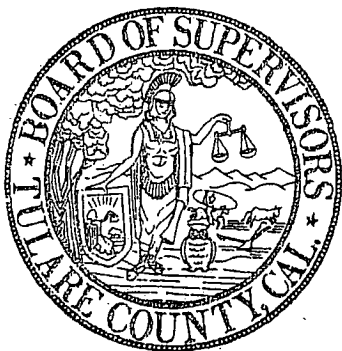
Co. Counsel
CAO
Auditor

11/25/03
OG

STATE OF CALIFORNIA
COUNTY OF TULARE
BOARD OF SUPERVISORS

RESOLUTION NO. 2003-0917

I, JANET HOGAN, Clerk, Board of Supervisors do hereby certify the attached to be a full, true and correct copy of an original order made and entered by said Board on November 25, 2003, as the same appears of record and county file in my office. Witness my hand and seal of said Board of Supervisors this 26th Day of November, 2003.



JANET HOGAN
Clerk, Board of Supervisors

BY: _____

Deputy Clerk

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SETTLEMENT AGREEMENT

Re People v. Tulare County Resource Management Agency (Airosa),
(Tulare Co. Sup. Ct., Case No. 99-186554, Fifth App. Dist., Case No. F043219)
Affecting Real Property

This Settlement Agreement ("Agreement") is entered into by and between the People of the State of California, ex rel. Bill Lockyer, Attorney General ("People"); the Tulare County Resource Management Agency ("TCRMA"); and Joseph Airosa and Diane Airosa (the "Airosas"). The signatories to this Agreement shall be referred to individually as "Party" and collectively as "Parties." As used in this Agreement, "County" shall refer to the County of Tulare, which includes the Tulare County Board of Supervisors, the Tulare County Planning Commission, and TCRMA.

RECITALS

A. This Agreement arises out of an action entitled People of the State of California ex. rel. Bill Lockyer v. Tulare County Resource Management Agency, Tulare County Superior Court, Case No. 99-186554 (the "Case").

B. The People initiated the action by filing a petition for writ of mandate pursuant to the California Environmental Quality Act, Public Resources Code section 21000 et seq. The petition challenged TCRMA's approval of a Special Use Permit to establish a new dairy of 3,600.8 animal units, described in the Application for Special Use Permit PSP 98-055, on a negative declaration and named the Airosas as the real parties in interest. A copy of Special Use Permit PSP 98-055 is attached as **Exhibit 1** and incorporated by reference.

C. As used in this Agreement, "Project" shall refer to the project described in Special Use Permit PSP 98-055, together with all conditions and restrictions specifically set forth in this Agreement. A description of all real property included in the Project is attached as **Exhibit 2** and incorporated by reference.

D. In August 1999, the Parties entered into a Stipulation of Counsel Re: Settlement and Case Management, which the parties believed would lead to final resolution of the Case without resort to litigation. The Stipulation was entered as an Order of the Court on or about August 19, 1999 ("Stipulation and Order").

TULARE COUNTY AGREEMENT NO. 2815

1 E. The Stipulation and Order required, among other things, that TCRMA take all
2 reasonable and legally required steps to establish and add a Bovine/Dairy Animal Confinement
3 Facilities Plan ("ACFP") to the Environmental Resources Element of the Tulare County General
4 Plan ("General Plan Amendment") and prepare a Program Environment Impact Report
5 ("Program EIR") for such General Plan Amendment.

6 F. TCRMA completed its General Plan Amendment and Program EIR and adopted
7 the General Plan Amendment on April 11, 2000, pursuant to Resolution No. 2000-258 of the
8 Tulare County Board of Supervisors.

9 G. On May 10, 2000, a third party, the Center on Race, Poverty and the Environment
10 ("CRPE"), challenged the Program EIR (CRPE v. County of Tulare, et al., Tulare County
11 Superior Court, Case No. 190937).

12 H. On June 12, 2001, CRPE and the County entered into a settlement agreement
13 under which the County agreed to supplement the Program EIR. To date, the Supplemental
14 Program EIR has not been circulated for public review.

15 I. The additional time required to supplement the Program EIR adversely affected
16 the Parties' ability to perform under the Stipulation and Order. Accordingly, the Parties elected
17 to proceed to litigation.

18 J. The Case was tried before the Honorable Melinda M. Reed on September 20,
19 2002, and October 7, 2002. The court entered Judgment Denying Petition for Writ of Mandate
20 on March 26, 2003. The People filed a Notice of Appeal on May 27, 2003. The Airosas filed a
21 Notice of Appeal on June 25, 2003.

22 K. By this Agreement, the Parties agree to fully, finally and forever resolve and settle
23 the Case, including all associated appeals.

24 THEREFORE, in consideration of the pending appeals, the Parties agree as follows:

25 1. Settlement of Case. The Parties agree to settle the Case on the terms and
26 conditions set forth in this Agreement. Upon execution of this Agreement by all Parties, the
27 People and the Airosas agree promptly to take any and all appropriate action to dismiss the
28 appeals filed in this case.

1 2. Animal Density Policies. The Airosas agree to comply with the following
2 provisions of the current Locational and Animal Density Policies and Standards of the ACFP
3 ("Policies and Standards") adopted by the Tulare County Board of Supervisors on April 11,
4 2000, through Resolution No. 2000-258: Policies Number 1, 2, 6, and 7, except that the
5 application of Policy Number 2 shall be deferred until the County adopts an implementing
6 ordinance for said policy. The Policies and Standards are attached as **Exhibit 3** and incorporated
7 by reference. In connection with the application of the ACFP to the Project, the Parties agree that
8 if there is a conflict between the provisions of Special Use Permit PSP 98-055 and Policies
9 Number 1, 2, 6 or 7 of the ACFP, the provisions of the ACFP shall control, except as stated in
10 this paragraph.

11 3. Kit Fox Protection. 82.02 acres of the Project site (APNs 293-170-007 and 293-
12 190-033) have been determined by U.S. Fish and Wildlife Service to be San Joaquin kit fox
13 habitat with potential long-term conservation value. This specific area, referred to as the Delano
14 Relay Station, is surrounded by agricultural lands, is reasonably close to existing protected
15 habitats, and may be utilized by San Joaquin kit foxes for denning and foraging purposes. The
16 Delano Relay Station site is subject to the conservation easement contained in Quitclaim Deed
17 No 97-052931, Official Records, Tulare County; to condition B.3 of Special Use Permit PSP 98-
18 055; and to other laws and regulations that apply. The Airosas agree that they will not place
19 more than 80 animals on the Delano Relay Station site at any one time. The restrictions on the
20 use of the Delano Relay Station site set forth in this paragraph are intended to offset potential
21 impacts to biological resources that may be caused by the Project.

22 4. Pilot Project. The Airosas have worked with TCRMA to develop, and have
23 agreed to implement, innovative measures to analyze and manage (1) air contaminants, including
24 dust and ozone precursors; and (2) ground and surface water contamination. These measures,
25 which include a three-year pilot project, are described in **Exhibit 4**, which is incorporated by
26 reference.

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1 5. Monitoring and Reporting. The Airosas have worked with the TCRMA to
2 develop, and have agreed to implement soil and water quality monitoring and reporting. These
3 measures are described in **Exhibit 4**, which is incorporated by reference.

4 6. Implementation. Once this Agreement has been fully executed, the Airosas may
5 proceed with the Project, consistent with the terms of this Agreement, Special Use Permit PSP
6 98-055, and the "Plan" without any additional discretionary approval from the County. However,
7 the Airosas are still required to obtain, and may obtain without the need to amend this
8 Agreement, any ministerial or non-discretionary approvals (e.g., building permit, well permit,
9 etc.) applicable to this Project from the County or any other public entity.

10 7. Advice of Counsel and Preparation of Agreement. Each of the Parties is
11 represented by counsel and has been assisted by counsel in determining whether to enter into this
12 Agreement. This Agreement has been jointly drafted. Accordingly, Civil Code section 1654
13 does not apply, and this Agreement shall be construed fairly and evenly, not strictly for or against
14 any party.

15 8. Amendment. The terms, covenants, and conditions of this Agreement may not be
16 substantially altered, changed, or modified except by a writing signed by all Parties. A change
17 that constitutes a "minor modification" as defined in Section 18 of the Tulare County Zoning
18 Ordinance is not a "substantial change" as used in this paragraph. In the event that the Airosas
19 seek to modify, amend or change the Project, this paragraph does not relieve the Airosas of their
20 obligation to comply with any applicable County ordinances and required County procedures
21 (e.g., applying for an amended special use permit, seeking a variance, or establishing compliance
22 with the "minor modification" provision of Section 18 of the Tulare County Zoning Ordinance).

23 11. Attorneys' Fees Incurred in Case. The Parties agree to waive all attorneys' fees
24 and costs incurred in this Case to date. The parties do not waive any rights they may have under
25 existing law to seek or defend against fees and costs should enforcement of this Agreement be
26 required. This agreement does not create a right to recover attorneys' fees and costs by any party.

27 12. Authority of Parties. Each signatory to this Agreement certifies that he or she is
28 fully authorized by the party he or she represents to enter into this Agreement, to execute it on

1 behalf of the Party represented, and to legally bind the Party represented. In this action, the
2 Attorney General represents, in his independent capacity, the People and no other state agency or
3 entity.

4 13. Binding Effect. Unless otherwise required by law, the Agreement shall apply to,
5 and be binding on, the People and the County, the Airosas, and/or the heirs, successors, assigns,
6 agents and employees of each of them. The People and the Airosas acknowledge that the role of
7 the County under the Agreement is limited to the nondiscretionary duties of monitoring and
8 ensuring the Airosas' compliance with the terms of the Agreement, except that the County may
9 exercise its discretion to take any and all enforcement action allowed by law, whether
10 administrative, judicial, or both.

11 14. Captions and Subject Headings. The captions and subject headings in this
12 Agreement are for the convenience and reference of the Parties only, and the words contained in
13 them shall not be used in construing this Agreement, and shall not effect the meaning or the
14 construction or interpretations of any of the Agreement's provisions.

15 15. Compliance with Law. Nothing in this Agreement relieves the Airosas of their
16 obligation to comply with any other applicable laws, rules, regulations, or policies, including
17 those administered by the California Regional Water Quality Control Board, and the County's
18 monitoring, compliance, and enforcement policies and ordinances applicable to special use
19 permits in general and bovine dairy animal confinement facilities in particular.

20 16. Compromise. This Agreement is the compromise of disputed claims, and nothing
21 contained herein is to be construed as an admission of liability by any Party. Airosas and the
22 County expressly deny liability.

23 17. Cooperation; Further Assurances. The Parties shall take such actions, or execute,
24 acknowledge, and deliver, or obtain the execution, acknowledgment, and delivery of such
25 instruments, as are reasonably necessary, appropriate, or desirable to give effect to the provisions
26 of this Agreement.

27 18. Counterparts. The Agreement may be executed in any number of counterparts,
28 and each such counterpart shall be deemed to be an original instrument, and all of which together

1 shall constitute one and the same instrument.

2 19. Entire Agreement; Consent Freely Given. This Agreement constitutes the sole
3 and only agreement among the Parties respecting the Case, sets forth the Parties' obligations to
4 each other, and constitutes the entire agreement between the Parties.

5 20. Governing Law; Venue. This Agreement shall be controlled by, and is to be
6 construed under, the laws of the State of California, the state in which the Agreement is
7 executed. Any action arising under this Agreement shall be filed in the Superior Court of Tulare
8 County, California.

9 21. Notices. All notices and other communications required under this Agreement
10 shall be in writing, and shall be deemed to have been duly given on the date of service, if served
11 personally on the agent for receipt of notice for the Party to whom notice is to be given, or in lieu
12 of such personal service, when delivered by certified or registered mail, postage prepaid, return
13 receipt requested, or by overnight courier service, to the addresses set out in this paragraph.
14 Notices sent by certified mail will be deemed delivered on the date indicated on the return
15 receipt, whether it be the date delivered or the date returned for failure to accept. Notices sent by
16 courier service will be deemed delivered on the date indicated on the courier's delivery receipt,
17 whether it be the date delivered or the date returned for failure to accept. Any party may change
18 its address for purpose of this paragraph by giving written notice of such change to all other
19 Parties in the manner provided in this paragraph. The Parties' respective agents for receipt of
20 notice are as follows:

21 For the People:

22 Harrison M. Pollak
23 Deputy Attorney General
24 California Attorney General's Office
25 1515 Clay Street, 20th Floor
26 P. O. Box 70550
27 Oakland, California 94612-0550

26 For the County:

27 Michael C. Spata
28 Deputy County Counsel
Office of the Tulare County Counsel
2900 West Burrell
County Civil Center

31. Receipt of Agreement. Each party acknowledges receipt of a full and complete copy of this Agreement.

Dated: November 12, 2003

BILL LOCKYER
Attorney General
THEODORA BERGER
Assistant Attorney General
KEN ALEX
Supervising Deputy Attorney General
JANILL RICHARDS
Deputy Attorney General

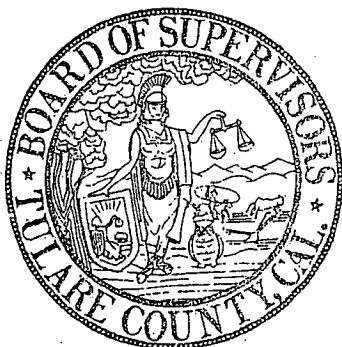
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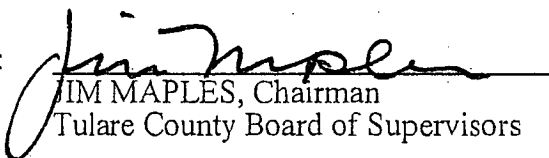
HARRISON POLLAK
Deputy Attorney General
Attorneys for the People of the State of California,
ex. rel. Bill Lockyer, Attorney General

Dated: November __, 2003

COUNTY OF TULARE

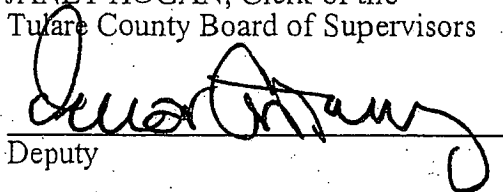


By:



JIM MAPLES, Chairman
Tulare County Board of Supervisors

Attest: JANET HOGAN, Clerk of the
Tulare County Board of Supervisors



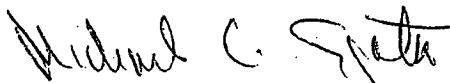
Deputy

Approved as to form:

Dated: November 24, 2003

KATHLEEN BALES-LANGE
Tulare County Counsel

By:



MICHAEL C. SPATA
Deputy County Counsel
Attorneys for the Tulare County Resource
Management Agency

1 Dated: November 14, 2003

2
3 Joseph Airoso
JOSEPH AIROSA

4 Dated: November 14, 2003

5 Diane Airoso
6 DIANE AIROSA

7 Approved as to form:

8 Dated: November 14, 2003

GRISWOLD, LaSALLE, COBB DOWD & GIN, LLP

9
10 By:

Raymond L. Carlson
RAYMOND L. CARLSON

11 Attorneys for Joseph Airoso and Diane Airoso
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EXHIBIT 1

BEFORE THE PLANNING COMMISSION

COUNTY OF TULARE, STATE OF CALIFORNIA

IN THE MATTER OF SPECIAL USE PERMIT)

APPLICATION NO. PSP 98-055)

RESOLUTION NO. 7758

Resolution of the Planning Commission of the County of Tulare approving a Special Use Permit requested by Joe Airosa, 18809 Road 64, Tulare, CA 93274 for the establishment of a new dairy in the AE-40 (Exclusive Agricultural - 40 acre minimum) Zone, on property located on the west side of Road 96, at the Avenue 112 alignment, northwest of Pixley.

WHEREAS, an application has been filed pursuant to the regulations contained in Section 16 of Ordinance No. 352, the Zoning Ordinance, and

WHEREAS, the Planning Commission has given notice of its intention to consider the granting of a Special Use Permit as provided in Section 18 of said Ordinance No. 352 and as provided in Section 65905 of the Government Code of the State of California, and

WHEREAS, Staff has performed necessary investigations, prepared a written report, and recommended approval of this application subject to conditions, and

WHEREAS, a public hearing was held and an opportunity for public testimony was provided at a regular meeting of the Planning Commission on March 10, 1999, and

WHEREAS, at that meeting of the Planning Commission public testimony was received and recorded from Joe Airosa, the applicant, and Harlan Westbrook, agent in support of the proposal and no one spoke in opposition to the proposal.

NOW, THEREFORE, BE IT RESOLVED as follows:

A. This Planning Commission hereby certifies that it has reviewed and considered the information contained in the Negative Declaration for the proposed project together with any comments received during the public review process, in compliance with the California Environmental Quality Act and the State Guidelines for the Implementation of the California Environmental Quality Act of 1970 prior to taking action on the project.

B. This Planning Commission hereby adopts the following findings of fact as to the reasons for approval of this application:

1. An application has been submitted for a Special Use Permit to establish a new dairy in the AE-40 (Exclusive Agricultural - 40 Acre Minimum) Zone to accommodate a maximum of 3,850 total animal units (2,550 milk cows) in a facility covering approximately 68 acres of the 638.28 acre subject site. The balance of the acreage

(except for 81.92 acres in pasture) would remain under cultivation and available for irrigation with reclaimed dairy wastewater.

2. The 638.28 acre subject site is located on the west side of Road 96, at the Avenue 112 alignment, northwest of Pixley. Generally described as Portions of Sections 21, 22, 27, 28, Township 22 South, Range 24 East MDB&M. APNs: 293-190-33, 293-160-24, 293-170-05, -07.
3. The site and surrounding properties are zoned AE-40. The site is currently planted in field crops or used as dry or irrigated pasture. Surrounding properties are mostly planted in field crops. There are three existing dairies, one feedlot and an abandoned poultry facility within approximately one mile of the subject site. Dairy facilities are allowed in the AE-40 zone subject to approval of a special use permit.
4. The AE-40 allows most agricultural uses and limited residential uses. Animal confinement facilities are permitted within this zone subject to review and approval of a Special Use Permit. Section 16 of Ordinance No. 352, as amended, states the following:

"A Special Use Permit shall be granted only if it is found that the establishment, maintenance, and operation of the use of building or land applied for will not, under the circumstances of the particular case, be detrimental to the health, safety, peace, morals, comfort and general welfare of persons residing or working in the neighborhood or to the general welfare of the County. Special Use Permits may be granted subject to such conditions as will insure compliance with the aforementioned standards."

The evidence in the record for this case supports a positive determination for this finding. This project therefore, subject to conditions of approval, is in compliance with the Tulare County Zoning Ordinance.

5. Access to the proposed dairy facility would be from Road 96, a 67 foot wide right of way which is in the county-maintained road system. Ultimate right of way for Road 96 is 84 feet according to the Transportation Division of the Resource Management Agency.

6. The site is located outside of any Urban Area Boundary. It is therefore subject to the policies of the Rural Valley Lands Plan (RVLP). The RVLP designates the site as agricultural and provides the following policy objectives:
 - a. Discourage the conversion or division of agricultural lands to nonagricultural uses and parcel sizes.
 - b. Provide for limited nonagricultural activities and necessary agricultural related industries in selected rural areas.

Since dairy/feedlot facilities are agricultural industries, this proposal meets the General Plan policies as they pertain to the RVLP.

7. The ERME Open Space Plan designates the site "Extensive Agriculture". This plan encourages the maintenance of agricultural lands for agricultural purposes. This plan also shows the subject site as outside of the Community Windshed designated for Pixley.
8. The Agricultural Advisory Committee's "Tulare County Dairy/Animal Confinement Facility Policies" have been adopted by the Planning Commission (Resolution No. 7693) and by the Board of Supervisors (Resolution No. 98-0584) as a interim policy document for the location of new animal confinement facilities until new policies are incorporated into the County General Plan.

The proposed dairy meets all of the Policies, except the one mile radius animal unit density, as follows:

Of the 638.28 acre subject site, 488.36 acres meet the definition of "crop acreage" in the Policies. The on-site proposed animal unit density is 7.88 animal units per crop acre which is more than the "baseline" density of 4 per acre but less than the maximum density of 10 per crop acre. Within this range the Policies set forth parameters for the maximum allowable animal units per crop acre for different dairy development and operating scenarios that may be utilized by individual dairies. The proposed animal unit density per crop acre for this proposed freestall facility slightly exceeds conformance with the Policy parameters. All of the solid manure is proposed to be taken off site and all of the available crop acreage could be double cropped (although the applicant has stated that in an average year they would normally plant 40% of the acreage in alfalfa). Therefore, reducing the maximum herd size from 3,850 animal units to 3,814 animal units (a reduction of 36 animal units) would bring the facility into

conformance with the density policy. The milk cow density is 5.22 animal units per crop acre which is below the maximum density of 8 per crop acre.

The total animal unit density within a one mile radius of the subject site is 1.8 animal units per acre which is less than the maximum of 4 per acre. However, the area to the south of the subject site includes several existing or approved large dairies. The one mile radius animal unit density for PSP 94-070, an approved but not built dairy on the south edge of the mile radius for the subject site, would be increased to just above 4.0 animal units per acre. Establishment of this proposed dairy at the proposed maximum herd size would therefore cause the one mile radius animal unit density of an existing animal confinement facility within the mile radius of the subject site to exceed 4 animal units per acre, which would not be in conformance with Policy No. 3. Policy No. 3 refers to "existing operations." PSP 94-070 is not an existing operation. However, this Commission has in the past applied the policy to approved dairy use permits within the mile perimeter, even if the dairy is not built. Reducing the maximum animal units for the present proposed operation by 249.2 to 3,600.8 would put the one mile radius animal unit density for PSP 94-070 at exactly 4, and thus approving PSP 98-055 at this reduced maximum would be consistent with Policy No. 3. This maximum herd size is reflected in the conditions of approval.

9. The California Department of Fish and Game (DFG) submitted a letter on this project stating their general concerns and recommendations regarding dairy development. However, no site specific impacts were identified. The potential for off site impacts from development of this dairy is lessened by the fact that it is not located within a designated area of special flood hazard. DFG asked why the 81.92 acre parcel in pasture was being included in the subject site if it was not to be used for wastewater disposal. From the County's point of view, the inclusion of this parcel is arbitrary. However, including the parcel in this site means that it is not available for potential use by some other animal confinement facility to be counted toward its crop acreage. Also, including this parcel in the subject site means that the owner/operator would have to apply for and receive approval from the County of an amendment or modification to the use permit in order to convert the pasture land to some other use. If the parcel remains outside the site, no such County control applies.
10. This project, subject to the attached conditions of approval, is consistent with the General Plan of the County of Tulare.

11. A Negative Declaration was prepared and approved for public review by the Environmental Assessment Officer for this amendment. The Negative Declaration indicates that the impacts associated with the proposal are less than significant.

C. This Planning Commission, after considering all of the evidence presented, found that the establishment, maintenance, and operation of the use of building or land applied for PSP 98-055 would not, under the circumstances of the particular case, be detrimental to the health, safety, and general welfare of persons residing or working in the neighborhood or to the general welfare of the County.

AND, BE IT FURTHER RESOLVED as follows:

A. This Planning Commission hereby finds there is no substantial evidence that said Special Use Permit will have a significant effect on the environment and determines that the Negative Declaration for said Special Use Permit reflects the independent judgment of the County and has been completed in compliance with the California Environmental Quality Act and the State Guidelines for the Implementation of the California Environmental Quality Act of 1970.

B. This Planning Commission hereby approves Special Use Permit Application No. PSP 98-055, subject to the following conditions:

1. The dairy acreage shall be 638.28 acres and the on-site corral area shall be limited to accommodating a maximum of 3,600.8 total animal units (2,550 milk cows).

Notwithstanding this condition, which is in conformance with Planning Commission Animal Density Policies, the Regional Water Quality Control Board may limit the operation to a lower maximum herd size than is approved under this Special Use Permit or require other adjustments.

Animal units shall be calculated as follows: (Resource Management Agency)

1 cow or bull	=	1.00 animal unit
1 heifer or steer (2 years and up)	=	.75 animal unit
1 heifer or steer (1-2 years)	=	.70 animal unit
1 heifer or steer (3 months to 1 yr.)	=	.40 animal unit
1 calf (up to 3 months)	=	.25 animal unit

The facilities shall meet the requirements contained in the California Code of Regulations, Title 27 - pertaining to "Confined Animal Facilities" as administered by the Regional Water Quality Control Board (RWQCB). The applicant shall submit a completed application, technical reports and any required filing fee to the

RWQCB prior to issuance of any building permits and at least 120 days prior to discharge. A copy of the material shall be submitted to the Code Compliance Coordinator at the time of submittal to RWQCB. Failure to submit the material in the required time will result in immediate notification sent to the RWQCB and a recommendation to the Planning Commission for initiating the process of revocation of this Use Permit. (RWQCB and Resource Management Agency)

2. Cropping patterns and disposal of solid animal waste shall be such as to maintain this facility in conformance with the animal density parameters set forth in Policy No. 2 of the Tulare County Dairy/Animal Confinement Facility Policies as adopted by Planning Commission Resolution No. 7693, as applicable to the operating herd size of this facility.
3. As noted on the approved site plan, the 81.92 acres included within APNs 293-170-07 and 293-190-11, which are currently in pasture, shall not be utilized for discharge of dairy wastewater.
4. Sufficient on-site parking shall be provided for all vehicles. The parking area and the entrance roads shall be treated with an acceptable dust retarding treatment so that dust and mud will not create conditions detrimental to the surrounding area and roads. Said treatment shall be maintained at all times. (Resource Management Agency)
5. All drive approaches at driveways and major entrances to the improved portion of the site shall be constructed and surfaced as per the Tulare County Improvement Standards and the applicant or his contractor shall obtain an encroachment permit from the Tulare County Resource Management Agency prior to issuance of any building permits for construction and/or prior to doing work within any County road right-of-way. (Resource Management Agency)
6. All grading activities, with the exception of minor grading incidental to driveway approach installation, or grading otherwise exempt by Ordinance, shall be confined to areas on the project site which are set back a minimum distance of 100 feet from all adjacent property boundaries, including County road rights-of-way. Such grading within the prescribed 100-foot setback area may be considered agriculturally exempt from permit requirements under the Grading Ordinance. (Resource Management Agency)
7. The applicant shall make all necessary arrangements for the relocation of all overhead and underground public utility facilities that interfere with any improvement work to be performed by the applicant. The applicant shall also make

necessary arrangements with the public utility company affected for the cost of relocating such facilities and no portion of relocation cost will be paid by the County. (Resource Management Agency)

8. All new wells shall comply with the construction requirements of the Tulare County Well Ordinance. (Tulare County Environmental Health Division, (TCEHD))
9. No new well shall be located closer than 100 feet from any animal enclosure, nor shall such enclosure encroach within 100 feet of an existing well. (TCEHD)
10. Inactive wells shall be properly destroyed in accordance with the Tulare County Well Ordinance. (TCEHD)
11. Any new liquid waste lagoons shall meet a minimum 150 foot setback from all wells, public ditches and public waterways. (TCEHD)
12. All agricultural wells shall have an overhead air gap at the standpipes. (TCEHD)
13. Animal confinement areas, manure storage areas, lagoons, disposal fields and crop lands shall be properly managed to prevent a nuisance of odors, dust and vector harborage and breeding. (TCEHD)
14. Any new liquid waste lagoons shall be designed for maximum efficiency of waste disposal. Waste lagoons shall not be deeper than 20 feet and shall maintain a minimum of 10 feet of separation from the highest recorded groundwater table. The lagoons shall not cause contamination nor pollution of groundwater. Verification of final depth shall be provided by the contractor to the Resource Management Agency Code Compliance Coordinator in the form of a written statement prior to any discharge of any liquid into the lagoon and after a final inspection has been conducted. (TCEHD and Resource Management Agency)
15. All new sewage disposal systems shall meet all construction standards and minimum setbacks of 100 feet from all wells, ditches, and waterways. (TCEHD)
16. No liquid wastes shall be discharged into any public canal or public waterway nor shall there be any contamination or pollution of same. [TCEHD and Regional Water Quality Control Board (RWQCB)]
17. Liquid waste lagoons shall provide capacity to hold 120 days accumulation of liquids. (RWQCB)

18. A surfaced fire apparatus access shall be provided, twelve (12) feet in width, to within five (5) feet of the fresh water holding tank and the water pressure tank. (Fire Warden)
19. A 30 inch by 30 inch hinged inspection cover shall be located on the fresh water holding tank. The inspection cover shall be located along the portion of the tank that fronts on the surfaced access. (Fire Warden)
20. The fresh water pressure tank shall be plumbed with a valved, 2-1/2 inch hose connection (National Hose Thread) in such a manner as to provide ready access for pumper connection. All plumbing from the tank to the valve shall be a minimum of 4 inches O.D. (Fire Warden)
21. Portable fire extinguishers shall be installed in the milk house as per N.F.P.A. Pamphlet #10 (10# ABC type). (Fire Warden)
22. Advisory Note: All activities associated with this dairy operation must comply with the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) Regulation VIII Fugitive Dust Rules such as construction, unpaved roads and open service areas. (SJVUAPCD)
23. All agricultural burning shall comply with the SJVUAPCD Rules and Regulations. (SJVUAPCD)
24. No portion of the 638.28 acres covered by this application shall be sold or used for purposes other than those expressly permitted under this use permit unless an amendment to the use permit is approved by the County. This shall not restrict the sale of the entire parcel of property as a unit subject to all of the conditions required herein. In addition, if there is any change in the area available for waste water disposal, the applicant shall immediately notify the Assistant Director, RMA Current Planning to advise of the change and, if determined necessary by the Assistant Director, apply for an amendment to the use permit. (Resource Management Agency)
25. Dead animals shall be removed from the site within 48 hours and shall not be visible from the public road while awaiting removal. (TCEHD and Resource Management Agency)
26. A fly abatement program shall be used to keep flies under control on site so that they do not become a nuisance on site or to surrounding property owners. This shall include the scraping of accumulated manure from corrals areas on a regular basis or

The foregoing resolution was adopted upon motion of Commissioner Kapheim, seconded by Commissioner Espino, at a regular meeting of the Planning Commission on the 10th day of March, 1999, by the following roll call vote:

AYES: Kapheim, Espino, Wheeler, Fernandes, Whitlatch, Millwee, Kirkpatrick

NOES: None

ABSTAIN: None

ABSENT: None

TULARE COUNTY PLANNING COMMISSION

Mary E. Beattie
for George E. Finney, Secretary

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STANDARD CONDITIONS OF APPROVAL FOR SPECIAL USE PERMITS

Planning Commission Resolution No. 5976 as amended by 6013, 6334 and 6702)

1. Development shall be in accordance with the plan(s) as submitted by the applicant and/or as modified by the Planning Commission (P.C. Exhibit "A") and with the Site Plan Development Standards pertaining to a use of this type adopted by the Planning Commission on February 20, 1970.
2. Regardless of Condition No. 1 above, the Planning and Development Director is authorized to approve minor modifications in the approved plans upon a request by the applicant, or his successors, as long as said modifications do not materially affect the determination of the Planning Commission. Such modification shall be noted on the approved plans and shall be initialed by the Planning and Development Director.
3. All exterior lighting shall be so adjusted as to deflect direct rays away from public roadways and adjacent properties.
4. The proposed facility shall be maintained and operated in accordance with all State and County health regulations.
5. Any structures built shall conform to the building regulations and the building line setbacks of the Ordinance Code of Tulare County insofar as said regulations and setbacks are applicable to such structures.
6. If there are conditions set down herein which require construction of improvements, they shall be complied with before the premises shall be used for the purposes applied for, in order that the safety and general welfare of the persons using said premises, and the traveling public, shall be protected. The Planning Commission may grant exceptions to this condition upon request by the applicant.
7. This use permit shall automatically be null and void two (2) years after the date upon which it is granted by the Planning Commission, unless the applicant, or his successor, has actually commenced the use authorized by the permit within said two year period. The Planning Commission may grant one or more extensions of said two year time, upon request by the applicant.
8. This use permit will not be effective until ten (10) days after the date upon which it is granted by the Planning Commission and until the applicant, at his own expense, has executed and filed with the County Recorder, a certified copy of the resolution of the Planning Commission granting said permit with a duly authorized acceptance, in the form approved by the County Counsel; endorsed thereon.
9. All standard conditions and all special conditions of approval of this Special Use Permit must be complied with at all times in order to continue the use or uses allowed. Compliance with such conditions is subject to review at any time. Unless a sooner review is required, an initial review of compliance shall be conducted by the Tulare County Planning Commission twelve months after the granting of the Special Use Permit. Additional reviews may be undertaken at the discretion of the Planning Commission.
10. This Special Use Permit shall automatically expire and become null and void two (2) years after the use for which it was granted is discontinued or abandoned. However, upon application by the applicant, or his/her successor, the Planning Commission may extend the expiration date in accordance with the procedures set forth in the Zoning Ordinance.

EXHIBIT 2

DESCRIPTION OF REAL PROPERTY INCLUDED IN PROJECT

Tulare County APNs: 293-160-024 (236.36 acres)

293-170-005 (320 acres)

293-170-007 (11.64 acres)

293-190-033 (70.28 acres)

These parcels are more particularly described as follows:

293-160-024 (236.36 acres) = portion of N $\frac{1}{2}$ of Section 27, Township 22 South, Range 24 East, M.D.B.&M

293-170-005 (320 acres) = S $\frac{1}{2}$ of Section 22, Township 22 South, Range 24 East, M.D.B.&M.

293-170-007 (11.64 acres) = portion of SE $\frac{1}{4}$ of 21-22-24

293-190-033 (70.28 acres) = portion of N $\frac{1}{2}$ of 28-22-24

EXHIBIT 3

CHAPTER 3 POLICIES AND STANDARD CONDITIONS

The following policies apply to dairies and other bovine animal confinement facilities for which a special use permit is required under the Tulare County Zoning Ordinance. In applying these policies, the following definitions are to be referenced:

Animal Confinement Facility: Where used, the term "animal confinement facility" includes animal barns, corrals, or pens; feed (excluding hay barns) and manure storage and handling areas; and wastewater lagoons/sumps. When measuring setbacks and distances between animal facilities, measurements shall be taken from or between the most proximate part of the above-described facilities. Areas used for crop production or not otherwise utilized in the production of animals shall not be included for purposes of determining said setbacks and distances.

Bovine Animal: Dairy and beef cattle and/or other similar ox-like animals.

Crop Acreage: Irrigable portion of the total/gross subject parcel(s), including wastewater conveyance ditches, that is to be used for wastewater discharge and which excludes buildings, corrals and/or pens, feed and/or manure storage areas, lagoons/sumps, canals, waterways, and public road rights-of-way.

Animal Unit: A common animal denominator, based on feed consumption, whereas one mature cow (1,400 pounds) represents one animal unit, as defined by the Regional Water Quality Control Board. An "Animal Unit" is the feed equivalent of one milk cow, as follows:

<u>Classification</u>	<u>Animal Units per Head</u>
Dairy cows in milk and bulls	1.00
Dry cows and heifers more than two years of age	0.75
Heifers one year to two years (beef or dairy)	0.70
Heifers three months to one year (beef or dairy)	0.40
Calves to three months of age	0.17
Beef cows in milk and feedlot steers	0.75

Animal Units for other animals on site will be calculated according to Regional Water Quality Control requirements.

3.1 LOCATIONAL AND ANIMAL DENSITY POLICIES:

1. A new dairy site shall contain at least 160 acres (gross). Other new animal confinement facility sites shall contain at least 80 acres (gross).
2. The density of animals on a dairy/confined animal raising facility shall be limited to the number whose production of wastes (Nitrogen, salts and other minerals)

can be utilized by the crops grown on site or transported off-site for beneficial use in a way that does not create a pollution problem. Each dairy or other animal confinement facility should have its own liquid manure discharge area; if however, sharing of discharge areas is necessary, the combined nutrient loading on the discharge area shall be within the range of parameters for discharge as reflected in the Table shown below. Plans shall be submitted that: (1) demonstrate that liquid manure and solid manure can be evenly distributed over the entire crop acreage; (2) detail the number of acres of cropland, crops to be grown, and amount of double cropped acreage; (3) indicate the amount of liquid manure and solid manure to be disposed of off site and the intended use of said manure; and (4) identify any off-site discharge area for recycled lagoon water available through a recorded easement [NOTE: any off-site land proposed for discharge of liquid manure water must be dedicated for such purpose through a recorded easement in a form acceptable to the County]. Ultimately, the number of animals allowed on a project site shall be based on nitrogen and salt loading rates so that onsite wastewater (including precipitation and drainage) and manure are discharged or applied to crop lands at rates of application that are appropriate for the crop, soil, climate, special local situations, management system, and type of waste product. The Regional Water Quality Control Board shall determine the adequacy of loading rate plans to assure the preceding.

The following tables set forth the range of parameters for the maximum allowable Animal Units per Crop Acre for different dairy/animal confinement facility development and operating scenarios (depending on animal housing type and solid wastes disposal method/location) that may be utilized for individual facilities. Salts content in manure and manure water is considered the first limiting factor. Values are based on current RWQCB daily allowance of 1.8 lbs. compound form Salts per 1,400 lb. AU and single and double crop plan uptake of 2,000 and 3,000 lbs. compound Salts respectively per acre yearly.

The Salts Loading Animal Density Table (which generally requires a lower density than the Nitrogen Loading Animal Density Table shown below the Salts Table) will be used to establish the maximum animal units per crop acre for new and expanded dairies and other animal confinement facilities. However, if mitigation measures can be demonstrated to the decision making body (with assistance from the University of California Cooperative Extension and/or the Regional Water Quality Control Board), then deviations from the requirements of the Salts Loading Table can be considered. Such deviations shall be based on a management plan (Salts Loading Report) which demonstrates how a proposed animal facility can avoid salts over-loading of the available crop acreage beyond that shown in the Salts Loading Table. If the decision-making body determines that salts over-loading can be adequately mitigated to avoid salts buildup in groundwater and soils, then the Nitrogen Loading Animal Density Table below can be used to determine the animal confinement facility's maximum animal units per crop acre.

Acceptable salts loading factors could be achieved beyond that listed in the Salts Loading Animal Density Table based on a facility's site specific and operational factors including soil types, irrigation water, crop production history and proposed cropping types and patterns, manure and sludge use and removal, and any accepted technology proposed to further control potential salts loading (refer to Animal Waste Utilization pages 10.1 and 10.2 as cited in Appendix O). These variables are to be documented in a Salts Loading Report to be submitted with applications for use permits for dairy or other animal confinement facilities. Deviations from the Salts Loading Animal Density Table can be permitted by showing that the additional salts generated by an animal facility are being utilized in a beneficial way and/or are being reduced by accepted technology.

SALTS LOADING ANIMAL DENSITY TABLE

<u>Animal Housing Type</u>	<u>Cropping Program</u>	<u>Solids Discharge Method/Location</u>	<u>Max. Anima Units per Crop Acre *</u>
Open corral (all)	Double	Off site (100%) }	7.61
Open corral (all)	Single	Off site (100%) }	5.07
Open corral (all)	Double	On site (100%) }	4.56
Open corral (all)	Single	On site (100%) }	3.04
Free stall & Open corral	Double	Off site (100%) }	5.71
Free stall & Open corral	Single	Off site (100%) }	3.80
Free stall & Open corral	Double	On site (100%) }	4.56
Free stall & Open corral	Single	On site (100%) }	3.04

(* See Above Text for Deviations from Maximum for Salts)

ASSUMPTIONS for Scenarios between Upper and Lower Parameters:

Open Corral-Double Crop-Solids Off-site = 7.61 AU x 1.8 lb. salts/AU x 365 days x 60% retained = 3,000 lbs. salts
 Open Corral-Single Crop-Solids Off-site = 5.07 AU x 1.8 lb. salts/AU x 365 days x 60% retained = 2,000 lbs. salts
 Open Corral-Double Crop-Solids On-site = 4.56 AU x 1.8 lb. salts/AU x 365 days x 100% retained = 3,000 lbs. salts
 Open Corral-Single Crop-Solids On-site = 3.04 AU x 1.8 lb. salts/AU x 365 days x 100% retained = 2,000 lbs. salts

Free Stalls-Double Crop-Solids Off-site = 5.71 AU x 1.8 lb. salts/AU x 365 days x 80% = 3,000 lbs. salts
 Free Stalls-Single Crop-Solids Off-site = 3.80 AU x 1.8 lb. salts/AU x 365 days x 80% = 2,000 lbs. salts
 Free Stalls-Double Crop-Solids On-site = 4.56 AU x 1.8 lb. salts/AU x 365 days x 100% = 3,000 lbs. salts
 Free Stalls-Single Crop-Solids On-site = 3.04 AU x 1.8 lb. salts/AU x 365 days x 100% = 2,000 lbs. salts

The following table sets forth the range of parameters for the maximum allowable Animal Units (A.U.s) per Crop Acre for different dairy/animal confinement facility development and operating scenarios that may be utilized for individual facilities, based on Nitrogen content in manure and manure water. This table can be used to calculate an animal facility's maximum allowable animal density only if the decision-making body determines that salts overloading can be adequately mitigated as set forth in the preceding provisions of this Policy.

NITROGEN LOADING ANIMAL DENSITY TABLE

<u>Animal Housing Type</u>	<u>Cropping Program</u> *	<u>Solids Discharge Method/Location</u>	<u>Maximum Animal Units Per Crop Acre</u>		
			50% N *	60% N *	70% N *
Open Corral (all)	Double	Off site (100%) }	9.71	8.13	6.71
Open Corral (all)	Single	Off site (100%) }	6.94	5.78	4.98
Open Corral (all)	Double	On site (100%) }	5.85	4.85	4.17
Open Corral (all)	Single	On site (100%) }	4.17	3.47	2.98
Free stall & Open Corral ♥	Double	Off site (100%) }	7.81	6.54	5.59
Free stall & Open Corral ♥	Single	Off site (100%) }	5.59	4.65	4.00
Free stall & Open Corral ♥	Double	On site (100%) }	5.85	4.85	4.17
Free stall & Open Corral ♥	Single	On site (100%) }	4.17	3.47	2.98

ASSUMPTIONS for Ratios for Scenarios between Upper and Lower Parameters:

♥ Free stall = 60% milk cows and Open corral = 40% support stock ♥

* Double cropping based on 350 pounds of Nitrogen utilized per acre and Single cropping based on 250 pounds of Nitrogen utilized per acre (Double crop = 1.4 x Single crop) *

♦ Percentage of Nitrogen remaining = function of the number of days wastewater has been in the lagoon [>60 days in lagoon = 50% N remains; 30-60 days in lagoon = 60% N remains; <30 days in lagoon = 70% N remains] ♦

However, in all cases, the maximum total animal density on the dairy site shall not exceed ten (10) animal units per crop acre, and the maximum density of cows in milk on site shall not exceed eight (8) animal units per crop acre. For confined animal facilities other than dairies, the maximum on-site density shall not exceed ten (10) animal units per crop acre.

3. New dairy and other animal confinement facilities (animal barns, corrals, and pens; wastewater lagoons/sumps; manure and feed storage areas excluding hay barns) shall be located at least one-half mile (2,640 feet) from the nearest dairy, swine, poultry, or other animal confinement facility. These separations are required to avoid potential nuisance problems, disease transmission, soil and groundwater contamination, and air quality degradation.

Expansions of legally-established dairies or other legally established animal confinement facilities that do not meet the one-half mile separation may be permitted provided that any new facilities do not encroach any closer than the

existing facilities. Consideration of such expansions shall be on a case-by-case basis through the special use permit process; however, in no instance shall the degree of nonconformity of the separation encroachment be increased.

4. A new dairy or other animal confinement facility shall not be located as follows:

- within any Windshed Area for incorporated and unincorporated communities or within the Windsheds for areas zoned for residential use and containing at least thirty (30) legally-established dwelling units (for which the Windshed Area shall be measured from the outermost residential zoning boundary) — a 'Windshed Area' is defined as a one-mile setback from an incorporated or unincorporated community's Urban Area Boundary (however, for those communities that have an Urban Development Boundary but do not have an Urban Area Boundary, the Urban Development Boundary line shall be used) or urban-type residential zoning boundary line;
- within primary floodplains;
- within 1000 feet of the boundary of a public park;
- in sink holes or areas draining into sink holes; or
- within one-half mile (2640 feet) of school grounds or of the nearest point of a dwelling structure in a concentration of ten (10) or more occupied private residences (to qualify as a 'concentration', such residences must be legally established, occupied, located within a contiguous area, and exceed a density of one dwelling unit per acre, excluding travel trailers). As used herein, 'legally established' residences are defined as residences "established in accordance with all applicable building and zoning regulations".

[NOTE: The Community Windshed shall not apply where the decision-making body determines that a portion of a community's Urban Area Boundary has been expanded to include municipal uses such as sewage treatment facilities, airports, and waste disposal sites that are located well beyond the city's Urban Development Boundary. In such cases, the decision-making body shall determine the location of the Community Windshed area; however, in no instance shall a Community Windshed setback of less than one mile be allowed from a community's Urban Development Boundary.]

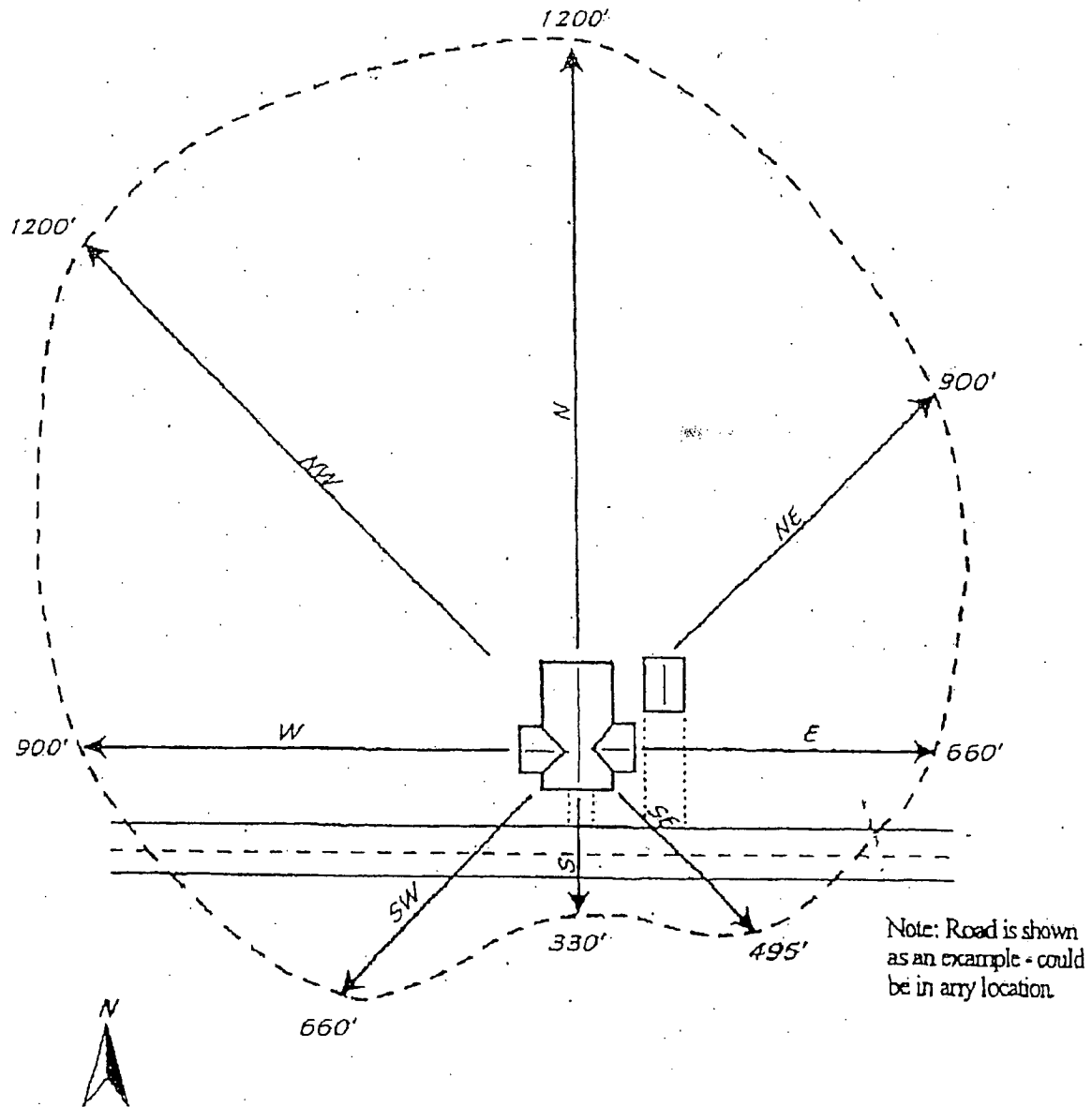
5. A new dairy or other animal confinement facility shall not be located closer than the distances shown on Micro-Windshed Diagram "A" (Residential) to an occupied dwelling owned by a property owner other than the animal confinement facility site owner/operator or employee.

A new dairy or other animal confinement facility shall not be located closer than the distances shown on Micro-Windshed Diagram "B" (Agricultural) to an established citrus grove, vineyard, deciduous fruit/nut orchard, or vegetable agricultural enterprise.

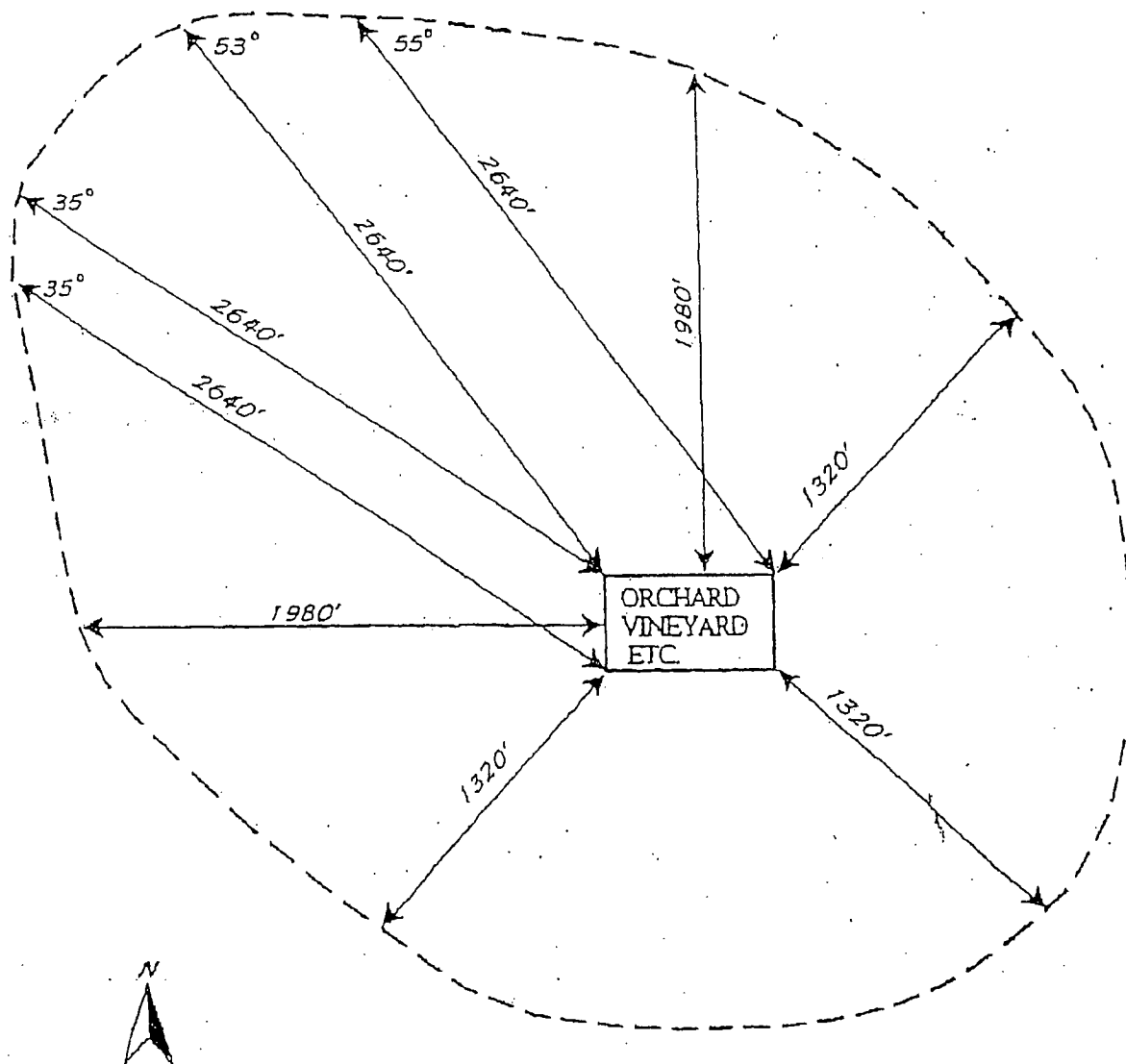
6. These above regulations shall not apply to the repair, maintenance, replacement, and upgrading of a legally-existing dairy or other animal confinement facility, provided that such work does not increase the animal capacity of the facility.
7. Expansions of existing legal nonconforming dairies or other existing legal nonconforming animal confinement facilities that do not meet the policies set forth above will be considered on a case-by-case basis, subject to the Special Use Permit process, provided that the degree of nonconformity is not significantly increased. However, no expansions of existing dairy or other animal confinement facilities shall be approved unless the whole dairy under permit meets the density standards set forth in Policy No. 2 above.
8. Deviations from the animal density standards set forth in Policy No. 2 and the Micro-Windshed criteria in Policy No. 5 above may be allowed on a case-by-case basis provided that (a) The animal facility proposal meets Policies No. 1, 3, and 4 above; and (b) a more detailed environmental review (for example, an EIR) demonstrates that the proposed change(s) from Policy No. 2 and No. 5 will clearly have no environmental effects that cannot be mitigated to a level which is less than significant. However, in no instance shall the maximum total onsite animal density for any dairy or animal confinement facility ever exceed ten (10) animal units per crop acre, nor shall the maximum density of cows in milk onsite ever exceed eight (8) animal units per crop acre.

In addition, no deviations from the Micro-Windshed distances set forth in Policy No. 5 above (from an offsite residence or from a tree crop or vineyard operation) may be approved unless the owner of the residence or agricultural operation agrees in writing to the deviation.

MICRO-WINDSHED DIAGRAM 'A'



Measurements are to be made from the geometric center of the dwelling to the nearest part of the subject confined animal facility.

MICRO-WINDSHED DIAGRAM 'B'

Measurements are to be made to the nearest edge of the affected orchard/vineyard/etc from the nearest part of the subject confined animal facility.

EXHIBIT 4

ADDITIONAL MITIGATION AND MONITORING MEASURES APPLICABLE TO PSP 98-055 AND AGREEMENT TO CONDUCT PILOT PROJECT

All terms used in this Exhibit shall have the meaning set forth in the Parties' Settlement Agreement. "Site" shall mean the property described in Exhibit 2.

Mitigation and Monitoring Measures

In conjunction with the mitigation and monitoring measures and other Project requirements with which the Airosas must comply pursuant to PSP 98-055, the Airosas agree to undertake and/or implement the additional, supplemental mitigation and monitoring measures set forth below.

1. The Airosas shall make a written request to all contractors rendering services during construction of the Project to comply with the following directives:
 - (a) The idling time of all construction equipment shall be minimized.
 - (b) The hours of operation of heavy duty equipment shall be minimized.
 - (c) All equipment shall be properly tuned and maintained in accordance with the manufacturer's specification.
 - (d) Where feasible, alternative fueled or electric construction equipment shall be used.
 - (e) The minimum practical engine size for construction equipment shall be used.
 - (f) Where feasible, gasoline-powered equipment shall be equipped with catalytic converters.
2. The Airosas shall periodically monitor the status of construction to ensure that the construction contractors comply with the directives set forth in paragraph 1, to the extent that compliance is feasible.
3. The Airosas shall make a reasonable and good faith effort to minimize operational emissions of criteria pollutants from Project-related vehicles and equipment. Specifically:
 - (a) The idling time of on-Site farming and dairy equipment shall be minimized.
 - (b) All on-Site equipment shall be properly tuned and maintained in accordance with the manufacturer's specifications.

- (c) Where feasible, alternative fueled or electric on-Site equipment shall be used.
 - (d) The minimum practical engine size shall be used for on-Site equipment and vehicles.
 - (e) Where feasible, gasoline-powered equipment shall be equipped with catalytic converters.
 - (f) Employees will be encouraged to carpool when traveling to and from the Site.
4. All dairy facility walk lanes shall be constructed of concrete. Water drainage leading to separation ponds and lagoons shall be constructed of impervious material.
 5. The Airosas shall control fugitive dust emissions from animal movement in and around unpaved corrals using soil stabilizers, provided that they are safe for both the ambient environment and livestock and economically feasible. If at any time the Airosas determine that no safe and economically feasible stabilizers exist, the Airosas must so inform TCRMA in writing and provide justification for their determination.
 6. The Airosas shall own a piece of mobile equipment (e.g., a water truck) dedicated to wetting down the unpaved areas of the dairy facility and surrounding roads to minimize fugitive dust emissions.
 7. To the extent not controlled by soil stabilizers, the Airosas shall control fugitive dust emissions from animal movement in and around unpaved corrals by applying water.
 8. The Airosas shall stabilize and maintain perimeter roads so that no visible dust clouds caused by vehicles using such roads to service the Project extend beyond the Site boundary. Maintenance shall include watering down the unpaved perimeter roads as necessary.
 9. The Airosas shall cause all mud or dirt on Project-adjacent roads caused by or related to Project operations to be removed within 24 hours of deposition.
 10. The Airosas shall conduct regular dairy nutritional analyses of animal rations and maintain such analyses on Site for review by TCRMA on request.
 11. The Airosas shall cause a qualified licensed professional to prepare a Comprehensive Nutrient Management Plan ("CNMP") for approval by TCRMA. Application of manure water shall be in compliance with the CNMP. Manure water shall be applied to fields at rates and in quantities that do not cause ponding or standing water.
 - * 12. The Airosas have caused a qualified licensed professional to prepare a geology-hydrology report detailing ground water levels and water quality for submission to TCRMA.

- ✱ 13. The Airosas shall sample all on-Site wells annually pursuant to a sampling plan approved by TCRMA. The sampling plan shall also be submitted to the RWQCB. Samples taken from on-Site wells shall be analyzed to determine the presence of contaminants, including nitrate, coliform, TKN, TDS, the negative logarithm of the Hydrogen ion concentration (pH), ammonium, calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulfate, and electrical conductivity, caused by dairy operations; application of manure water, or leakage from separation ponds or lagoons. The results of such analyses shall be submitted to TCRMA annually. Evidence of contamination attributable to operation of the Project shall be the basis for any reasonably necessary remediation.
- ✱ 14. On-Site domestic wells shall be regularly sampled by the Tulare County Environmental Health Division for pathogens. Evidence of leakage shall be the basis for requiring additional lining of separation ponds and/or lagoons to prevent such leakage.
- ✱ 15. The Airosas must comply with the Waste Discharge Requirements of the RWQCB.
- ✱ 16. The Airosas shall line lagoons with manure prior to operation to decrease initial percolation rates.
- ✱ 17. The facility shall be constructed and maintained to convey all precipitation, water, and moisture to the appropriate drainage systems.
18. All areas in which manure may be deposited shall be sloped to prevent ponding and constructed and maintained to convey all manure water to the separator ponds and lagoons. The Airosas shall, at least once per year, backfill any slope loss with compacted, non-manured material to maintain appropriate slopes.
19. The Airosas shall store all manure scraped from corrals in on-Site windrows. The windrows shall be constructed as high and narrow as reasonably feasible. The windrow area shall be graded and maintained to prevent standing water in accordance with RWQCB requirements with area drains as necessary.
20. For all manure transferred to a third party for off-Site use, The Airosas shall require that the third party inform them of the location and acreage of the property on which the manure will be used. In addition, the Airosas shall provide an invoice listing the amount transferred and directing that the manure shall be used only in full compliance with all applicable state and federal laws.
21. The Airosas shall maintain records of all manure transferred to third parties for off-Site use for review by TCRMA on request. Records shall include date of transfer, tonnage, name of transferee, and the location and acreage of the property on which the manure is to be used.

22. The Airosas shall sample soils annually pursuant to a sampling plan approved by TCRMA. The sampling plan shall also be submitted to the RWQCB. The Airosas shall obtain representative samples from every active field, but in no event fewer than five representative samples from such fields. In addition, the Airosas shall obtain representative samples from areas near separation ponds and lagoons. Soil samples shall be analyzed to determine the presence of contaminants, including nitrate, total nitrogen, coliform, percentage of organic matter, ammonia, calcium, magnesium, sodium, potassium, phosphorus, carbonate, bicarbonate, chloride, and electrical conductivity caused by dairy operations, application of manure water, or leakage from separation ponds and lagoons. The results of such analyses shall be submitted to TCRMA annually. Evidence of contamination attributable to operation of the Project shall be the basis for any reasonably necessary remediation.

Three Year Pilot Project

The Airosas have agreed to undertake a pilot project designed to advance understanding of the nutrient cycle, nutrient management, and methods for controlling and reducing contamination. The pilot project shall begin one year after commencement of Project operations, and continue for a period of not less than three years.

The Airosas will submit a work plan for the pilot project prepared by a qualified licensed professional for review and approval by TCRMA not later than 6 months after commencement of Project operations. The Airosas shall maintain all data obtained during the course of the pilot project for review by TCRMA on request.

The components of the pilot project are set forth below:

1. During the pilot project, the Airosas shall feed all animals in accordance with the recommendations set forth in the National Research Council's Nutrient Requirements of Dairy Cattle (Seventh Revised Edition, 2001), including proper amounts of ruminantly degradable protein and properly balanced diets to reduce production of total reactive organic gases and other potential air and water contaminants and assure maximum milk production. The Airosas anticipate that they will change its animal feed mix as feed availability and the animals' nutritional needs change over the course of annual operations. Each time there is a material feed change, but in no event fewer than three times per year, the Airosas shall conduct a nutritional analysis of animal rations and maintain such analysis on site for review by TCRMA on request.
2. Each time manure is removed from the corral areas to be placed in the windrows, but in no event fewer than three times per year, the Airosas shall take representative samples of the manure at the time of removal. These samples shall be analyzed to determine the presence of any contaminants, including nitrate, total nitrogen, percentage of organic matter, ammonia, calcium, magnesium, sodium, potassium, phosphorus, carbonate, bicarbonate, chloride, and electrical conductivity.

3. Each time manure is taken from the windrows for off-Site land application, but in no event fewer than three times per year, the Airosas shall take representative samples of the manure at the time of removal. These samples shall be analyzed to determine the presence of any contaminants, including nitrate, total nitrogen, percentage of organic matter, ammonia, calcium, magnesium, sodium, potassium, phosphorus, carbonate, bicarbonate, chloride, and electrical conductivity.
4. The Airosas shall keep detailed records of their windrowing procedures, including manure holding times.
5. At least quarterly, the Airosas shall take representative samples of manure water from the lagoons. Samples of manure water from the lagoons shall be analyzed to determine the presence of contaminants, including nitrate, coliform, TKN, TDS, pH, ammonium, calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulfate, and electrical conductivity.
6. Within six months after the end of the pilot project period, the Airosas shall submit to TCRMA a pilot project report prepared by a qualified licensed professional. The report shall summarize the data obtained during the pilot project, analyze and discuss the data, and make recommendations for any changes in operations that could improve the nutrient management process or control or reduce the risk of contamination and/or make recommendations for further study. The pilot project shall discuss, among other things, whether the feed recommendations set forth in the National Research Council's Nutrient Requirements of Dairy Cattle (Seventh Revised Edition, 2001) adequately protect the environment while assuring adequate milk production and, on that basis, whether the Airosas will continue to feed in accordance with the recommendations. The report does not need to identify the dairy from which the data emanated, but it shall identify the county in which the dairy is located.
7. TCRMA and/or the Airosas will take reasonable efforts to make the pilot project report available to the public and relevant state and local agencies.

Attachment II

Summary of Construction and Site Improvement Activities

Received

JUL 25 2008

Permits Srvc
SJVAPCD

Airosa Dairy #2
Construction Activity Payments Prior to January 1, 2004

Vendor Name	Invoice No.	Date	Description	Milking Center (\$)	Housing (\$)	Liquid Manure System (\$)	Solid Manure System (\$)	Land Application (\$)	Misc. \$\$ (\$)
Pitigliano Farming	#1233	10/6/1998						4,600.00	
Pitigliano Farming	#1326	11/23/1999						11,717.50	
Pitigliano Farming	#1488	9/30/2003						2,185.00	
Pitigliano Farming	#1448	10/17/2002						5,390.00	
Pitigliano Farming	#1301	7/12/1999						6,600.00	
Soult's Pump & Equipn	CK 12763	12/31/2003						27,272.05	
Freitas Land Leveling	CK 10933	12/31/2002			8,650.00				
Freitas Land Leveling	CK 4244	11/15/1998				28,595.00			
Freitas Land Leveling	CK 4428	1/1/1999			20,000.00				
US Farm Systems	CK 5030	6/4/1999				8,689.64			
Locke Construction	#44	3/4/1999			2,640.00				
Locke Construction	#27	1/15/1999			2,880.00				
Hilvers Dairy Fabricati	Lott	2/15/1999			1,134.00				
Locke Construction	#15	11/4/1998			2,125.00				
Locke Construction	#24	12/27/1998			5,785.00				
Locke Construction	#18	12/2/1998			4,475.00				
Locke Construction	#22	12/13/1998			8,850.00				
Grabow Well Drilling	CK 4430	1/1/1999						19,591.50	
Soult's Pump & Equipn	24731	10/26/1998						44,967.67	

DaSilveira Southwest I	CK 4443	1/5/1999		5,000.00			
Hilvers Dairy Fabricati	Lock	12/20/1998		1,305.00			
Hilvers Dairy Fabricati	Lott	3/15/1999		1,001.00			
Roman Electric	3213	9/24/1999	6,697.02	6,697.01			
Mid-Valley Pipe	1250	1/30/1999	1,721.71	1,721.72			
Mid-Valley Pipe	1250	4/30/1999	7,084.84	7,084.84			
Oxborrow Enterprises	357	4/29/2000	7,953.75	7,953.75			
Mid-Valley Pipe	1250	11/30/1998		3,138.67	3,138.67		
Buys Pipe Supplies	3494 / 3484	1/1/1999			11,488.41	11,488.40	
DaSilveira Southwest I	623	4/1/1999		20,742.00			
Mid-Valley Pipe	1250	2/28/1999		3,653.41	3,653.40		
Morris Levin & Sons	103703	12/15/1998		1,703.02	1,703.02		
Morris Levin & Sons	103732	12/15/1998		1,770.86	1,770.87		
4JX Farms	1469	5/22/1999	Road for dairy				5,490.00
4JX Farms	87	12/15/1999	Road for Dairy				8,580.00
4JX Farms	CK 4850	4/15/1999	road for Dairy				270.00
4JX Farms	CK 4364	12/31/1999	Roads for Dairy				750.00
Soults Pump & Equipn	CK 12127	8/30/2003		5,477.05	5,477.05	5,477.05	
Artesia Ready Mix	CK 3097	1/15/1998		5,376.66			
US Farm Systems	CK 12551	11/15/2003			2,500.00		
Morris Levin & Sons	CK 4618	2/27/1999					6,743.39
Artesia Ready Mix	CK 4657	3/1/1999		11,756.62			
Artesia Ready Mix	CK 4439	1/5/1999		38,452.94			
Artesia Ready Mix	CK 4875	4/29/1999		3,230.00			

Locke Construction	CK 10477	9/28/2002							100,000.00
Locke Construction	CK 10797	12/4/2002							57,535.00
Locke Construction	CK 11227	2/17/2003							20,000.00
Roman Electric	CK 4440	1/5/1999		5,774.14					
JMLord	3753	6/30/2000	Geo-Hydro						405.00
JMLord	5221	11/15/2001	Geo-Hydro						841.00
JMLord	4559	5/25/2001	Geo-Hydro						450.00
JMLord	4451	4/25/2001	Geo-Hydro						180.00
JMLord	4355	3/25/2001	Geo-Hydro						315.00
JMLord	4283	2/15/2001	Geo-Hydro						540.00
JMLord	4208	1/19/2001	Geo-Hydro						315.00
JMLord	5539	3/25/2002	Geo-Hydro						1,660.00
JMLord	5383	1/15/2002	Geo-Hydro						700.00
JMLord	5460	2/25/2002	Geo-Hydro						1,720.00
Total Prior to 1/1/04				28,934.37	188,377.69	67,016.06	11,488.40	122,323.72	206,494.39

AIROSA DAIRY
18809 ROAD 64
TULARE, CALIFORNIA 93274
(209) 688-5694 757-3598

BANK OF AMERICA
Tulare, CA 93274

11-35/1210

1/15/98

PAY TO THE
ORDER OF

Artesia Ready Mix Concrete Inc. **644**

**5,376.66

Five Thousand Three Hundred Seventy-Six and 66/100*****

DOLLARS

Artesia Ready Mix Concrete Inc
P.O. Box 1436
Tulare, Ca 93275

JOE G. DIANE or JOEY AIROSA



VOID AFTER 90 DAYS

MEMO ▼

THE REVERSE SIDE OF THIS DOCUMENT INCLUDES AN ARTIFICIAL WATERMARK - HOLD AT AN ANGLE TO VIEW

FREITAS LAND LEVELING

Dozing - Land Leveling - Sub-Soiling

STANLEY A. FREITAS
404 East Ash Ave.
Telephone 584-8348

HANFORD, CALIF.

10/1

1998

In Account
With

Airco Dairy

11275 Rd 96

Pipley, CA 93256

Location 11275 Rd 96

Operator

Date	DESCRIPTION OF WORK		HOURS	Rate per Hour	AMOUNT
	<ul style="list-style-type: none"> - Dig Two separation ponds - Build up and slope area for new corrals - Build up road pads 				
	<i>Tractor</i>	<i>Tractor</i>			
	<i>Cat 3-621</i>	<i>1213 Caterpillar</i>			
7/7/98	7 1/2	8			
8	9	9			
9	8 1/2	8 1/2			
10	9	8 1/2			
11	7 1/2	7 1/2			
13	9	8 1/2			
14	8 1/2	8 1/2			
15	8	8			
16	8 1/2	9			
17	8 1/2	8			
18	7 1/2	7 1/2			
20	8	8			
21	8 1/2	8			
22	9	8			
23	8	8 1/2			
24	7 1/2	8			
30	5 1/2	5 1/2			
31	8	8			
8/3/98	5	6			
4	8	8 1/2			
6	6 1/2	7			
7	8 1/2	8 1/2			
8	5 1/2	6			

\$28,595.00

Liquid Manual

\$20,000.00

housing

FREITAS LAND LEVELING

Dozing - Land Leveling - Sub-Soiling

STANLEY A. FREITAS
404 East Ash Ave.
Telephone 584-8348

HANFORD, CALIF. 10/1 19 98

In Account
With

Chicoza Dairy

11275 Rd. 96

Pipley, CA. 93256

Location 11275 Rd 96

Operator _____

Date	DESCRIPTION OF WORK		HOURS	Rate per Hour	AMOUNT
	<u>Cat J-621</u>	<u>12B Carryall</u>			
<u>8/11/98</u>	<u>8 1/2</u>	<u>8</u>			
<u>12</u>	<u>7</u>	<u>8</u>			
<u>13</u>	<u>8 1/2</u>	<u>8 1/2</u>			
<u>14</u>	<u>8 1/2</u>	<u>8 1/2</u>			
<u>15</u>	<u>7 1/2</u>	<u>7 1/2</u>			
<u>17</u>	<u>8 1/2</u>	<u>8 1/2</u>			
<u>18</u>	<u>8 1/2</u>	<u>8 1/2</u>			
<u>19</u>	<u>7 1/2</u>	<u>8</u>			
<u>20</u>	<u>8</u>	<u>4 1/2</u>			
<u>21</u>	<u>7 1/2</u>	<u>7 1/2</u>			
<u>22</u>	<u>7 1/2</u>	<u>8</u>			
<u>24</u>	<u>8 1/2</u>	<u>8 1/2</u>			
<u>25</u>	<u>8 1/2</u>	<u>8</u>			
<u>26</u>	<u>3 1/2</u>	<u>7 1/2</u>			
<u>27</u>	<u>296 Hrs.</u>	<u>8</u>			
<u>28</u>		<u>6</u>			
<u>29</u>		<u>2</u>			
		<u>315 Hrs.</u>			
	<u>Less Cat J-621</u>	<u>296</u>	<u>95⁰⁰</u>	<u>28,120 00</u>	
	<u>Less 12B Carryall</u>	<u>315</u>	<u>65⁰⁰</u>	<u>20,475 00</u>	
				<u>48,595 00</u>	

FREITAS LAND LEVELING

Dozing - Land Leveling - Sub-Soiling

STANLEY A. FREITAS
404 East Ash Ave.
Telephone 584-8348

HANFORD, CALIF. 93230

11/01/98

E.I.N. # 77-0456786

In Account
With

Airosa Dairy

11275 Rd. 96

Pipley, CA. 93256

Location Rd. 96

Operator _____

Date	DESCRIPTION OF WORK		HOURS	Rate per Hour	AMOUNT
	<i>Started digging dairy lagoon and building up area for new dairy</i>				
	<i>Laser</i>	<i>Laser</i>			
	<i>Cat-J-621</i>	<i>12 B Carryall</i>			
7/7/98	7½	8			
8	9	9			
9	8½	8½			
10	9	8½			
11	7½	7½			
13	9	8½			
14	8½	8½			
15	8	8			
16	8½	9			
17	8½	8			
18	7½	7½			
20	8	8			
21	8½	8			
22	9	8			
23	8	8½			
24	7½	8			
30	5½	5½			
31	8	8			
8/3/98	5	6			
4	8	8½			
6	6½	7			
7	8½	8½			
8	5½	6			
10	8½	8½			
11	0½	0			

FREITAS LAND LEVELING

Dozing - Land Leveling - Sub-Soiling

STANLEY A. FREITAS
404 East Ash Ave.
Telephone 584-8348

HANFORD, CALIF. 93230

11/01/98

E.I.N. # 77-0456786

In Account
With

Airosa Dairy

11275 Rd. 96

Ripley, CA. 93256

Location *Rd. 96*

Operator

Date	DESCRIPTION OF WORK		HOURS	Rate per Hour	AMOUNT
	<i>Laser</i>	<i>Laser</i>			
	<i>Cat J-621</i>	<i>12B Carry all</i>			
8/12/98	7	8			
13	8½	8½			
14	8½	8½			
15	7½	7½			
17	8½	8½			
18	8½	8½			
19	7½	8			
20	8	4½			
21	7½	7½			
22	7½	8			
24	8½	8½			
25	8½	8			
26	3½	7½			
27	296 Hrs.	8			
28		6			
29		2			
		315 Hrs.			
	<i>Laser Cat J-621</i>	296	95 ⁰⁰	28,120 00	
	<i>Laser 12B Carry all</i>	315	65 ⁰⁰	20,475 00	
				48,595 00	

631
AIROSA DAIRY

18809 ROAD 64
TULARE, CALIFORNIA 93274
(209) 688-5694 757-3598



BANK OF AMERICA
Tulare, CA 93274

11-35/1210

11/15/98

PAY TO THE
ORDER OF

Freitas Land Leveling

**28,595.00

Twenty-Eight Thousand Five Hundred Ninety-Five and 00/100*****

DOLLARS

Freitas Land Leveling
404 East Ash Avenue
Hanford, Ca. 93230

JOE G. DIANE or JOEY AIROSA

VOID AFTER 90 DAYS

MEMO ▼

THE REVERSE SIDE OF THIS DOCUMENT INCLUDES AN ARTIFICIAL WATERMARK - HOLD AT AN ANGLE TO VIEW

631
AIROSA DAIRY
18809 ROAD 64
TULARE, CALIFORNIA 93274
(209) 688-5694 757-3598

BANK OF AMERICA
Tulare, CA 93274

11-95/1210

1/1/99

PAY TO THE ORDER OF **Freitas Land Leveling**

\$ ****20,000.00**

Twenty Thousand and 00/100*****

DOLLARS

Freitas Land Leveling
404 East Ash Avenue
Hanford, Ca 93230

JOE G., DIANE or JOEY AIROSA



VOID AFTER 90 DAYS

MEMO ▼

THE REVERSE SIDE OF THIS DOCUMENT INCLUDES AN ARTIFICIAL WATERMARK - HOLD AT AN ANGLE TO VIEW

P.O. Box 1947
Tulare, CA 93275


DATE	INVOICE #
11/4/98	15

BILL TO
AIROSA DAIRY 11275 RD. 96 PIXLEY, CA.

[illegible]

161
AIROSA DAIRY

18809 ROAD 64
TULARE, CALIFORNIA 93274
(209) 688-5694 757-3598

 BANK OF AMERICA
Tulare, CA 93274

11-35/1210

11/20/98

PAY TO THE ORDER OF **Brian Locke Construction**

\$ **2,125.00

Two Thousand One Hundred Twenty-Five and 00/100*****

DOLLARS

Brian Locke Construction
P.O. Box 1947
Tulare, Ca. 93275

JOE G., DIANE or JOEY AIROSA



VOID AFTER 90 DAYS

MEMO ▼
THE REVERSE SIDE OF THIS DOCUMENT INCLUDES AN ARTIFICIAL WATERMARK - HOLD AT AN ANGLE TO VIEW

AIROSA DAIRY
Tulare, California 93274
Brian Locke Construction

hfr corrals

11/20/

Checking

2,125.00

 LITHO USA

SFMS 5001

REORDER FROM YOUR LOCAL SAFEGUARD DISTRIBUTOR. IF UNKNOWN, CALL 800-523-2422

LF045545M 3/96

Locke Construction

P.O. Box 1947

Tulare, CA 93275

Invoice

DATE	INVOICE #
12/2/98	18

BILL TO
AIROSA DAIRY 11275 RD. 96 PIXLEY, CA.

		P.O. NO.	TERMS
			Due on receipt
DESCRIPTION	QTY	RATE	AMOUNT
Heifer Corrals on East Side Layout on West Side		4,475.00	4,475.00
Thank you for your business.		Total	\$4,475.00

Locke Construction

P.O. Box 1947
Tulare, CA 93275

Invoice

DATE	INVOICE #
12/13/98	22

BILL TO
AIROSA DAIRY 11275 RD. 96 PIXLEY, CA

		P.O. NO.	TERMS	PROJECT
			Due on receipt	
DESCRIPTION	QTY	RATE	AMOUNT	
Finish Corrals on East Side Concrete on West Side Work completed from December 1st- 13th.		8,850.00	8,850.00	
Thank you for your business.			Total	\$8,850.00

Locke Construction

P.O. Box 1947

Tulare, CA 93275

Statement

DATE

12/13/98

TO:

AIROSA DAIRY
11275 RD. 96
PIXLEY, CA.

AMOUNT DUE

AMOUNT ENC.

\$3,325.00

DATE

TRANSACTION

AMOUNT

BALANCE

11/30/98

Balance forward

0.00

12/02/98

INV #18

4,475.00

4,475.00

12/03/98

PMT

-10,000.00

-5,525.00

12/13/98

INV #22

8,850.00

3,325.00

CURRENT

1-30 DAYS PAST
DUE

31-60 DAYS PAST
DUE

61-90 DAYS PAST
DUE

OVER 90 DAYS
PAST DUE

AMOUNT DUE

3,325.00

0.00

0.00

0.00

0.00

\$3,325.00

Teacke Construction

12-2

10,000

AIROSA DAIRY
Tulare, California 93274

Tulare, California 93274

Brian Locke Construction

hfr corrals

12/17/98

3,325.00

Checking

3,325.00

AIROSA DAIRY

Tulare, California 93274

Brian Locke Construction

hfr corrals

12/17/98

3,325.00

Checking

3,325.00

Safeguard[®] LITHO USA

SFMS 5001

REORDER FROM YOUR LOCAL SAFEGUARD DISTRIBUTOR. IF UNKNOWN, CALL 800-523-2422

LF045545M 3/96

161
AIROSA DAIRY

18809 ROAD 64
TULARE, CALIFORNIA 93274
(209) 688-5694 757-3598

B BANK OF AMERICA
Tulare, CA 93274

11/35/1210

12/17/98

PAY TO THE
ORDER OF

Brian Locke Construction

\$ ***3,325.00

Three Thousand Three Hundred Twenty-Five and 00/100*****

DOLLAR

Brian Locke Construction
P.O. Box 1947
Tulare, Ca 93275

JOE G. DIANE or JOEY AIROSA



MEMO ▼

VOID AFTER 90 DAYS

THE REVERSE SIDE OF THIS DOCUMENT INCLUDES AN ARTIFICIAL WATERMARK. HOLD AT AN ANGLE TO VIEW.

AIROSA DAIRY

18809 ROAD 64
TULARE, CALIFORNIA 93274
(209) 688-5694 757-3598

BANK OF AMERICA
Tulare, CA 93274

11/35/1210

PAY TO THE ORDER OF **Morris Levin and Son**

\$ **3,541.73**

Three Thousand Five Hundred Forty-One and 73/100*****

DOLLARS

Morris Levin and Son
1816 South K Street
Tulare, Ca 93274

JOE G. DIANE or JOEY AIROSA



MEMO ▼

VOID AFTER 90 DAYS

THE REVERSE SIDE OF THIS DOCUMENT INCLUDES AN ARTIFICIAL WATERMARK - HOLD AT AN ANGLE TO VIEW

11 C

AIROSA DAIR
Tulare, California 93274
Morris Levin and Son

12/15/98

3,541.73

Checking

3,541.73

Safeguard LITHO USA

SFMS 5001

REORDER FROM YOUR LOCAL SAFEGUARD DISTRIBUTOR. IF UNKNOWN, CALL 800-523-2422

LF045545M 3/96



MORRIS LEVIN & SON

1816 So. 'K' St. • Tulare, CA 93274 • (209) 686-8665
320 W. Henderson • Porterville, CA 93257 • (209) 782-5790

Since 1934

STATEMENT DATE NOV 25 1998		STATEMENT		YOUR ACCOUNT NUMBER IS	103732
INVOICE DATE	INVOICE NUMBER	REFERENCE		AMOUNT DUE	
		BALANCE FORWARD..			0.00
11/24/98	3104-01	INV			3,541.73

MORRIS LEVIN & SON HARDWARE**PARTS**RENTAL.
WE ARE NOW OPEN SUNDAYS**FROM 8AM TO 4PM**.

CURRENT	30 DAY	60 DAY	90 DAY	TOTAL DUE
3541.73	0.00	0.00	0.00	3541.73

TO AVOID
FINANCE CHARGES
PAY THIS AMOUNT

"NOTICE: SEE REVERSE SIDE FOR
IMPORTANT CREDIT INFORMATION"

JOEY & LAURIE AIROSO
11275 RD 96
PIXLEY CA 93256

The balance subject to **FINANCE CHARGE** (finance balance) consists of charges incurred by you one month or more before the billing date (the 25th of the month) less payments and credits received by said billing date. The **FINANCE CHARGE** is imposed on the finance balance at the periodic rate of $1\frac{1}{2}\%$ per month (**ANNUAL PERCENTAGE RATE of 18%**) on the finance balance. You may at any time pay your entire indebtedness (new balance).



Hardware • Rental Air Conditioning • Plumbing

1816 S. 'K' St. • Tulare, CA 93274 • (209) 686-8665

320 W. Henderson • Porterville, CA 93257 • (209) 782-5790

Since 1934

CONTRACTORS-LIC. #167881

INVOICE

INVOICE NUMBER

3104

INVOICE DATE

11/24/98

12:17:21PM

62795

PAGE 3

SOLD TO: JOEY AND LAURIE AIROSO
11275 RD 96

PIXLEY CA 93256

CONTRACTING SERVICES INVOICE

RECEIVED BY

ORDER DATE	ACCOUNT NO.	CUSTOMER P.O. NO.	SALESMAN	STORE	TYPE OF SALE	TERMS
11/24/98	103732		165	1	A/R CHARGE	NET 30 DAYS
QUANTITY	UOM	ITEM	DESCRIPTION	UNIT PRICE	AMOUNT	
			TRENCH MAIN LINE AND ARM OVERS. LAY PIPE AND ARM OVERS. LOCATION 11275 RD 96			
			SUB-TOTAL			
			3401.14			
			TAX			
			140.59			
			NET			
			3541.73			

Thank you

Balance subject to **FINANCE CHARGE** (finance balance) consists of charges incurred by you one month or more before the billing date (the 25th of the month) less payments and credits received by said billing date. The **FINANCE CHARGE** is imposed on the finance balance at the periodic rate of 4% per month (**ANNUAL PERCENTAGE RATE OF 18%**) on the finance balance. You may at any time pay your entire indebtedness (new or old).

CONDITIONAL SALE AND TERMS OF ACCOUNT. See above and reverse side. This invoice is for the sale of material and/or labor listed above. Undersigned Buyer hereby agrees to the Contract of Sale and Terms of Account set forth on reverse side. Mechanic's lien may be retained or acquired on any real property approved with material purchased.

I have read the Terms & Conditions of this Contract & agree to them.

X

PURCHASER OR AUTHORIZED AGENT



Hardware • Rental Air Conditioning • Plumbing

1816 S. 'K' St. • Tulare, CA 93274 • (209) 686-8665

320 W. Henderson • Porterville, CA 93257 • (209) 782-5790

Since 1934

CONTRACTORS LIC. #167881

INVOICE

INVOICE NUMBER

3104

INVOICE DATE

11/24/98
12:17:21PM

62795

PAGE 2

SOLD
TO:

JOEY AND LAURIE AIROSO
11275 RD 96

CONTRACTING SERVICES INVOICE

PIXLEY CA 93256

RECEIVED BY

ORDER DATE	ACCOUNT NO	CUSTOMER P.O. NO	SALESMAN#	STORE	TYPE OF SALE	TERMS
11/24/98	103732		165	1	A/R CHARGE	NET 30 DAYS
QUANTITY	UOM	ITEM	DESCRIPTION	UNIT PRICE		AMOUNT
4.00	EA	15923712	2 PVC/80 90DEG ELL	2.700	L	10.80
2.00	EA	15923779	2 PVC/80 TEE SXS	9.990	L	19.98
1.00	EA	15741668	1-IN IPS R W GATE VALVE	6.990	L	6.99
2.00	EA	15923894	2IN PVC/80 FB	9.990	L	19.98
2.00	EA	15919140	2 X 1 GAL HEX BUSHING	2.790	L	5.58
7.00	EA	15923712	2 PVC/80 90DEG ELL	2.700	L	18.90
1.00	EA	UOT	USE OF TRENCHER	292.500	0	292.50
1.00	EA	LA	LABOR	1435.000	0	1435.00
1.00	EA	Z	ZONE CHARGE	27.000	0	27.00
Thank you						

Thank you

The balance subject to **FINANCE CHARGE** (finance balance) consists of charges incurred by you one month or more before the billing date (the 25th of the month) less payments and credits received by said billing date. The **FINANCE CHARGE** is imposed on the finance balance at the periodic rate of 1 1/2% per month (ANNUAL PERCENTAGE RATE OF 18%) on the finance balance. You may at any time pay your entire indebtedness (new balance).

"CONDITIONAL SALE AND TERMS OF ACCOUNT. See above and reverse side. This invoice is for the sale of material and/or labor listed above. The undersigned Buyer hereby agrees to the Contract of Sale and Terms of Account set forth on reverse side. A mechanic's lien may be retained or acquired on any real property approved with material purchased.

I have read the Terms & Conditions of this Contract & agree to them.

X

PURCHASER OR AUTHORIZED AGENT



Hardware • Rental Air Conditioning • Plumbing

1816 S. 'K' St. • Tulare, CA 93274 • (209) 686-8665

320 W. Henderson • Porterville, CA 93257 • (209) 782-5790

Since 1934

CONTRACTORS LIC. #167881

INVOICE

INVOICE NUMBER

3104

INVOICE DATE

11/24/98
12:17:21PM
62795

SOLD
TO:

JOEY AND LAURIE AIROSO
11275 RD 96

CONTRACTING SERVICES INVOICE

PIXLEY CA 93256

RECEIVED BY

ORDER DATE	ACCOUNT NO.	CUSTOMER P.O. NO.	SALESMAN#	STORE	TYPE OF SALE	TERMS	
11/24/98	103732		165	1	A/R CHARGE	NET 30 DAYS	
QUANTITY	UOM	ITEM	DESCRIPTION			UNIT PRICE	AMOUNT
12.00	EA	15923779	2 PVC/80 TEE SX5			9.990	119.88
18.00	EA	15923712	2 PVC/80 90DEG ELL			2.700	48.60
12.00	EA	15923894	2IN PVC/80 FA			9.990	119.88
12.00	EA	15919140	2 X 1 GAL HEX BUSHING			2.790	33.48
12.00	EA	15742427	T-113 1-IN NIBCO GATE VALVE			23.000	276.00
1480.00	FT	16110111	2 PVC SCH 40 PIPE			.620	917.60
25.00	FT	16110129	2 SCH 80 PVC PIPE			.800	20.00
2.00	EA	16810090	705 CEMENT-CLR QT			7.990	15.98
1.00	EA	16810132	P-68 PVC PRIMER QT			6.990	6.99
6.00	EA	15914216	1 IN GAL CLOSE NIPPLE			.390	2.34
6.00	EA	15914224	1 X 2 GAL NIPPLE			.450	2.70
2.00	EA	15914232	1 X 3 GAL NIPPLE			.480	.96

Thank you

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*CONDITIONAL SALE AND TERMS OF ACCOUNT. See above and reverse side. This invoice is for the sale of material and/or labor listed above. The undersigned Buyer hereby agrees to the Contract of Sale and Terms of Account set forth on reverse side. A mechanic's lien may be retained or acquired on any real property approved with material purchased.

I have read the Terms & Conditions of this Contract & agree to them.

X

PURCHASER OR AUTHORIZED AGENT

Locke Construction

P.O. Box 1947
Tulare, CA 93275

Invoice

DATE	INVOICE #
12/27/98	24

BILL TO
AIROSA DAIRY 11275 RD. 96 PIXLEY, CA.

		P.O. NO.	TERMS	PROJECT
			Due on receipt	
DESCRIPTION	QTY	RATE		AMOUNT
Copmletion of corrals on westside except feed lane.		5,785.00		5,785.00
Thank you for your business.		Total		
		\$5,785.00		

161
AIROSA DAIRY

18809 ROAD 64
TULARE, CALIFORNIA 93274
(209) 688-5694 757-3598

BANK OF AMERICA
Tulare, CA 93274

11:35/1210

1/5/99

PAY TO THE
ORDER OF

Brian Locke Construction

***5,785.00

Five Thousand Seven Hundred Eighty-Five and 00/100*****

DOLLARS

Brian Locke Construction
P.O. Box 1947
Tulare, Ca 93275

JOE G. DIANE or JOEY AIROSA



VOID AFTER 90 DAYS

MEMO ▼

AIROSA DAIRY
Tulare, California 93274
Brian Locke Construction

hfr corrals

1/5/99

5,785.00

Checking

5,785.00

Safeguard LITHO USA

SFMS 5001

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LF045545M 3/96

161
AIROSA DAIRY

18809 ROAO 64
TULARE, CALIFORNIA 93274
(209) 688-5694 757-3598



BANK OF AMERICA
Tulare, CA 93274

11-35/1210

1/5/99

PAY TO THE
ORDER OF

Artesia Ready Mix Concrete Inc.

\$ 38,452.94

Thirty Eight Thousand Four Hundred Fifty Two and 94/100 *****

DOLLARS

Artesia Ready Mix Concrete Inc.
P.O. Box 1436
Tulare, Ca 93275

JOE G. DIANE or JOEY AIROSA

MEMO ▼

VOID AFTER 90 DAYS

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161
AIROSA DAIRY

18809 ROAD 64
TULARE, CALIFORNIA 93274
(209) 688-5694 757-3598

B BANK OF AMERICA
Tulare, CA 93274

11:35/12:10

1/5/99

PAY TO THE
ORDER OF

Roman Electric

\$ 5,774.14

Five Thousand Seven Hundred Seventy-Four and 14/100*****

DOLLARS

Roman Electric
5722 W. Pryor Ct
Visalia, CA 93277

JOE G. DIANE or JOEY AIROSA



VOID AFTER 90 DAYS

MEMO ▼

AIROSA DAIRY
Tulare, California 93274
Roman Electric

1/5/99

5,774.14

Checking

5,774.14

Safeguard LITHO USA

SFMS 5001

REORDER FROM YOUR LOCAL SAFEGUARD DISTRIBUTOR. IF UNKNOWN, CALL 800-523-2422

LF045545M 3/5

5774.14

DATE
10/28/98

Airosa Dairy
Joey Airosa
11275 Rd 96
Pixley, CA 93256

AMOUNT DUE	AMOUNT ENC.
\$4,978.95	

DATE	TRANSACTION				AMOUNT	BALANCE
07/31/98	Balance forward					4,773.29
08/05/98	Job 1- PMT #3738 - 1869,1921,2089,2295				-4,773.29	0.00
09/11/98	INV #2505				4,978.95	4,978.95
CURRENT	1-30 DAYS PAST DUE	31-60 DAYS PAST DUE	61-90 DAYS PAST DUE	OVER 90 DAYS PAST DUE	AMOUNT DUE	
0.00	4,978.95	0.00	0.00	0.00	\$4,978.95	

ROMAN ELECTRIC INC.

5722 W. PRYOR CT.
VISALIA, CA 93277-8666
(209) 651-1007

Invoice

DATE	INVOICE NO.
11/2/98	2608

BILL TO
Airosa Dairy Joey Airosa 11275 Rd 96 Pixley, CA 93256

		P.O. NO.	TERMS
			30 Days
DESCRIPTION	QTY	RATE	AMOUNT
Project: Fuel Tank & Commodity Barn Pumps			
1/2" EMT Conduit	40	0.24	9.60T
1/2" EMT RT Conn.	6	0.59	3.54T
1/2" EMT RT Coupling	1	0.59	0.59T
1/2" 1 Hole Straps	10	0.18	1.80T
1/2" TEE Condulet with Cover	1	7.95	7.95T
1/2" Rigid Conduit	10	0.84	8.40T
1 1/2" Channel	1	1.90	1.90T
1/2" Channel Straps	2	0.69	1.38T
1/4" Hilty Anchors	4	1.49	5.96T
1/4" x 20 x 3/4" Screw	4	0.09	0.36T
1" Fender Washers	4	0.09	0.36T
1/2" Rigid Coupling	2	0.69	1.38T
Plastic Anchors	16	0.28	4.48T
6 x 6 x 4 RT Can	1	13.00	13.00T
1" Wood Screws	3	0.06	0.18T
1/2" 3 Hole Bell Boxes	3	6.75	20.25T
1/2' Offset Nipple	2	1.20	2.40T
1/2" Sealing Ring	2	0.59	1.18T
1/2" Lock Rings	2	0.29	0.58T
1/2" Sealtight Flex	32	1.39	44.48T
1/2" Str Sealtight Connector	8	2.89	23.12T
Single Switch W/P Covers	2	6.49	12.98T
Yellow Wire Nuts	29	0.14	4.06T
#14 THHN Wire	440	0.08	35.20T
Telemecanique 1.6 2.5 Manual Starter	1	67.56	67.56T
Telemecanique 5 HP Contactor 120 Volt Coil	1	50.88	50.88T
#10 Tek Screw	9	0.12	1.08T
Black Electrical Tape	1	1.39	1.39T
1/2" Chase Nipple	1	0.59	0.59T
Thank you for your business. Please put invoice number on remittance.		Total	

ROMAN ELECTRIC INC.

5722 W. PRYOR CT.
VISALIA, CA 93277-8666
(209) 651-1007

Invoice

DATE	INVOICE NO.
11/2/98	2608

BILL TO
Airosa Dairy Joey Airosa 11275 Rd 96 Pixley, CA 93256

		P.O. NO.	TERMS
			30 Days
DESCRIPTION	QTY	RATE	AMOUNT
Project: Fuel Tank and Commodity Barn Pumps			
Single Pole Switch	1	1.29	1.29T
Control Transformer 480/240/120 Volt Anchor	1	55.25	55.25T
1/2" Plastic K/O Bushing	1	0.69	0.69T
9/1/98: 2 Men 6.5 Hrs.Ea.-Ran conduit and wire to 2 commodity motors, molasses and mineral tanks. Installed contactor and tested. Disconnect old transformer at old service. Installed at meter location for relocated fuel tank. Ran lower service to pump. Installed switch. Also installed new control transformer to operate float pump.			
Material			383.86
Labor			383.50
Sales Tax		383.50 7.25%	27.83
Thank you for your business. Please put invoice number on remittance.		Total	\$795.19

AIROSA DAIRY

18809 ROAD 64
TULARE, CALIFORNIA 93274
(209) 688-5694 757-3598

BANK OF AMERICA
Tulare, CA 93274

1135/1210

3/1/99

PAY TO THE
ORDER OF

Artesia Ready Mix Concrete Inc

\$ 11,756.62

Eleven Thousand Seven Hundred Fifty Six and 62/100

DOLLARS

Artesia Ready Mix Concrete Inc
P.O. Box 1436
Tulare, Ca 93275

JOE C. DIANE or JOEY AIROSA

MEMO ▼

VOID AFTER 90 DAYS

THE REVERSE SIDE OF THIS DOCUMENT INCLUDES AN ARTIFICIAL WATERMARK - HOLD AT AN ANGLE TO VIEW

AIROSA DAIRY
18809 ROAD 64
TULARE, CALIFORNIA 93274
(559) 688-5694 757-3598

BANK OF AMERICA
Tulare, CA 93274
11:35/1210

4/29/99

PAY TO THE ORDER OF Artesia Ready Mix Concrete Inc

\$ 3,230.00

Three Thousand Two Hundred Thirty and 00/100

DOLLARS

Artesia Ready Mix Concrete Inc
P.O. Box 1436
Tulare, Ca 93275

JOE C. DIANE or JOEY AIROSA



VOID AFTER 90 DAYS

MEMO

THE REVERSE SIDE OF THIS DOCUMENT INCLUDES AN ARTIFICIAL WATERMARK. HOLD AT AN ANGLE TO VIEW

Safeguard
LITHO USA

SFMS 5001

TO REORDER CALL: (559) 224-9923

3,230.00

Checking

3,230.00

4/29/99

AIROSA DAIRY
Tulare, California 93274
Artesia Ready Mix Concrete Inc.

4875

644
AIROSA DAIRY

18809 ROAD 64
TULARE, CALIFORNIA 93274
(559) 688-5694 757-3598



BANK OF AMERICA
Tulare, CA 93274

11:35/1210

6-4-99

PAY TO THE
ORDER OF

US Farm Systems

\$8689 64

Eight thousand & No hundred & Eighty Nine & 64/100

DOLLARS

JOE G. DIANE or JOEY AIROSA

MEMO ▼

Flush Pump Inv # 16387

VOID AFTER 90 DAYS

THE REVERSE SIDE OF THIS DOCUMENT INCLUDES AN ARTIFICIAL WATERMARK - HOLD AT AN ANGLE TO VIEW

(209) 651-1007

9/1/99

Airosa Dairy
Joey Airosa
11275 Rd 96
Pixley, CA 93256

DATE		TRANSACTION			AMOUNT	BALANCE
06/30/99 07/05/99		Balance forward INV #3213			13,394.03	0.00 13,394.03
CURRENT		1-30 DAYS PAST DUE	31-60 DAYS PAST DUE	61-90 DAYS PAST DUE	OVER 90 DAYS PAST DUE	AMOUNT DUE
0.00		13,394.03	0.00	0.00	0.00	\$13,394.03

ROMAN ELECTRIC INC.

5722 W. PRYOR CT.
VISALIA, CA 93277-8666
(209) 651-1007

Invoice

DATE	INVOICE NO.
7/5/99	3213

BILL TO
Airosa Dairy Joey Airosa 11275 Rd 96 Pixley, CA 93256

		P.O. NO.	TERMS
			30 Days
DESCRIPTION	QTY	RATE	AMOUNT
Project: New Heifer Ranch - Power, Flush and Lighting			
2/0 THHN Wire	3,900	0.75477	2,943.60T
#8 THHN Wire	2,040	0.16	326.40T
#2 THHN Wire	2,040	0.42	856.80T
Gallons Wire Pulling Lube	2	14.50	29.00T
Duct Tape	1	4.12	4.12T
Black Electrical Tape	4	1.49	5.96T
2" PVC Sch 40	1,300	0.54	702.00T
1 1/2" PVC Sch 40	670	0.38	254.60T
1" PVC Sch 40	340	0.30	102.00T
1 1/4" PVC Sch 40	820	0.36	295.20T
Qts PVC Glue	3	7.50	22.50T
2" PVC 24" Sweep Elbow	2	6.70	13.40T
2" PVC Coupling	6	1.35	8.10T
2" Male Adapter	2	1.89	3.78T
2" Locknut	2	0.69	1.38T
Rolls Phase Tape	2	2.89	5.78T
Christy Box with Lid	1	56.00	56.00T
1 1/4 Coupling	6	0.92	5.52T
3/4" Coupling	4	0.28	1.12T
6 x 6 x 4 RT Gutter	1	72.00	72.00T
480 Volt 100 Amp Knife Disconnect	1	274.50	274.50T
480 Volt 60 Amp Fused Disconnect	1	256.80	256.80T
4 x 2 Galvanized Backboard	1	50.00	50.00T
240 Volt Single Phase 30 Amp Disconnect	1	59.00	59.00T
5 KVA Transformer RT	1	307.20	307.20T
3/4" PVC LB	1	4.12	4.12T
3/4" PVC Sch 40	12	0.30	3.60T
3/4" Male Adapters	2	0.69	1.38T
Large Blue Wire Nuts	2	0.89	1.78T
Thank you for your business. Please put invoice number on remittance.		Total	

ROMAN ELECTRIC INC.

5722 W. PRYOR CT.
VISALIA, CA 93277-8666
(209) 651-1007

Invoice

DATE	INVOICE NO.
7/5/99	3213

BILL TO
Airosa Dairy Joey Airosa 11275 Rd 96 Pixley, CA 93256

		P.O. NO.	TERMS
			30 Days
DESCRIPTION	QTY	RATE	AMOUNT
Red Wire Nuts	8	0.18	1.44T
6 x 6 x 8 Treated Post	1	12.50	12.50T
2" Square D Hub	1	13.00	13.00T
1 1/2" Square D Hub	1	12.50	12.50T
1" Square D Hub	1	12.50	12.50T
2" Chase Nipple	1	2.89	2.89T
1 1/2" Chase Nipple	1	2.79	2.79T
1" Chase Nipple	1	1.59	1.59T
1/4" x 20 x 1 1/4" Screw	21	0.12	2.52T
1" Fender Washer	21	0.12	2.52T
1/4 x 20 Nut	21	0.12	2.52T
3/0 Distribution Block	1	56.00	56.00T
240 Volt 25 Amp Fuses	3	4.11	12.33T
480 Volt 60 Amp Fuses	3	10.75	32.25T
1000 Watt HPS Fixture	2	395.00	790.00T
1/2" EMT	45	0.24	10.80T
1/2" RT Connectors	3	0.59	1.77T
1/2" RT Couplings	3	0.59	1.77T
1/2" 3 Hole W/P Boxes	3	6.50	19.50T
1/2" Cord Grips	2	4.12	8.24T
16/3 SO Cord	8	0.42	3.36T
TA2 Ilso Lug	5	1.49	7.45T
6 x 6 x 4 RT Box	1	13.50	13.50T
1/2" Myers Hub	2	3.49	6.98T
#10 THHN Wire	600	0.13	78.00T
#12 THNN Wire	600	0.10	60.00T
2/0 Butt Crimps	3	4.95	14.85T
8" - 3/0 - 4 Heat Shrink	3	4.83333	14.50T
6 Station Time Clock	1	120.00	120.00T
480 Volt -120 Volt Control Transformer	1	34.00	34.00T
15 Amp Fuses	1	2.50	2.50T
Thank you for your business. Please put invoice number on remittance.		Total	

ROMAN ELECTRIC INC.

5722 W. PRYOR CT.
VISALIA, CA 93277-8666
(209) 651-1007

Invoice

DATE	INVOICE NO.
7/5/99	3213

BILL TO
Airosa Dairy Joey Airosa 11275 Rd 96 Pixley, CA 93256

DESCRIPTION	QTY	P.O. NO.	TERMS
			30 Days
DESCRIPTION	QTY	RATE	AMOUNT
Fuse Clip Kit	1	12.50	12.50T
1/2" Pipe Hangers	12	0.79	9.48T
120-277 Photoeye Twist Lock	2	11.20	22.40T
20 Amp Receptacle	1	2.89	2.89T
Receptacle W/P Cover	1	5.75	5.75T
1/2" x 2" Bolts	2	0.29	0.58T
1/2" Liquid Tight Flex	6	1.45	8.70T
#16 THHN Wire	15	0.07	1.05T
#14 THHN Wire	15	0.09	1.35T
Cube Relay Socket	1	5.70	5.70T
Cube Relay 24 Volt	1	12.95	12.95T
1/2" ST Flex Conn	2	2.89	5.78T
1/2" ST Flex Conn 90	1	3.12	3.12T
100 Amp 600 VAC Three Phase Square D Fused Disconnect	1	400.80	400.80T
100 Amp 600 VAC Fuses	3	19.00	57.00T
2" PVC Sch80	10	0.89	8.90T
2" Square D Hub	1	12.50	12.50T
2" Offset Nipple	1	5.75	5.75T
1 1/2" Sch 80 PVC	10	0.75	7.50T
1 1/2" 90 Degree Sweeps	1	4.12	4.12T
1 1/2" Male Adapter	2	1.20	2.40T
1 1/2" Lockrings	3	0.29	0.87T
1 1/4" PVC Sch 80	10	0.69	6.90T
1 1/4" Lockring	1	0.24	0.24T
1 1/4" 90 Degree Sweep	1	3.75	3.75T
Square D 30 HP Pumping Panel	1	620.00	620.00T
60 Amp Fuses 600 AC	3	10.20	30.60T
Bucket of Jet Line	1	24.00	24.00T
Thank you for your business. Please put invoice number on remittance.		Total	

ROMAN ELECTRIC INC.

5722 W. PRYOR CT.
VISALIA, CA 93277-8666
(209) 651-1007

Invoice

DATE	INVOICE NO.
7/5/99	3213

BILL TO
Airosa Dairy Joey Airosa 11275 Rd 96 Pixley, CA 93256

P.O. NO.	TERMS
	30 Days

DESCRIPTION	QTY	RATE	AMOUNT
2/25/99: 2 Men 5.0 Hrs. , 1 Man 2.0 Hrs. - Picked up PVC conduit brought out to project. Ran 2" from service to heifer ranch. Ran 1 1/2" back to flush pump. Ran 1" to lighting poles.			
3/11/99: 1 Man 3.0 Hrs. - Built up two 1000 watt fixtures with photocell and power cords. Went out to job site. Premeasured for all wire runs. Ordered and precut wire links.			
3/24/99: 3 Men 3.0 Hrs. -Ran 1 1/4" conduit from flush pump location and stubbed up in three different areas for future flush valves.			
5/3/99: 2 Men 10.5 Hrs., 2 Men 7.0 Hrs. - Pulled in main wire run from 200 amp service back to calf ranch. Pulled in wire run from calf ranch back to flush pump. Started pulling wire to lighting poles.			
5/5/99: 4 Men 10.5 Hrs.- Installed 100 amp disconnect at main service, wired to main hot gutter. Installed underground Christy pull box made up lagoon flush pumping panel. Welded up and installed galvanized backboard at heifer ranch for power distribution. Mounted all distribution panels and 30 HP flush panel.			
5/6/99: 2 Men 6.5 Hrs. Ea. - Made underground splice connections in Christy box, ran conduit and wired (2) 1000 watt HPS fixtures. Installed time clock for flush system. Completed project and tested.			
Material			9,299.79
Labor		3,420.00	3,420.00
Sales Tax		7.25%	674.24

Thank you for your business. Please put invoice number on remittance.	Total	\$13,394.03
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AIROSA DAIRY
18809 ROAD 64
TULARE, CALIFORNIA 93274
(559) 688-5894 / 757-3598

BANK OF AMERICA
Tulare, CA 93274

11/35/1210

5/25/2000

PAY TO THE
ORDER OF

Oxborrow Enterprises

\$ 15,907.50

Fifteen Thousand Nine Hundred Seven and 50/100

DOLLARS

Oxborrow Enterprises
P.O. Box 113
Coalinga, Ca 93210

JOE G. DIANE JOEY OR LAURIE AIROSA

MEMO

VOID AFTER 90 DAYS

THE REVERSE SIDE OF THIS DOCUMENT INCLUDES AN ARTIFICIAL WATERMARK. HOLD AT AN ANGLE TO VIEW.

AIROSA DAIRY
Tulare, California 93274
Oxborrow Enterprises

Sprinkler Pin

5/25/20

Checking

15,907.50

Safeguard LITHO USA

SFMS 5001

TO REORDER CALL: (559) 733-9881

LF045545M

FREITAS LAND LEVELING

Dazing - Land Leveling - Sub-Soiling

STANLEY A. FREITAS
404 East Ash Ave.
Telephone 584-8348

HANFORD, CALIF. 12/2/02

In Account
With

Airosa Savry

11275 Rd. 96

Pipley, CA. 93256

Location Rd. 64

Operator.

[illegible]

AIROSA DAIRY
18809 ROAD 64
TULARE, CALIFORNIA 93274
(559) 688-5694 757-3598

Issue Date	12/31/2002
<input checked="" type="checkbox"/> DEPOSIT ONLY	<input checked="" type="checkbox"/> AD
<input checked="" type="checkbox"/> TOKEN	<input checked="" type="checkbox"/> SIG
<input checked="" type="checkbox"/> HIST	<input checked="" type="checkbox"/> HPF
	<input checked="" type="checkbox"/> MEMO

Bank of America
Tulare, CA 93274

11:35/1210

12/31/2002

PAY TO THE
ORDER OF

Freitas Land Leveling

\$**8,650.00

Eight Thousand Six Hundred Fifty and 00/100*****

DOLLARS

Freitas Land Leveling
404 East Ash Avenue
Hanford, Ca 93230

JOE G. DIANE, JOEY or LAURIE AIROSA

MEMO

VOID AFTER 90 DAYS

THE REVERSE SIDE OF THIS DOCUMENT INCLUDES AN ARTIFICIAL WATERMARK - HOLD AT AN ANGLE TO VIEW

AIROSA DAIRY
Tulare, California 93274
Freitas Land Leveling

12/31/2002

10000

8,650.00

Checking

8,650.00

Safeguard LITHO USA

SFMS 5001

TO REORDER CALL: (559) 224-9923

M01SF031948M 12/01

APPENDIX B

Emissions Calculations

Pre-Project Dairy Information

- Does this dairy house Holstein or Jersey cows?
Most dairies 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?
Answering "yes" assumes worst case.

Pre-Project Herd Size						
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals	
Milk Cows					0	
Dry Cows					0	
Support Stock (Heifers and Bulls)					0	
Large Heifers			450		450	
Medium Heifers			450		450	
Small Heifers			450		450	
Bulls			35		35	
	Calf Hutches				Calf Corrals	
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped
Calves						250
						250

Total Herd Summary	
Total Milk Cows	0
Total Mature Cows	0
Support Stock (Heifers and Bulls)	1,385
Total Calves	250
Total Dairy Head	1,635

Pre-Project Silage Information			
Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn	1	16	80
Alfalfa			
Wheat	1	16	80

Post-Project Dairy Information

- Does this dairy house Holstein or Jersey cows?
Most dairies 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?
Answering "yes" assumes worst case.
- Does this project result in any new lagoon/storage pond(s) or an increase in surface area for any existing lagoon/storage pond(s)?

Post-Project Herd Size						
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals	
Milk Cows	2,550				2,550	
Dry Cows	350				350	
Support Stock (Heifers and Bulls)					0	
Large Heifers			450		450	
Medium Heifers			450		450	
Small Heifers			450		450	
Bulls			35		35	
	Calf Hutches				Calf Corrals	
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped
Calves						250
						250

Total Herd Summary	
Total Milk Cows	2,550
Total Mature Cows	2,900
Support Stock (Heifers and Bulls)	1,385
Total Calves	250
Total Dairy Head	4,535

Post-Project Silage Information			
Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn	1	16	80
Alfalfa			
Wheat	1	16	80

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 type="checkbox"/>	TRUE	Feed according to NRC guidelines	0%	10%
Total Control Efficiency			0%	10%
		Milking Parlor Floor Mitigations		
<input type="checkbox"/>	TRUE	Feed according to NRC guidelines	0%	10%
<input type="checkbox"/>	<input checked="" type="checkbox"/> TRUE	Flush or hose milk parlor immediately prior to, immediately after, or during each milking. Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.	0%	0%
Total Control Efficiency			0%	10%

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 type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	10%
Total Control Efficiency			0%	10%
		Corrals/Pens Mitigations		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	10%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Inspect water pipes and troughs and repair leaks at least once every seven days. Note: If selected for dairies > 999 milk cows, CE is already included in EF.	0%	0%
<input 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. 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).	0%	0%
<input 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. Note: No additional control given for increased cleaning frequency (e.g. BACT requirement).	0%	10%
<input 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. Note: If selected for dairies > 999 milk cows, CE already included in EF.	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Install shade structures such that they are constructed with a light permeable roofing material. 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.	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Install all shade structures uphill of any slope in the corral. 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.		
<input type="checkbox"/>	<input type="checkbox"/>	Clean manure from under corral shades at least once every 14 days, when weather permits access into corral. 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.		
<input type="checkbox"/>	<input type="checkbox"/>	Install shade structure so that the structure has a North/South orientation. 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.		
<input 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-corral 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. Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.	0%	0%
<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			0.00%	19.00%
		Bedding Mitigations		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	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 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.	0%	10%
<input type="checkbox"/>	<input type="checkbox"/>	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.	0%	0%
Total Control Efficiency			0.00%	19.00%
Lanes Mitigations				
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	10%
<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>	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.	0%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Have no animals in exercise pens or corrals at any time.	0%	0%
Total Control Efficiency			0.00%	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 type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	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	0%	0%
<input 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.	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Maintain lagoon pH between 6.5 and 7.5	0%	0%
Total Control Efficiency			0.00%	10.00%
		Liquid Manure Land Application Mitigations		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	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 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.	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Apply liquid/slurry manure via injection with drag hose or similar apparatus	0%	0%
Total Control Efficiency			0.00%	10.00%

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 type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	10%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	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			0.00%	19.00%
Separated Solids Piles Mitigations				
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	10%
<input type="checkbox"/>	<input type="checkbox"/>	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%	0%
Total Control Efficiency			0.00%	10.00%
Solid Manure Land Application Mitigations				
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	10%
<input type="checkbox"/>	<input 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).	0%	0%
<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 checked="" type="checkbox"/>	Apply no solid manure with a moisture content of more than 50%	0%	10%
Total Control Efficiency			0.00%	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 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>Implement two of the following:</p> <p><u>Manage Exposed Silage.</u> 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><u>Maintain Silage Working Face.</u> 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><u>Silage Additive:</u> 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%	39%
Total Control Efficiency*			0.00%	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 type="checkbox"/>	<input checked="" type="checkbox"/>	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%	10%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Begin feeding total mixed rations within 2 hrs of grinding and mixing rations. Note: If selected for dairies > 999 milk cows, control efficiency already included in EF.	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 checked="" type="checkbox"/>	Remove uneaten wet feed from feed bunks within 24 hrs after then end of a rain event.	0%	10%
<input type="checkbox"/>	<input type="checkbox"/>	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%
Total Control Efficiency			0.00%	19.00%

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 type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	28%
Total Control Efficiency			0%	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 type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	28%
<input 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.	0%	50%
Total Control Efficiency			0%	64%
		Bedding Mitigations		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	28%
<input 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.	0.0%	47.7%
Total Control Efficiency			0.00%	62.34%
		Lanes Mitigations		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	28%
Total Control Efficiency			0%	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 type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	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			0.0%	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%

Control Measure	PM10 Control Efficiency
Shaded corrals (milk and dry cows)	16.7%
Shaded corrals (heifers and bulls)	8.3%
Downwind shelterbelts	12.5%
Upwind shelterbelts	10%
Freestall with no exercise pens and non-manure based bedding	90%
Freestall with no exercise pens and manure based bedding	80%
Fibrous layer in dusty areas (i.e. hay, etc.)	10%
Bi-weekly corral/exercise pen scraping and/or manure removal using a pull type manure harvesting equipment in morning hours when moisture in air except during periods of rainy weather	15%
Sprinkling of open corrals/exercise pens	15%
Feeding young stock (heifers and calves) near dusk	10%

Pre-Project PM10 Mitigation Measures

[illegible]

[illegible]

Post-Project PM10 Mitigation Measures

Post-Project PM10 Mitigation Measures														
	Housing Name(s) or #s)	Type of Housing	Type of cow	Total # of cows	# of Combined Housing Units 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	1	open corral	large heifers	450	1	<input checked="" 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	2	open corral	medium heifers	450	1	<input checked="" 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	3	open corral	small heifers	450	1	<input checked="" 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	4	open corral	bulls	35	1	<input checked="" 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	5	open corral	calves	250	1	<input checked="" 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	# of Combined Housing Units 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	6	freestall	milk cows	600	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	7	freestall	milk cows	600	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	8	freestall	milk cows	600	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	9	freestall	milk cows	600	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"/>
5	10A	freestall	milk cows	150	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"/>
6	10B	freestall	dry cows	350	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"/>
Post-Project Total # of Cows				4,535	(The post-project total includes		1,635	dairy cows already on-site and		2900	new cows from the expansion.)			

[illegible]

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	0.43	0.37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Milking Parlor Floor	0.04	0.03	0.04	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Total	8.47	8.44	8.47	8.40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		NH3	Total	8.19	8.19	8.19	8.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cow Housing	VOC	Enteric Emissions in Cow Housing	3.89	3.69	3.89	3.32	2.33	2.23	2.33	2.01	1.81	1.71	1.81	1.54	1.23	1.17	1.23	1.05	0.69	0.65	0.69	0.58	0.32	0.31	0.32	0.28	1.10	1.04	1.10	0.94
		Corrals/Pens	10.00	6.60	10.00	5.35	5.40	3.59	5.40	2.91	4.20	2.76	4.20	2.23	2.85	1.88	2.85	1.52	1.60	1.04	1.60	0.85	0.75	0.50	0.75	0.41	2.55	1.67	2.55	1.35
		Bedding	1.05	1.00	1.05	0.81	0.57	0.54	0.57	0.44	0.44	0.42	0.44	0.34	0.30	0.28	0.30	0.23	0.17	0.16	0.17	0.13	0.08	0.08	0.08	0.06	0.27	0.25	0.27	0.20
		Lanes	0.84	0.80	0.84	0.65	0.45	0.44	0.45	0.35	0.35	0.33	0.35	0.27	0.24	0.23	0.24	0.18	0.13	0.13	0.13	0.10	0.06	0.06	0.06	0.05	0.21	0.20	0.21	0.18
		Total	16.78	12.09	16.78	10.13	8.76	6.80	8.76	6.71	8.81	6.22	8.81	4.38	4.82	3.56	4.82	2.99	2.69	1.88	2.69	1.66	1.22	0.96	1.22	0.80	4.15	3.18	4.15	2.66
	NH3	Enteric Emissions in Cow Housing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Corrals/Pens	41.90	41.90	41.90	15.08	21.20	21.20	21.20	7.63	11.00	11.00	11.00	3.96	7.90	7.90	7.90	2.84	6.00	6.00	6.00	2.16	1.80	1.80	1.80	0.65	15.30	15.30	15.30	5.51
		Bedding	6.30	6.30	6.30	2.37	3.20	3.20	3.20	1.20	1.70	1.70	1.70	0.64	1.20	1.20	1.20	0.45	0.90	0.90	0.90	0.34	0.30	0.30	0.30	0.11	2.30	2.30	2.30	0.87
		Lanes	5.10	5.10	5.10	3.67	2.60	2.60	2.60	1.87	1.30	1.30	1.30	0.94	1.00	1.00	1.00	0.72	0.70	0.70	0.70	0.50	0.20	0.20	0.20	0.14	1.90	1.90	1.90	1.37
		Total	63.30	63.30	63.30	21.13	27.00	27.00	27.00	18.71	14.00	14.00	14.00	6.64	18.16	18.16	18.16	4.82	7.58	7.60	7.60	3.00	2.38	2.30	2.30	0.80	19.60	19.60	19.60	7.74
Liquid Manure Handling	VOC	Lagoons/Storage Ponds	1.52	1.30	1.52	1.17	0.82	0.71	0.82	0.64	0.64	0.54	0.64	0.49	0.43	0.37	0.43	0.33	0.24	0.21	0.24	0.19	0.11	0.10	0.11	0.09	0.40	0.33	0.40	0.30
		Liquid Manure Land Application	1.64	1.40	1.64	1.26	0.89	0.76	0.89	0.69	0.69	0.58	0.69	0.53	0.47	0.40	0.47	0.36	0.26	0.22	0.26	0.20	0.12	0.11	0.12	0.10	0.42	0.35	0.42	0.32
		Total	3.15	2.70	3.15	2.43	1.71	1.47	1.71	1.33	1.33	1.13	1.33	1.02	8.90	0.77	8.90	0.89	8.61	6.43	0.51	8.38	0.24	6.21	0.24	0.18	8.82	8.68	8.82	0.61
	NH3	Lagoons/Storage Ponds	0.20	0.20	0.20	1.10	4.20	4.20	4.20	0.60	2.20	2.20	2.20	0.32	1.50	1.50	1.50	0.22	1.20	1.20	1.20	0.17	0.35	0.35	0.35	0.05	3.00	3.00	3.00	0.43
		Liquid Manure Land Application	0.90	0.90	0.90	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	1.30	0.94	0.37	0.37	0.37	0.27	3.23	3.23	3.23	2.33
		Total	17.10	17.10	17.18	7.59	8.70	8.70	8.70	3.84	4.60	4.60	4.60	1.97	3.20	3.20	3.20	1.44	2.60	2.60	2.60	1.11	0.72	0.72	0.72	0.32	6.23	6.23	6.23	2.76
Solid Manure Handling	VOC	Solid Manure Storage	0.16	0.15	0.16	0.12	0.09	0.08	0.09	0.07	0.07	0.06	0.07	0.05	0.05	0.04	0.05	0.03	0.03	0.02	0.03	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	0.06	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	0.39	0.27	0.21	0.18	0.21	0.15	0.16	0.14	0.16	0.11	0.11	0.09	0.11	0.08	0.06	0.05	0.06	0.04	0.03	0.03	0.03	0.02	0.10	0.08	0.10	0.06
		Total	8.01	6.54	8.01	6.44	6.33	6.29	6.33	6.24	6.26	6.23	6.26	6.10	6.17	6.16	6.17	6.13	6.10	6.09	6.18	0.97	0.96	0.94	0.85	0.93	0.10	0.14	0.16	8.12
	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
		Total	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

Silage and TMR (Total Mixed Ration) Emissions (µg/m²·2-min)				
Feed Storage and Handling		VOC	Uncontrolled	
			EF1	EF2
			Corn Silage	34,681
			Alfalfa Silage	17,458
			Wheat Silage	43,844
			TMR	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 Corrals	5.46	Based on a Summer 2003 study by Texas A&M ASAE at a West Texas Dairy
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)
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.

Pre-Project Potential to Emit (PE1)

Pre-Project Herd Size							
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals		
Milk Cows	0	0	0	0	0		
Dry Cows	0	0	0	0	0		
Support Stock (Heifers and Bulls)	0	0	0	0	0		
Large Heifers	0	0	450	0	450		
Medium Heifers	0	0	450	0	450		
Small Heifers	0	0	450	0	450		
Bulls	0	0	35	0	35		
	Calf Hutches			Calf Corrals			
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped	Total # of Calves
Calves	0	0	0	0	0	250	250

Silage Information				
Feed Type	Maximum # Open Piles	Maximum Height (ft)	Maximum Width (ft)	Open Face Area (ft ²)
Corn	1	16	80	969
Alfalfa	0	0	0	
Wheat	1	16	80	969

Milking Parlor				
Cow	VOC		NH3	
	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	0.0	0	0.0	0

Cow Housing						
Cow	VOC		NH3		PM10	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
Total	18.5	6,760	42.7	15,523	37.5	13,712

Liquid Manure Handling						
Cow	VOC		NH3		H2S*	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	0.0	0	0.0	0	0.8	301
Dry Cows	0.0	0	0.0	0	0.1	21
Support Stock (Heifers and Bulls)	0.0	0	0.0	0	0	0
Large Heifers	1.6	599	5.5	2,025	0	14
Medium Heifers	1.1	405	3.9	1,440	0	10
Small Heifers	0.6	230	3.1	1,125	0	8
Calves	0.2	60	0.5	180	0	1
Bulls	0.1	29	0.6	218	0	2
Total	3.6	1,322	13.6	4,988	0.9	357

Solid Manure Handling				
Cow	VOC		NH3	
	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	0.0	0	0.0	0
Dry Cows	0.0	0	0.0	0
Support Stock (Heifers and Bulls)	0.0	0	0.0	0
Large Heifers	0.3	117	1.1	405
Medium Heifers	0.2	77	0.8	288
Small Heifers	0.1	45	0.6	216
Calves	0.0	13	0.1	38
Bulls	0.0	6	0.1	44
Total	0.6	257	2.7	990

Feed Handling and Storage		
	Daily PE (lb-VOC/day)	Annual PE (lb-VOC/yr)
Corn Emissions	9.9	3,611
Alfalfa Emissions	0.0	0
Wheat Emissions	12.5	4,564
TMR	37.7	13,758
Total	60.1	21,933

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	0.0	0.9	0.0
Cow Housing	0.0	0.0	37.5	0.0	18.5	42.7	0.0
Liquid Manure	0.0	0.0	0.0	0.0	3.6	13.6	0.9
Solid Manure	0.0	0.0	0.0	0.0	0.6	2.7	0.0
Feed Handling	0.0	0.0	0.0	0.0	60.1	0.0	0.0
Total	0.0	0.0	37.5	0.0	82.8	59.0	0.9

Total Annual Pre-Project Potential to Emit (lb/yr)							
Permit	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0	0	0	0	0	0	0
Cow Housing	0	0	13,712	0	6,760	15,523	0
Liquid Manure	0	0	0	0	1,322	4,988	357
Solid Manure	0	0	0	0	257	990	0
Feed Handling	0	0	0	0	21,933	0	0
Total	0	0	13,712	0	30,272	21,501	357

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)

On-bus 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	634
Solid Manure	0	0	0	0	0
Feed Handling	0	0	0	0	0
Total	0	0	0	0	634

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	1	large heifers	450	6.81	14	9.67	8.4	3,065	17.3	6,300	11.9	4,353
2	2	medium heifers	450	4.62	10.1	9.67	5.7	2,079	12.5	4,545	11.9	4,353
3	3	small heifers	450	2.59	7.6	9.67	3.2	1,166	9.4	3,420	11.9	4,353
4	4	bulls	35	4.13	19.5	9.67	0.4	145	1.9	683	0.9	339
5	5	calves	250	1.22	2.3	1.26	0.8	305	1.6	575	0.9	314
Pre-Project Total # of Cows			1,635				18.5	6,760	42.7	15,523	37.5	13,712

Pre-Project Totals						
Total # of Cows	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1,635	18.5	6,760	42.7	15,523	37.5	13,712

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 (PE2)

Post-Project Herd Size							
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals		
Milk Cows	2,550	0	0	0	2,550		
Dry Cows	350	0	0	0	350		
Support Stock (Heifers and Bulls)	0	0	0	0	0		
Large Heifers	0	0	450	0	450		
Medium Heifers	0	0	450	0	450		
Small Heifers	0	0	450	0	450		
Bulls	0	0	35	0	35		
	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	

Silage Information				
Feed Type	Maximum # Open Piles	Maximum Height (ft)	Maximum Width (ft)	Open Face Area (ft²)
Corn	1	16	80	969
Alfalfa	0	0	0	
Wheat	1	16	80	969

Milking Parlor				
Cow		VOC		NH3
Milk Cows		lb/day	lb/yr	lb/day
Total		2.8	1,020	1.0

Cow Housing						
		VOC		NH3		PM10
		lb/day	lb/yr	lb/day	lb/yr	lb/day
Total		88.4	32,188	174.6	63,771	48.6

Liquid Manure Handling						
Cow		VOC		NH3		H2S
		lb/day	lb/yr	lb/day	lb/yr	lb/day
Milk Cows		17.0	6,197	53.0	19,355	0.8
Dry Cows		1.3	466	3.7	1,344	0.1
Support Stock (Heifers and Bulls)		0.0	0	0.0	0	0
Large Heifers		1.3	459	2.4	887	0
Medium Heifers		0.9	311	1.8	648	0
Small Heifers		0.5	171	1.4	500	0
Calves		0.1	45	0.2	80	0
Bulls		0.1	21	0.3	97	0
Total		21.2	7,669	62.8	22,909	0.9

Solid Manure Handling				
Cow		VOC		NH3
		lb/day	lb/yr	lb/day
Milk Cows		3.1	1,122	19.8
Dry Cows		0.2	84	1.4
Support Stock (Heifers and Bulls)		0.0	0	0.0
Large Heifers		0.2	81	0.9
Medium Heifers		0.2	59	0.7
Small Heifers		0.1	32	0.5
Calves		0.0	8	0.1
Bulls		0.0	4	0.1
Total		3.8	1,389	23.5

Feed Handling and Storage		
	Daily PE (lb-VOC/day)	Annual PE (lb-VOC/yr)
Corn Emissions	6.0	2,202
Alfalfa Emissions	0.0	0
Wheat Emissions	7.6	2,784
TMR	94.5	34,479
Total	108.1	39,465

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	2.8	1.0	0.0
Cow Housing	0.0	0.0	48.6	0.0	88.4	174.6	0.0
Liquid Manure	0.0	0.0	0.0	0.0	21.2	62.8	0.9
Solid Manure	0.0	0.0	0.0	0.0	3.8	23.5	0.0
Feed Handling	0.0	0.0	0.0	0.0	108.1	0.0	0.0
Total	0.0	0.0	48.6	0.0	224.3	261.9	0.9

Total Annual Post-Project Potential to Emit (lb/yr)							
Permit	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0	0	0	0	1,020	349	0
Cow Housing	0	0	17,686	0	32,188	63,771	0
Liquid Manure	0	0	0	0	7,669	22,909	357
Solid Manure	0	0	0	0	1,389	8,539	0
Feed Handling	0	0	0	0	39,465	0	0
Total	0	0	17,686	0	81,731	95,568	357

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)] + [(# 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 m³) 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	3,692
Solid Manure	0	0	0	0	0
Feed Handling	0	0	0	0	0
Total	0	0	0	0	3,692

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	1	large heifers	450	4.38	5.536152	9.67	5.4	1,971	6.8	2,491	11.9	4,353
2	2	medium heifers	450	2.99	4.015872	9.67	3.7	1,346	5.0	1,807	11.9	4,353
3	3	small heifers	450	1.66	3.002904	9.67	2.0	747	3.7	1,351	11.9	4,353
4	4	bulls	35	2.65	7.742088	9.67	0.3	93	0.7	271	0.9	339
5	5	calves	250	0.8	0.904968	1.26	0.5	200	0.6	226	0.9	314
Post-Project # of Cows (non-expansion)			1,635				11.9	4,357	16.8	6,146	37.5	13,712

Post-Project Potential to Emit - Cow Housing: New Freestalls at Existing 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	6	milk cows	600	10.13	21.128328	1.37	16.7	6,078	34.7	12,677	2.3	822
2	7	milk cows	600	10.13	21.128328	1.37	16.7	6,078	34.7	12,677	2.3	822
3	8	milk cows	600	10.13	21.128328	1.37	16.7	6,078	34.7	12,677	2.3	822
4	9	milk cows	600	10.13	21.128328	1.37	16.7	6,078	34.7	12,677	2.3	822
5	10A	milk cows	150	10.13	21.128328	1.37	4.2	1,520	8.7	3,169	0.6	206
6	10B	dry cows	350	5.71	10.708992	1.37	5.5	1,999	10.3	3,748	1.3	480
Total # of Cows From Expansion			2,900				76.5	27,831	157.8	57,625	11.1	3,974

Post-Project Totals						
Total # of Cows	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
4,535	88.4	32,188	174.6	63,771	48.6	17,686

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)

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

The quarterly PE values are calculated as follows: $PE \text{ (lb/yr)} \div 4 \text{ (qtr/yr)}$

Using the annual PE2 and PE1 values previously calculated, the QNEC (lb/qtr) for each permit unit is shown below:

Milking Parlor						
	NOx	SOx	PM10	CO	VOC	NH3
Annual PE2 (lb/yr)	0	0	0	0	1,020	349
Daily PE2 (lb/day)	0.0	0.0	0.0	0.0	2.8	1.0
Quarterly Net Emissions Change (lb/qtr)						
1:	0.0	0.0	0.0	0.0	255.0	87.2
2:	0.0	0.0	0.0	0.0	255.0	87.2
3:	0.0	0.0	0.0	0.0	255.0	87.2
4:	0.0	0.0	0.0	0.0	255.0	87.2

Cow Housing						
	NOx	SOx	PM10	CO	VOC	NH3
Annual PE2 (lb/yr)	0	0	17,686	0	32,188	63,771
Daily PE2 (lb/day)	0.0	0.0	48.6	0.0	88.4	174.6
Quarterly Net Emissions Change (lb/qtr)						
1:	0.0	0.0	993.5	0.0	6,357.0	12,062.0
2:	0.0	0.0	993.5	0.0	6,357.0	12,062.0
3:	0.0	0.0	993.5	0.0	6,357.0	12,062.0
4:	0.0	0.0	993.5	0.0	6,357.0	12,062.0

Liquid Manure Handling							
	NOx	SOx	PM10	CO	VOC	NH3	H2S
Annual PE2 (lb/yr)	0	0	0	0	7,669	22,909	357
Daily PE2 (lb/day)	0.0	0.0	0.0	0.0	21.2	62.8	0.9
Quarterly Net Emissions Change (lb/qtr)							
1:	0.0	0.0	0.0	0.0	1586.8	4,480.3	0.0
2:	0.0	0.0	0.0	0.0	1586.8	4,480.3	0.0
3:	0.0	0.0	0.0	0.0	1586.8	4,480.3	0.0
4:	0.0	0.0	0.0	0.0	1586.8	4,480.3	0.0

Solid Manure Handling						
	NOx	SOx	PM10	CO	VOC	NH3
Annual PE2 (lb/yr)	0	0	0	0	1,389	8,539
Daily PE2 (lb/day)	0.0	0.0	0.0	0.0	3.8	23.5
Quarterly Net Emissions Change (lb/qtr)						
1:	0.0	0.0	0.0	0.0	283.0	1,887.3
2:	0.0	0.0	0.0	0.0	283.0	1,887.3
3:	0.0	0.0	0.0	0.0	283.0	1,887.3
4:	0.0	0.0	0.0	0.0	283.0	1,887.3

Feed Storage and Handling						
	NOx	SOx	PM10	CO	VOC	NH3
Annual PE2 (lb/yr)	0	0	0	0	39,465	0
Daily PE2 (lb/day)	0.0	0.0	0.0	0.0	108.1	0.0
Quarterly Net Emissions Change (lb/qtr)						
1:	0.0	0.0	0.0	0.0	4,383.0	0.0
2:	0.0	0.0	0.0	0.0	4,383.0	0.0
3:	0.0	0.0	0.0	0.0	4,383.0	0.0
4:	0.0	0.0	0.0	0.0	4,383.0	0.0

APPENDIX C

Summary of Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA)

San Joaquin Valley Air Pollution Control District

Risk Management Review

To: Jonah Aiyabei – Permit Services
From: Cheryl Lawler – Technical Services
Date: July 2, 2014
Facility Name: Circle A Dairy
Location: 11275 Road 96, Pixley
Application #(s): S-6986-1-1 & 7-0
Project #: S-1065221

A. RMR SUMMARY

Categories	Cow Housing Freestalls 1 - 5 (Unit 1-1)	Milking Parlor (Unit 7-0)	Project Totals	Facility Totals
Prioritization Score	0.188*	0.155*	0.343	0.343
Acute Hazard Index	N/A	N/A	N/A	N/A
Chronic Hazard Index	N/A	N/A	N/A	N/A
Maximum Individual Cancer Risk	N/A	N/A	N/A	N/A
T-BACT Required?	No	No		
Special Permit Conditions?	No	No		

*The unit passed on prioritization with a score of less than 1; therefore, no further analysis was required.

B. RMR REPORT

I. Project Description

Technical Services performed an Ambient Air Quality Analysis and a Risk Management Review for a new dairy that partially commenced construction prior to January 1, 2004 (i.e. before District permit requirements became applicable to farming operations). The District conducted a commencement of construction determination and determined that the cow housing corrals, liquid manure management system, solid manure management system, and feed storage and handling (except commodity barns) all commenced construction prior to January 1, 2004, and are, therefore, grandfathered emission units. The District also determined that the milking barn, five cow housing freestall barns, and commodity barns did not commence construction prior to January 1, 2004, and are, therefore, new emission units. Based on these determinations, the only emission increases to be modeled are from the milking barn and five new cow housing freestall barns. All other emissions are grandfathered.

II. Analysis

Technical Services performed prioritizations for the freestall barns (Unit 1-1) and milking parlor (Unit 7-0) using the District's HEARTs database. Emissions were calculated using District-developed spreadsheets for dairies, and were input into the HEARTs database. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1, March 2, 2001), risks from the proposed units were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. The prioritization scores for the units were less than 1.0 (see RMR Summary Table). Therefore, no further analysis was necessary for these units.

Per District policy, no prioritization or further review was required for the commodity barns.

Because the liquid manure management system (lagoons) was determined to be a grandfathered unit, H₂S concentrations were not required to be reviewed.

The following parameters were used for the review:

Analysis Parameters S-6986, Project S-1065221			
Milk Cows for Milk Parlor		2,550	
Cows for Freestalls 1-4 (each)		600	
Cows for Freestall 5		500	
Annual NH₃ for Milk Parlor	349 lbs	Hourly NH₃ for Milk Parlor	0.0398 lbs
Annual NH₃ for Freestalls 1-4 (each)	12,677 lbs	Hourly NH₃ for Freestalls 1-4 (each)	1.4471 lbs
Annual NH₃ for Freestall 5	6,917 lbs	Hourly NH₃ for Freestall 5	0.7896 lbs
Annual PM₁₀ for Freestalls 1-4 (each)	822 lbs	Hourly PM₁₀ for Freestalls 1-4 (each)	0.0938 lbs
Annual PM₁₀ for Freestall 5	686 lbs	Hourly PM₁₀ for Freestall 5	0.0783 lbs

In addition to the RMR, Technical Services performed an Ambient Air Quality Analysis for Unit 1-1 (Cow Housing – Five New Freestall Barns).

Technical Services performed modeling for the criteria pollutant PM₁₀ using AERMOD. The emission rates used were 822 lbs PM₁₀/year for Freestalls 1-4 (each), and 686 lbs PM₁₀/year for Freestall 5. The results from the Criteria Pollutant Modeling are as follows:

PM₁₀ Pollutant Modeling Results*

Values are in µg/m³

Category	24 Hours	Annual
Proposed Dairy	5.40	0.38
Interim Significance Level	10.4 ¹	2.08 ¹
Result	Pass	Pass

¹The District has decided on an interim basis to use a threshold for fugitive dust sources of 10.4 µg/m³ for the 24-hour average concentration and 2.08 µg/m³ for the annual average concentration.

III. Conclusions

Unit 1-1

The ambient air quality impacts from increased PM₁₀ emissions at the dairy do not exceed the District's 24-hour and annual interim thresholds for fugitive dust sources.

The prioritization score was less than 1.0. In accordance with the District's Risk Management Policy, the unit is approved **without** Toxic Best Available Control Technology (T-BACT).

Unit 7-0

The prioritization score was less than 1.0. In accordance with the District's Risk Management Policy, the unit is approved **without** Toxic Best Available Control Technology (T-BACT).

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

Attachments

RMR Request Form & Attachments
Dairy Emissions Speciation Worksheets
Prioritization
AAQA Results
Facility Summary

APPENDIX D

BACT Analysis

TOP-DOWN BACT ANALYSIS

Pursuant to Section 5.2 of the Settlement Agreement between the District and the Western United Dairyman and the Alliance of Western Milk Producers Inc., signed September 20, 2004, "... the District will not make any Achieved in Practice BACT determinations for individual dairy permits or for the dairy BACT guidance until the final BACT guidance has been adopted by the APCO...."³. Therefore, a cost effectiveness analysis will be performed for all the technologies, which have not been proposed by the applicant.

The U.S. Environmental Protection Agency (USEPA) RACT/BACT/LAER Clearinghouse, the California Air Pollution Control Officers Association (CAPCOA) BACT Clearinghouse, the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) BACT Clearinghouse, the Bay Area Air Quality Management District (BAAQMD), and the South Coast Air Quality Management District (SCAQMD) BACT Guidelines were reviewed to determine potential control technologies for this class and category of operation. No BACT guidelines were found for this class and category of source.

I. Pollutants Emitted from Dairies

1. Particulate Matter

The National Ambient Air Quality Standards currently regulate concentrations of particulate matter with a mass median diameter of 10 micrometers or less (PM₁₀). Studies have shown that particles in the smaller size fractions contribute most to human health effects. A PM_{2.5} standard was published in 1997, but has not been implemented pending the results of ongoing litigation.

All animal confinement facilities are sources of particulate matter emissions. However, the composition of these emissions will vary. Dust emissions from unpaved surfaces, dry manure storage sites, and land application sites are potential particulate matter emission sources. Sources of particulate matter emissions at a dairy include feed, bedding materials, dry manure, and unpaved soil surfaces such as corrals.

The mass of particulate matter emitted from totally or partially enclosed confinement facilities, as well as the particle size distribution, depend on type of ventilation and ventilation rate. Particulate matter emissions from naturally ventilated buildings will be lower than those from mechanically ventilated buildings.

2. Volatile Organic Compounds:

Volatile Organic Compounds (VOCs) result from ruminant digestive processes and are formed as intermediate metabolites when organic matter manure decomposes. Under aerobic conditions, any VOCs formed in the manure are rapidly oxidized to carbon dioxide and water. Under anaerobic conditions, complex organic compounds are microbially

³ Settlement Agreement. Western United Dairymen, Alliance of Western Milk Producers v. San Joaquin Valley Air Pollution Control District, settled in the Fresno Superior Court September 2004
(<http://www.valleyair.org/busind/pto/dpag/settlement.pdf>)

decomposed to volatile organic acids and other volatile organic compounds, which in turn are mostly converted to methane and carbon dioxide by methanogenic bacteria. When the activity of the methanogenic bacteria is not inhibited, virtually all of the VOCs are metabolized to simpler compounds, and the potential for VOC emissions is minimized. However, the inhibition of methane formation results in a buildup of VOCs in the manure and ultimately to volatilization to the air. Inhibition of methane formation typically is caused by low temperatures or excessive loading rates, which both create an imbalance between the populations of microorganisms responsible for the formation of VOC and methane. VOC emissions will vary with temperature because the rate of VOC formation, reduction to methane, and volatilization and the solubility of individual compounds vary with temperature.⁴ VOC emissions from manure and the associated field application site can be minimized by a properly designed and operated stabilization process (such as an anaerobic treatment lagoon). In contrast, VOC emissions will be higher from storage tanks, ponds, overloaded anaerobic lagoons, and the land application sites associated with these systems.

3. Ammonia

When sulfur dioxide and nitrogen oxides are present, ammonia is a precursor for the secondary formation of PM_{2.5} in the atmosphere. Ammonia reacts with sulfuric and nitric acids, which are produced from sulfur dioxide and nitrogen oxides in the ambient air, to form ammonium sulfate, ammonium nitrate, and other fine particulates.⁵ Exposure to high levels of ammonia can cause irritation to the skin, throat, lungs, and eyes.

Ammonia volatilization is the result of the microbial decomposition of nitrogenous compounds in manure. The primary nitrogenous compound in dairy manure is urea, but nitrogenous compounds also occur in the form of undigested organic nitrogen in animal feces. Whenever urea comes in contact with the enzyme urease, which is excreted in animal feces, the urea will hydrolyze rapidly to form ammonia and this ammonia will be emitted soon after. The formation of ammonia will continue more slowly (over a period of months or years) with the microbial breakdown of organic nitrogen in the manure. Because ammonia is highly soluble in water, ammonia will accumulate in manure handled as liquids and semi-solids or slurries, but will volatilize rapidly with drying from manure handled as solids.

The potential for ammonia volatilization exists wherever manure is present, and ammonia will be emitted from confinement buildings, open lots, stockpiles, anaerobic lagoons, and land application from both wet and dry handling systems. The rate of ammonia volatilization is influenced by a number of factors including the concentrations of nitrogenous compounds in the manure, temperature, air velocity, surface area, moisture, and pH. Because of its high solubility in water, the loss of ammonia to the atmosphere will be more rapid when drying of manure occurs. However, there may be little difference in total ammonia emissions between solid and liquid manure handling systems if liquid manure is

⁴ EPA Document "Emissions from Animal Feeding Operations" (Draft, August 15, 2001), pg. 2-10

⁵ Workshop Review Draft for EPA Regional Priority AFO Science Question Synthesis Document - Air Emission Characterization and Management, pg. 2

stored over extended periods of time prior to land application⁶.

II. Top Down BACT Analysis for the Milking Parlor

BACT Analysis for VOC Emissions from the Milking Parlor:

a. Step 1 - Identify all control technologies

Since, specific VOC emissions control efficiencies have not been identified in the literature for dairy milking parlors, the control efficiencies listed are based on the control efficiencies of similar processes and engineering judgment.

- 1) Enclose, capture, and incineration ($\approx 93\%$; 95% Capture, 98% Control)
- 2) Enclose, capture, and biofiltration ($\approx 76\%$; 95% Capture, 80% Control)
- 3) Flush/spray down milking parlors after each group of cows is milked ($\approx 16.5\%$ of the total VOC emissions from the milking parlors; 75% of manure emissions)

Description of Control Technologies

1) Milking Parlor vented to an incinerator capable of achieving 98% control

Milking parlors can be either naturally or mechanically ventilated. According to some dairy designers, mechanical ventilation is more reliable than natural ventilation. Mechanical ventilation can be easily applied to all areas of the milking parlors, except the holding area. The mechanical system for the milking parlors can be utilized to capture the gases emitted from the milking parlors, however in order to capture all of the gases, and to keep an appropriate negative pressure throughout the system, the holding area would also need to be entirely enclosed. No facility currently encloses the holding area since cows are continuously going in and out of the barn throughout the day. The capital required to enclose this large area would also be significant. Although the feasibility of such a technology is in question, it will be considered in this analysis. The captured VOC emissions could then be sent to an incinerator. Thermal incineration is a well-established VOC control technique. During combustion, gaseous hydrocarbons are oxidized to form CO_2 and water. It is assumed that 95% of the gasses emitted from the milking parlor will be captured by the mechanical ventilation system and that 98% of the captured VOCs will be eliminated by thermal incineration⁷; therefore the total control for VOCs from the milking parlor = $0.95 \times 0.98 = 93.1\%$.

2) Milking Parlor vented to a biofilter capable of achieving 80% control

A biofilter is a device for removing contaminants from a gas in which the gas is passed through a media that supports microbial activity by which the pollutants are degraded by biological oxidation. In the biofiltration process, live bacteria biodegrade organic

⁶ Emissions From Animal Feeding Operations – Draft, US EPA – Emissions Standards Division, August 15, 2001, pgs. 2-6 and 2-7

⁷ OAQPS Control Cost Manual, 4th Edition, EPA 450/3-90-006, January 1990, page 3-8.

contaminants and ammonia into carbon dioxide, nitrogen and water. Bacterial cultures (microorganisms that typically consist of several species coexisting in a colony) that use oxygen to biodegrade organics are called aerobic cultures. These bacteria are found in soil, peat, compost and natural water bodies including ponds, lakes, rivers and oceans. They are environmentally friendly and non-harmful to humans unless ingested.

Since biofilters rely on living organisms to function, the temperature, moisture content, and pH of the filter media should be monitored to ensure optimum operating conditions. The filter media also needs to be replaced periodically because of deterioration. It is assumed that 95% of the gasses emitted from the milking parlors will be captured by the mechanical ventilation system and that a properly functioning biofilter will eliminate 80% of the captured VOCs⁸; therefore, the total control for VOCs from the milking parlor = $0.95 \times 0.80 = 76\%$.

3) Milking Parlor Flushed/Sprayed down after each Group of Cows is milked

Almost all dairy operations utilize some type of flush or spray system to wash out the manure that dairy cows deposit in the milking parlors. The primary purpose of the flush or spray system is to maintain the minimum level of sanitation required in the milking parlors. However, this system also serves as an emission control for reducing VOC and ammonia emissions. The manure deposited in the milking parlor, which is a source of VOC emissions, is removed from the milking parlors many times a day by flushing after each milking. Many of the VOCs emitted from fresh cow manure, such as alcohols (ethanol and methanol) and many Volatile Fatty Acids (VFAs), are highly soluble in water. Therefore, a large percentage of these compounds will dissolve in the flush water and will not be emitted from the milking parlors. The flush water can then carry the manure and the dissolved volatile compounds to an anaerobic treatment lagoon or other manure stabilization process for treatment.

It must be noted that flushing or spraying out the milking parlors after each group of cows is milked will only control the VOCs emitted from the manure, it will have little or no effect on enteric emissions produced from the cows' digestive processes. It will be assumed that the control efficiency for VOCs emitted from manure is 75%. Enteric emissions compose approximately 78% of the VOC emissions from the milking parlor and VOC emissions from the manure make up the remaining 22%; therefore the total control for VOCs from the milking parlor = $0.75 \times 0.22 = 16.5\%$.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

After eliminating the technologically infeasible options, the remaining options are ranked according to their control efficiency.

⁸ According to the SCAQMD Rule 1133.2 final staff report (page 18) "Technology Assessment Report states a well designed, well operated, and well-maintained biofilter is capable of achieving 80% destruction efficiency for VOC and NH₃."

- 1) Enclose, capture, and incineration ($\approx 93\%$ of VOC emissions from the milking parlors)
- 2) Enclose, capture, and biofiltration ($\approx 76\%$ of VOC emissions from the milking parlors)
- 3) Flush/spray after each group of cows is milked ($\approx 16.5\%$ of VOC emissions from the milking parlors)

d. Step 4 - Cost Effectiveness Analysis

Thermal and Catalytic Incineration:

The following cost analysis demonstrates that the cost of natural gas alone, not including any capital costs, causes catalytic incineration to exceed the District VOC cost effectiveness threshold. The temperature required for catalytic incineration is 600°F . The temperature required for thermal incineration is $1,400^{\circ}\text{F}$. Since the fuel requirements and fuel cost for thermal incineration are greater than catalytic incineration, the following analysis also demonstrates that thermal incineration would not be cost effective.

Air Flow Rate of Milking Parlor:

In order to effectively calculate the costs of this control option, the airflow rate of the milking parlors must be determined. According to Cornell University's publication "Environmental Controls for Today's Milking Center", the minimum ventilation rate required for milking parlors is 15 room air exchanges per hour in the winter and 60 to 90 room air exchanges per hour in the summer⁹. For calculation purposes, an average airflow rate of 35 room air exchanges will assumed for the new milking parlor.

According to the drawings submitted, the milking parlor is approximately 180 ft long by 90 ft wide and is conservatively assumed to have a height of 20 feet. The total airflow rate is calculated as follows:

$$(180 \text{ ft} \times 90 \text{ ft} \times 20 \text{ ft}) \times 35/\text{hr} = 11,340,000 \text{ ft}^3/\text{hr}$$

Fuel Requirement for Thermal Incineration:

The gas leaving the milking parlor is principally air, with a volumetric specific heat of 0.0194 Btu/scf - $^{\circ}\text{F}$ under standard conditions.

$$\text{Natural Gas Requirement} = (\text{flow})(C_{p\text{Air}})(\Delta T)(1-\text{HEF})$$

Where:

Flow (Q) = exhaust flow rate of VOC exhaust

$C_{p\text{Air}}$ = specific heat of air: 0.0194 Btu/scf

ΔT = increase in the temperature of the contaminated air stream required for catalytic oxidation to occur (It will be assumed that the air

⁹ Environmental Control for Today's Milking Center, C.A. Gooch, <http://www.ansci.cornell.edu/tmplobs/doc217.pdf>

stream would increase in temperature from 100 °F to 600 °F.)
HEF = heat exchanger factor: 0.7

$$\text{Natural Gas Required} = (11,340,000 \text{ scf/hr})(0.0194 \text{ Btu/scf})(600 \text{ °F} - 100 \text{ °F})(1-0.7) \\ = \mathbf{32,999,400 \text{ Btu/hr}}$$

Fuel Cost for Thermal Incineration:

The cost for natural gas will be based upon the average spot market contract price (industrial) for April 2014 taken from the Energy Information Administration website (http://tonto.eia.doe.gov/dnav/ng/ng_sum_lsum_dcua_sca_m.htm).

Average Cost for natural gas = \$8.30/MMBtu

The oxidizer is assumed to operate 12 hours per day and 365 days per year.

The fuel costs to operate the incinerator are calculated as follows:

$$32,999,400 \text{ Btu/hr} \times 1 \text{ MMBtu}/10^6 \text{ Btu} \times 12 \text{ hr/day} \times 365 \text{ day/year} \times \$8.30/\text{MMBtu} = \\ \$1,199,660/\text{year}$$

VOC Emission Reductions for Thermal Incineration

The additional VOC emission reductions for the milking parlor are calculated as follows:

[Uncontrolled Milk Parlor VOC Emissions (lb/yr)] x [Capture Efficiency] x [Thermal Incineration Control Efficiency]

$$= 1,020 \text{ lb/yr}^{10} \times 0.95 \times 0.98$$

$$= 950 \text{ lb/yr}$$

Cost of VOC Emission Reductions

$$\text{Cost of reductions} = (\$1,199,660/\text{year})/((950 \text{ lb-VOC/year})(1 \text{ ton}/2000 \text{ lb})) \\ = \mathbf{\$2,525,600/\text{ton of VOC reduced}}$$

As shown above, the natural gas cost alone for thermal or catalytic incineration would cause the cost of the VOC reductions to be greater than the \$17,500/ton cost effectiveness threshold of the District BACT policy. The equipment is therefore not cost effective and is being removed from consideration at this time.

Biofiltration:

Biofiltration is a method of reducing pollutants in which exhaust air that contains contaminants is blown through a media (e.g., soil, compost, wood chips) that supports a microbial population. The microbes utilize the pollutants such as VOCs and ammonia as nutrients and oxidize the compounds as they pass through the filter.

The following cost analysis demonstrates that the cost of biofiltration exceeds the

¹⁰ Refer to Appendix B for emissions calculations.

District cost effective threshold. Biofiltration can control both VOC and ammonia emissions. Although, this technology can control both pollutants, a cost effective threshold has not been established for ammonia. Therefore, only achieved-in-practice options will be considered for ammonia at this time and a multi-pollutant cost effective analysis for VOC and ammonia will not be performed.

Cost of Biofiltration

The cost estimate for a biofiltration system is taken from the United States EPA Report "Using Bioreactors to Control Air Pollution". The cost is largely dependent on the airflow rate that the filter must handle. According to University of Minnesota, Biofilters used to treat ventilating air exhausted from a livestock building should be sized to treat the maximum ventilation rate, which is typically the warm weather rate. The EPA report gives a range of \$2.35 - \$37.06 per cfm for the initial construction of a biofilter. As stated above, the minimum ventilation rate required for milking parlor is 15 room air exchanges per hour in the winter and 60 to 90 room exchanges per hour in the summer²¹. For more conservative calculations, a warm weather airflow rate of 60 room air exchanges will be assumed for the milking parlor.

The maximum airflow rate entering the biofilter is calculated as follows:

$$180 \text{ ft} \times 90 \text{ ft} \times 20 \text{ ft} \times 60/\text{hr} \times 1 \text{ hr}/60 \text{ min} = 324,000 \text{ cfm}$$

Capital Cost

The cost estimate for the biofilter includes the costs of the fans, media, plenum, engineering, and labor but does not include installation of the required ductwork. As stated above, the United States EPA Report gives a capital cost range of between \$2.35 per cfm and \$37.06 per cfm. In general, the lower cost per cfm is associated with a higher flow rate. To be conservative, the lowest cost in the report of \$2.35 per cfm will be assumed in this cost analysis.

The capital cost of the biofilter is calculated as follows:

$$\$2.35 \text{ cfm} \times 324,000 \text{ cfm} = \$761,400$$

Pursuant to District Policy APR 1305, section X (11/09/99), the cost for the purchase of the biofilter will be spread over the expected life of the system using the capital recovery equation. The biofilter media (e.g., soil, compost, wood chips) must be replaced after 3-5 years in order to remain effective. This is an additional cost that is not being considered in this cost analysis. Therefore, the expected life of the entire system (fans, media, plenum, etc.) will be estimated at 10 years. A 10% interest rate is assumed in the equation and the assumption will be made that the equipment has no salvage value at the end of the ten-year cycle.

$$A = [P \times i(1+i)^n]/[(1+i)^n - 1]$$

Where: A = Annual Cost

P = Present Value

$$\begin{aligned} I &= \text{Interest Rate (10\%)} \\ N &= \text{Equipment Life (10 years)} \\ A &= [\$761,400 \times 0.1(1.1)^{10}]/[(1.1)^{10}-1] \\ &= \mathbf{\$123,915/\text{year}} \end{aligned}$$

VOC Emission Reductions for Biofiltration

The additional VOC emission reductions for the milking parlor are calculated as follows:

[Uncontrolled Milk Parlor VOC Emissions (lb/yr)] x [Capture Efficiency] x [Biofiltration Control Efficiency]

$$= 1,020 \text{ lb/yr} \times 0.95 \times 0.80$$

$$= 775 \text{ lb/yr}$$

Cost of VOC Emission Reductions

$$\begin{aligned} \text{Cost of reductions} &= (\$123,915/\text{year})/((775 \text{ lb-VOC/year})(1 \text{ ton}/2000 \text{ lb})) \\ &= \mathbf{\$319,781/\text{ton of VOC reduced}} \end{aligned}$$

As shown above, the capital cost alone for a biofilter would cause the cost of the VOC reductions to be greater than the \$17,500/ton cost effectiveness threshold of the District BACT policy. Therefore, this option is not cost effective and is being removed from consideration at this time.

Flushing/Spraying down Milking Parlor after each Group of Cows is Milked:

The applicant has proposed this option; therefore a cost-effective analysis is not required.

e. Step 5 - Select BACT

The facility is proposing to flush or spray down the milking parlor after each group of cows is milked, which satisfies the BACT requirements.

Additionally, District Rule 2201 defines BACT as including the most stringent emission limitation or control techniques, including process and equipment changes that have been found by the APCO to be cost effective and technologically feasible for such class or category of sources or for a specific source. The District has found that the mitigation measures required by District Rule 4570 are cost effective and technologically feasible for confined animal facilities and the applicant has proposed these options. Therefore, in addition to the BACT requirements determined in the Top-Down BACT Analysis above, implementation of the mitigation measures that the applicant has selected to comply with Rule 4570 will also be required as part of BACT for VOC emissions from the milking parlor.

III. Top Down BACT Analysis for the Cow Housing – Freestall Barns

1. BACT Analysis for VOC Emissions

a. Step 1 - Identify all control technologies

Since, specific VOC emissions control efficiencies have not been identified in the literature for dairy cow housing areas, the control efficiencies listed are based on the control efficiencies of similar processes and engineering judgment.

The following options were identified as possible controls for VOC emissions from the freestall barns (cow housing permit unit):

- 1) Enclosed freestalls vented to an incinerator (\approx 93%; 95% Capture and 98% Control)
- 2) Enclosed freestalls vented to a biofilter (\approx 76%; 95% Capture and 80% Control)
- 3) Feed and Manure Management Practices (\approx 22%)
 - Concrete feed lanes and walkways
 - Feed lanes and walkways flushed at least four times per day
 - All animals fed in accordance with National Research Council (NRC) or other District-approved guidelines utilizing routine nutritional analysis for rations. (5% of total emissions from dairy cows)
 - All freestall barn exercise pens adequately sloped to promote drainage (minimum of 3% slope where the available space for each animal is 400 square feet or less and minimum of 1.5% slope where the available space for each animal is more than 400 square feet)
 - Scraping of freestall barn exercise pens every two weeks using a pull-type scraper in the morning hours except when prevented by wet conditions
 - Rule 4570 mitigation measures

Description of Control Technologies

1) Enclosed Freestall Barns vented to an incinerator capable of achieving 98% control

In a freestall barn, cows are grouped in large pens with free access to feed bunks, water, and stalls for resting. In the mild climate of the San Joaquin Valley, the typical freestall barn is an open structure (roof but no sides). The primary freestall design consists of a roof that provides shade with all sides open to allow air to flow through, which in turn keeps the cows cool. No enclosed freestall barns that were installed at a California dairy could be identified. However, partially enclosed freestall barns are available. These include tunnel-ventilated freestall barns, which are fairly common in the southern and eastern parts of the United States, and greenhouse barns. Greenhouse barns use a lightweight, galvanized steel tube frame to support one or two layers of a commercial-grade plastic film as covering. The most common use for these structures is

as heated chambers for growing plants. Although the potential to enclose cows in a barn exist, the feasibility of reasonably collecting the biogas through a stack, chimney, or vent remains in question considering the extremely large amounts of airflow going through the barns needed to keep the cows cool. The airflow requirements will be even higher in the San Joaquin valley, where temperatures reach in excess of 110 degrees in the dry summer. Although the feasibility of such a technology is in question, it will be considered in this analysis. If the gases can be properly captured and sent to a control device, then those gases may be either incinerated or treated in a biofilter (see biofilter discussed in the option below). It is assumed that 95% of the gasses emitted from the freestall barns will be captured by the mechanical ventilation system and that 98% of the captured VOCs will be eliminated by thermal incineration²⁶; therefore the total control for VOCs from the freestall barns = $95\% \times 98\% = 93.1\%$.

2) Enclosed Freestall Barns vented to a biofilter capable of achieving 80% control

As stated above, the mechanical ventilation system of a completely enclosed freestall barn may be utilized to capture the gases emitted from the cow housing permit unit. The captured VOC emissions may then be sent to a biofilter. A biofilter is a device for removing contaminants from a gas in which the gas is passed through a media that supports microbial activity by which the pollutants are degraded by biological oxidation. In the biofiltration process, live bacteria biodegrade organic contaminants and ammonia into carbon dioxide, nitrogen and water. Bacterial cultures (microorganisms that typically consist of several species coexisting in a colony) that use oxygen to biodegrade organics are called aerobic cultures. These bacteria are found in soil, peat, compost and natural water bodies including ponds, lakes, rivers and oceans. They are environmentally friendly and non-harmful to humans unless ingested.

Since biofilters rely on living organisms to function, the temperature, moisture content, and pH of the filter media should be monitored to ensure optimum operating conditions. The filter media also needs to be replaced periodically because of deterioration. It is assumed that 95% of the gasses emitted from the cow housing area will be captured by the mechanical ventilation system and that a properly functioning biofilter will eliminate 80% of the captured VOCs⁸; therefore, the total control for VOCs from the cow housing permit unit = $0.95 \times 0.80 = 76\%$.

3) Feed and Manure Management Practices

Concrete feed lanes and walkways

Dairy animals spend a large amount of time on the feed lanes and walkways. Constructing these areas of concrete will reduce particulate matter emissions by having the animals spend more time on a paved surface rather than dry dirt. The concrete lanes and walkways create an avenue for the flush system. The flush system will further reduce particulate matter emissions and will also reduce VOC and ammonia emissions (see below). Although concrete feed lanes and walkways are necessary for an effective flush system, they do not individually reduce emissions of gaseous pollutants; therefore no VOC control efficiency will be assigned for this practice.

Increased flushing of feed lanes and walkways

Many dairy operations use a flush system to remove manure from the corral and freestall feed lanes and walkways. The flush system introduces a large volume of water at the head of the paved area of the corrals or freestalls, and the cascading water removes the manure. The required volume of flush water varies with the size and slope of the area to be flushed. The freestall and corral lanes are for milk and dry cows are typically flushed twice per day, but the flushing frequency can vary between one to four times per day.

In addition to cleaning the corral and freestall feed lanes and walkways, the flush system also serves as an emission control for reducing PM₁₀, VOC, and ammonia emissions. The manure deposited in the lanes, which is a source of VOC emissions, is removed from the cow housing area by the flush system. Many of the VOCs emitted from fresh cow manure, such as alcohols (ethanol and methanol) and many Volatile Fatty Acids (VFAs), are highly soluble in water. Therefore, a large percentage of these compounds will dissolve in the flush water and will not be emitted from the cow housing permit unit. The flush water can then carry the manure and the dissolved volatile compounds to an anaerobic treatment lagoon or other manure stabilization process for treatment.

It must be noted that the flush system will only control the VOCs emitted from the manure it will have little or no effect on enteric emissions produced from the cows' digestive processes. As stated above, the feed lanes and walkways in the cow housing areas are typically flushed twice per day. Flushing the lanes four times per day will increase the frequency that manure is removed from the cow housing permit unit and should result in a higher percentage of soluble volatile compounds being dissolved in the flush. Based on calculations given in the final DPAG report¹¹, flushing the freestall lanes four times per day will be assumed to have a control efficiency of 47% for VOCs emitted from manure until better data becomes available. Enteric emissions compose approximately 61% of the VOC emissions from the cow housing permit unit and VOC emissions from the manure make up the remaining 39%; therefore the total VOC control for flushing the feed lanes and walkways in the cow housing areas four times per day is calculated as follows: $47\% \times 39\% = 18\%$.

Animals fed in accordance with (NRC) or other District-approved guidelines

Nutritional management of dairy feed is routinely practiced to improve milk production and herd health. The potential for VOC emissions can be reduced by reducing the quantity of undigested nutrients in the manure. Many of the VOCs emitted from Confined Animal Facilities, including dairies, originate from the decomposition of undigested protein in animal waste¹². This undigested protein also produces ammonia emissions. The level of microbial action in the manure corresponds to the level of organic nitrogen content in the manure; the lower the level of nitrogen the lower the level of microbial action and the lower the production of ammonia and VOCs.

¹¹ "Recommendations to the San Joaquin Valley Air Pollution Control Officer Regarding Best Available Control Technology for Dairies in the San Joaquin Valley" January 31, 2006, http://www.valleyair.org/busind/pto/dpag/dpag_idx.htm.

¹² "Emissions of Volatile Organic Compounds Originating from UK Livestock Agriculture", Hobbs, P.J. 2004 – Journal of the Science of Food and Agriculture.

A diet that is formulated to feed proper amounts of ruminantly degradable protein will result in improved nitrogen utilization by the animal and corresponding reduction in urea and organic nitrogen content of the manure, which will reduce the production of VOCs and ammonia. The latest National Research Council (NRC) guidelines for the selection of an optimal bovine diet should be followed to the maximum extent possible. The diet recommendations made in this publication seek to achieve the maximum uptake of protein by the animal and the minimum carryover of nitrogen into the manure.

Based on very limited data (Klaunser, 1998, *J Prod Agric*), diet manipulation decreased nitrogen excretion by 34% while improving milk production. Up to 70% of excess nitrogen is lost off of the farm through volatilization, denitrification and leaching. Because of limited research, feeding dairy animals in accordance with National Research Council (NRC) or other District-approved guidelines will be assumed to have a conservative control efficiency of only 5% for both enteric VOC emissions from dairy animals and VOC emissions from manure.

Scraping of exercise pens with a pull-type scraper

Frequent scraping the freestall exercise pens will reduce the amount of manure on the pen surfaces, which will reduce VOC and ammonia emissions resulting from decomposition of this manure. This practice will also provide a uniform surface that promotes aerobic conditions on the corral surface, which will reduce gaseous pollutants from this area.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

After eliminating the technologically infeasible options, the remaining options are ranked according to their control efficiency, as follows:

- 1) Enclosed freestalls vented to an incinerator (\approx 93%; 95% Capture, 98% Control)
- 2) Enclosed freestalls vented to a biofilter (\approx 76%; 95% Capture, 80% Control)
- 3) Feed and Manure Management Practices (\approx 22%)
 - Concrete feed lanes and walkways
 - Feed lanes and walkways flushed at least four times per day
 - All animals fed in accordance with National Research Council (NRC) or other District-approved guidelines utilizing routine nutritional analysis for rations (5% of total emissions from dairy cows)
 - All freestall barn exercise pens adequately sloped to promote drainage (minimum of 3% slope where the available space for each animal is 400 square feet or less and minimum of 1.5% slope where the available space for each animal is more than 400 square feet)

- Scraping of freestall barn exercise pens every two weeks using a pull-type scraper in the morning hours except when prevented by wet conditions
- Rule 4570 mitigation measures.

d. Step 4 - Cost Effectiveness Analysis

Thermal and Catalytic Incineration:

The following cost analysis demonstrates that the cost of natural gas alone, not including any capital costs, causes catalytic incineration to exceed the District VOC cost effectiveness threshold. The temperature required for catalytic incineration is 600 °F. The temperature required for thermal incineration is 1,400 °F. Since the fuel requirements and fuel cost for thermal incineration are greater than catalytic incineration, the following analysis also demonstrates that thermal incineration would not be cost effective.

Required Airflow Rate of the Freestall Barns

In order to calculate the costs of this control option, the airflow rate required for the freestall barns must be determined. The University of Minnesota's publication "Improving Mechanical Ventilation in Dairy Barns", gives minimum ventilation rates for dairy cattle, which are listed in the following table:

Minimum Ventilation Rates for Dairy Cows (cfm/cow)			
Category	Winter	Mild Weather	Summer
Baby Calf	15	50	100
Heifer (2-12 months)	20	60	130
Heifer (12-24 months)	30	80	180
Mature Cow	50	170	500 - 1,000

The minimum summer ventilation rate listed for mature cows is 500 cfm per cow. However, according to the University of Minnesota publication and Cornell University's publication "Natural or Tunnel Ventilation of Freestall Structures: What is Right for Your Dairy Facility?", the required airflow rate in the summer increases to 1,000 cfm per cow if tunnel ventilation is used to provide additional cooling¹³.

The climate in the San Joaquin Valley is characterized by relatively mild winters and hot summers. Because of the warmer climate, it is expected that tunnel ventilation or a similar system would need to be employed in an enclosed freestall barn to prevent excessive heat stress. Additionally, tunnel ventilation systems, which operate with negative pressure inside the freestall barns, are more representative of the types of

¹³ Improving Mechanical Ventilation in Dairy Barns, J.P. Chastain, <http://www.bae.umn.edu/extens/aeu/aeu3.html> and Natural or Tunnel Ventilation of Freestall Structures: What is Right for Your Dairy Facility?, C.A. Gooch, <http://www.ansci.cornell.edu/tmplobs/doc225.pdf>

systems that would be required to capture and control emissions. Although the summer air requirement of 1,000 cfm per cow for tunnel ventilation is more representative of the airflow requirements in a completely enclosed freestall barn located in the San Joaquin Valley, for calculation purposes the following average year round airflow requirement will be assumed: mature cows – 335 cfm/cow (average of 170 and 500 cfm per cow).

The dairy will house a maximum of 2,900 mature cows. The cows will be housed in freestall barns. Each barn will house approximately 600 cows.

The total required airflow rate for each barn is calculated as follows:

$$600 \text{ cows} \times 335 \text{ cfm/cow} \times 60 \text{ min/hr} \\ = 12,060,000 \text{ ft}^3/\text{hr}$$

Fuel Requirement for Catalytic Incineration

The gas leaving the freestall barns will be principally air, with a volumetric specific heat of 0.0194 Btu/scf - °F under standard conditions.

$$\text{Natural Gas Requirement} = (\text{flow})(C_{p\text{Air}})(\Delta T)(1-\text{HEF})$$

Where:

Flow (Q) = exhaust flow rate of VOC the freestall barns

$C_{p\text{Air}}$ = specific heat of air: 0.0194 Btu/scf - °F

ΔT = increase in the temperature of the contaminated air stream required for catalytic oxidation to occur (It will be assumed that the air stream would increase in temperature from 100 °F to 600 °F.)

HEF = heat exchanger factor: 0.7

$$= (12,060,000 \text{ scf/hr})(0.0194 \text{ Btu/scf} - ^\circ\text{F})(600 ^\circ\text{F} - 100 ^\circ\text{F})(1 - 0.7) \\ = \mathbf{35,094,600 \text{ Btu/hr}}$$

The cost for natural gas will be based upon the average spot market contract price (industrial) for April 2014 taken from the Energy Information Administration website (http://tonto.eia.doe.gov/dnav/ng/ng_sum_lsum_dcu_SCA_m.htm).

$$\text{Average Cost for natural gas} = \$8.30/\text{MMBtu}$$

The oxidizer is assumed to operate 12 hours per day and 365 days per year.

The fuel costs to operate the incinerator are calculated as follows:

$$35,094,600 \text{ Btu/hr} \times 1 \text{ MMBtu}/10^6 \text{ Btu} \times 12 \text{ hr/day} \times 365 \text{ day/year} \times \$8.30/\text{MMBtu} \\ = \$1,275,829/\text{year}$$

VOC Emission Reductions

The additional VOC emission reductions for the freestall barn are calculated as follows:

$$[\text{Uncontrolled freestall barn VOC Emissions (lb/yr)}] \times [\text{Capture Efficiency}] \times [\text{Thermal}]$$

Incineration Control Efficiency]

$$= 6,078 \text{ lb/yr} \times 0.95 \times 0.98$$

$$= 5,659 \text{ lb/yr}$$

Cost of VOC Emission Reductions

$$\begin{aligned} \text{Cost of reductions} &= (\$1,275,829/\text{year}) / ((5,659 \text{ lb-VOC/year})(1 \text{ ton}/2000 \text{ lb})) \\ &= \mathbf{\$450,903/\text{ton of VOC reduced}} \end{aligned}$$

As shown above, the natural gas cost alone for thermal or catalytic incineration would cause the cost of the VOC reductions to be greater than the \$17,500/ton cost effectiveness threshold of the District BACT policy. Additional costs such as the cost of constructing freestalls for all support stock, enclosing all freestalls, and the cost of installing and operating a cooling system for cow comfort would make it even less cost effective to install this technology. The equipment is therefore not cost effective and is being removed from consideration at this time.

Biofiltration:

Biofiltration is a method of reducing pollutants in which exhaust air that contains contaminants is blown through a media (e.g., soil, compost, wood chips) that supports a microbial population. The microbes utilize the pollutants such as VOCs and ammonia as nutrients and oxidize the compounds as they pass through the filter.

The following cost analysis demonstrates that the cost of biofiltration exceeds the District cost effective threshold. Biofiltration can control both VOC and ammonia emissions. Although, this technology can control both pollutants, a cost effective threshold has not been established for ammonia. Therefore, only achieved-in-practice options will be considered for ammonia at this time and a multi-pollutant cost effective analysis for VOC and ammonia will not be performed.

Cost of Biofiltration

The cost estimate for a biofiltration system is taken from the United States EPA Report "Using Bioreactors to Control Air Pollution"¹⁴. The cost is largely dependent on the airflow rate that the filter must handle. According to University of Minnesota, Biofilters used to treat ventilating air exhausted from a livestock building should be sized to treat the maximum ventilation rate, which is typically the warm weather rate. The EPA report gives a range of \$2.35 - \$37.06 per cfm for the initial construction of a biofilter. As discussed above in the thermal/catalytic incineration section, the average year round airflow requirements for mature cows will be assumed to be 335 cfm/cow.

The total required airflow rate for each freestall barn is calculated as follows:

$$\text{Total airflow} = \# \text{ of cows} \times \text{airflow (cfm)}/\text{cow}$$

¹⁴ "Using Bioreactors to Control Air Pollution" EPA-456/R-03-003, The Clean Air Technology Center (CATC), U.S. Environmental Protection Agency (E143-03) (September 2003) <http://www.epa.gov/ttn/catc/dir1/fbiorect.pdf>

$$\begin{aligned} &= 600 \text{ cows} \times 335 \text{ cfm/cow} \\ &= 201,000 \text{ ft}^3/\text{hour} \end{aligned}$$

Capital Cost

The cost estimate for the biofilter includes the costs of the fans, media, plenum, engineering, and labor but does not include installation of the required ductwork. As stated above, the United States EPA Report gives a capital cost range of between \$2.35 per cfm and \$37.06 per cfm. In general, the lower cost per cfm is associated with a higher flow rate. To be conservative, the lowest cost in the report of \$2.35 per cfm will be assumed in this cost analysis.

The capital cost of the biofilter is calculated as follows:

$$\$2.35/\text{cfm} \times 201,000 \text{ cfm} = \mathbf{\$472,350}$$

Pursuant to District Policy APR 1305, section X (11/09/99), the cost for the purchase of the biofilter will be spread over the expected life of the system using the capital recovery equation. Although, the biofilter media (e.g., soil, compost, wood chips) must be replaced after 3-5 years, this does not constitute a significant cost of the system. Therefore, the expected life of the system (fans, media, ductwork, plenum, etc.) is estimated at 10 years. A 10% interest rate is assumed in the equation and the assumption will be made that the equipment has no salvage value at the end of the ten-year cycle.

$$A = [P \times i(1+i)^n]/[(1+i)^n - 1]$$

Where: A = Annual Cost

P = Present Value

I = Interest Rate (10%)

N = Equipment Life (10 years)

$$\begin{aligned} A &= [\$472,350 \times 0.1(1.1)^{10}]/[(1.1)^{10} - 1] \\ &= \mathbf{\$76,873/\text{year}} \end{aligned}$$

VOC Emission Reductions for Biofiltration

The additional VOC emission reductions for the freestall barn are calculated as follows:

[Uncontrolled freestall barn VOC Emissions (lb/yr)] x [Capture Efficiency] x [Biofiltration Control Efficiency]

$$= 6,078 \text{ lb/yr} \times 0.95 \times 0.80$$

$$= 4,619 \text{ lb/yr}$$

Cost of VOC Emission Reductions

$$\begin{aligned}\text{Cost of reductions} &= (\$76,873/\text{year})/((4,619 \text{ lb-VOC}/\text{year})(1 \text{ ton}/2000 \text{ lb})) \\ &= \mathbf{\$33,286/\text{ton of VOC reduced}}\end{aligned}$$

As shown above, the capital cost alone for a biofilter would cause the cost of the VOC reductions to be greater than the \$17,500/ton cost effectiveness threshold of the District BACT policy. Additional costs such as enclosing all freestall barns, and the cost of installing and operating a cooling system would make it even less cost effective to install this technology. Therefore, this option is not cost effective and is being removed from consideration at this time.

Feed and Manure Management Practices:

The applicant has proposed this option; therefore a cost-effective analysis is not required.

e. Step 5 - Select BACT

The facility is proposing to use concrete feed lanes and walkways; flush the feed lanes and walkways four times per day; adequately slope exercise pens to promote drainage; feed all animals in accordance with National Research Council (NRC) or other District-approved guidelines utilizing routine nutritional analysis for rations; and scrape exercise pens every two weeks with a pull-type scraper except during wet conditions.

Additionally, District Rule 2201 defines BACT as including the most stringent emission limitation or control technique, including process and equipment changes, that has been found by the APCO to be cost effective and technologically feasible for such class or category of sources or for a specific source. The District has found that the mitigation measures required by District Rule 4570 are cost effective and technologically feasible for confined animal facilities and the applicant has proposed these options. Therefore, in addition to the BACT requirements determined in the Top-Down BACT Analysis above, implementation of the mitigation measures that the applicant has selected to comply with Rule 4570 will also be required as part of BACT for VOC emissions from the cow housing permit.

2. BACT Analysis for NH₃ Emissions from the Cow Housing Permit Unit:

a. Step 1 - Identify all control technologies

A cost effectiveness threshold has not been established for ammonia. Therefore, only options that meet the District's definition of Achieved-in-Practice controls will be evaluated in this project. However, for purposes of the Dairy BACT Guideline, the District will not deem any control options Achieved-in-Practice until after the final Dairy BACT Guideline has been established

The following management practices have been identified as possible control options for the NH₃ emissions from the cow housing permit unit and have been proposed by the

applicant:

1) Feed and Manure Management Practices

- Concrete feed lanes and feed walkways
- Feed lanes and walkways flushed at least four times per day
- All animals fed in accordance with National Research Council (NRC) or other District-approved guidelines utilizing routine nutritional analysis for rations
- All freestall barn exercise pens adequately sloped to promote drainage (minimum of 3% slope where the available space for each animal is 400 square feet or less and minimum of 1.5% slope where the available space for each animal is more than 400 square feet)
- Scraping of freestall barn exercise pens every two weeks using a pull-type scraper in the morning hours except when prevented by wet conditions

Description of Control Technologies

1) Feed and Manure Management Practices

Concrete feed lanes and walkways:

Dairy animals spend a large amount of time on the feed lanes and walkways. Constructing these areas of concrete will reduce particulate matter emissions by having the animals spend more time on a paved surface rather than dry dirt. The concrete lanes and walkways create an avenue for the flush system. The flush system will further reduce particulate matter emissions and will also reduce VOC and ammonia emissions.

Increased flushing of feed lanes and walkways:

Many dairy operations use a flush system to remove manure from the corral and freestall feed lanes and walkways. The flush system introduces a large volume of water at the head of the paved area of the corrals or freestalls, and the cascading water removes the manure. The required volume of flush water varies with the size and slope of the area to be flushed. The freestall and corral lanes for milk and dry cows are typically flushed twice per day, but the flushing frequency can vary between one to four times per day.

In addition to cleaning the corral and freestall feed lanes and walkways, the flush system also serves as an emission control for reducing PM₁₀, VOC, and ammonia emissions. The manure deposited in the lanes, which is also a source of NH₃ emissions, is removed from the cow housing area by the flush system. Ammonia has a high affinity for water and is highly soluble in water. Therefore, a large portion of ammonia will be flushed away with the flush water and will not be emitted from the cow housing permit unit.

Animals fed in accordance with (NRC) or other District-approved guidelines:

Nutritional management of dairy feed is routinely practiced to improve milk production and herd health. The potential for ammonia emissions can be reduced by reducing the amount of undigested nitrogen compounds in the manure. The level of microbial action in the manure corresponds to the level of organic nitrogen content in the manure; the lower the level of nitrogen the lower the level of microbial action and the lower the production of ammonia and VOCs.

A diet that is formulated to feed proper amounts of ruminantly degradable protein will result in improved nitrogen utilization by the animal and corresponding reduction in urea and organic nitrogen content of the manure, which will reduce the production of VOCs and ammonia. The latest National Research Council (NRC) guidelines for the selection of an optimal bovine diet should be followed to the maximum extent possible. The diet recommendations made in this publication seek to achieve the maximum uptake of protein by the animal and the minimum carryover of nitrogen into the manure.

Scraping of exercise pens with a pull-type scraper:

Frequent scraping the freestall exercise pens and corrals will reduce the amount of manure on the corral surfaces, which will reduce VOC and ammonia emissions resulting from decomposition of this manure. This practice will also provide a uniform surface that promotes aerobic conditions on the corral surface, which will reduce gaseous pollutants from this area.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

After eliminating the technologically infeasible options, the remaining options are ranked according to their control efficiency.

1) Feed and Manure Management Practices

- Concrete feed lanes and feed walkways
- Feed lanes and walkways flushed or scraped/vacuumed four times per day
- All animals fed in accordance with National Research Council (NRC) or other District-approved guidelines utilizing routine nutritional analysis for rations
- All freestall barn exercise pens adequately sloped to promote drainage (minimum of 3% slope where the available space for each animal is 400 square feet or less and minimum of 1.5% slope where the available space for each animal is more than 400 square feet)
- Scraping of freestall barn exercise pens every two weeks using a pull-type scraper in the morning hours except when prevented by wet conditions

d. Step 4 - Cost Effectiveness Analysis

The applicant has proposed the only option listed; therefore a cost analysis is not required.

e. Step 5 - Select BACT

The facility is proposing to use concrete feed lanes and walkways; flush the feed lanes and walkways at least four times per day; adequately slope open exercise pens to promote drainage; feed all animals in accordance with National Research Council (NRC) or other District-approved guidelines utilizing routine nutritional analysis for rations; and scrape exercise pens every two weeks using a pull-type scraper except during wet conditions.

Additionally, District Rule 2201 defines BACT as including the most stringent emission limitation or control technique, including process and equipment changes, that has been found by the APCO to be cost effective and technologically feasible for such class or category of sources or for a specific source. The District has found that the mitigation measures required by District Rule 4570 are technologically feasible for confined animal facilities and the applicant has proposed these options. Although District Rule 4570 is only intended to reduce VOC emissions, many of these measures also reduce ammonia emissions. Therefore, in addition to the BACT requirements determined in the Top-Down BACT Analysis above, implementation of the mitigation measures that the applicant has selected to comply with Rule 4570 will also be required as part of BACT for NH₃ emissions from the cow housing permit.

3. BACT Analysis for PM₁₀ Emissions from Freestall Barns:

a. Step 1 - Identify all control technologies

The following options were identified as controls for PM₁₀ emissions:

1) Design and Management Practices

- Freestall barn housing
- Concrete feed lanes and walkways
- Frequent flushing

Description of Control Technologies:

All of the additional milk cows will be housed in freestall barns. Freestall barn housing is an effective PM₁₀ control measure because cows will spend majority of their time on paved surfaces under the barn rather than on loose dirt. Additionally, misters used for cooling cows, as well as frequent flushing of the freestall lanes, create a moist environment that significantly decreases particulate matter emissions.

b. Step 2 - Eliminate technologically infeasible options

All the proposed control measures are technologically feasible.

c. Step 3 - Rank remaining options by control effectiveness

1) Design and Management Practices

- Freestall barn housing
- Concrete feed lanes and walkways
- Frequent flushing

d. Step 4 - Cost Effectiveness Analysis

The applicant has proposed all the control options listed above; hence a cost-effectiveness analysis is not required.

e. Step 5 - Select BACT

The facility is proposing to house all the milk and dry cows in freestall barns. The proposed control measures satisfy BACT for PM10 emission.

APPENDIX E

Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-6986-1-1

LEGAL OWNER OR OPERATOR: CIRCLE A DAIRY
MAILING ADDRESS: PO BOX 1087
TIPTON, CA 93272

LOCATION: 11275 ROAD 96
PIXLEY, CA

EQUIPMENT DESCRIPTION:

MODIFICATION OF COW HOUSING - 450 LARGE HEIFERS (15 - 24 MONTHS), 450 MEDIUM HEIFERS (7 - 14 MONTHS), 450 SMALL HEIFERS (4 - 6 MONTHS), AND 35 MATURE BULLS HOUSED IN FLUSHED CORRALS; AND 250 CALVES (0 - 3 MONTHS) HOUSED IN SCRAPED CORRALS; ADD 2,550 MILK COWS AND 350 DRY COWS HOUSED IN 5 NEW FREESTALL BARNs WITH A FLUSH SYSTEM; INCORPORATE RULE 4570 MITIGATION MEASURES.

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. {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 Rule 4570]
4. The total number of cattle housed at the dairy at any one time shall not exceed any of the following limits: 2,550 milk cows, not to exceed a combined total of 2,900 mature cows (milk and dry); 1,385 support stock (heifers and bulls); and 250 calves (0 - 3 months old). [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

Arnaud Marjollet, Director of Permit Services

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5. All animals at this dairy shall be fed in accordance with the National Research Council (NRC) guidelines utilizing routine dairy nutritionist analyses of rations. [District Rule 2201]
6. {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 Rule 4570]
7. Freestall barn feed lanes and walkways shall be paved and shall be flushed at least four times per day. [District Rules 2201 and 4570]
8. Permittee shall maintain records sufficient to demonstrate that freestall barn lanes are flushed at least four times per day. [District Rules 2201 and 4570]
9. {4492} Permittee shall remove manure that is not dry from individual cow freestall beds or rake, harrow, scrape, or grade freestall bedding at least once every seven (7) days. [District Rule 4570]
10. {4493} Permittee shall record the date that manure that is not dry is removed from individual cow freestall beds or raked, harrowed, scraped, or freestall bedding is graded at least once every seven (7) days. [District Rule 4570]
11. {4499} Permittee shall inspect water pipes and troughs and repair leaks at least once every seven (7) days. [District Rule 4570]
12. {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 Rule 4570]
13. {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 Rule 4570]
14. {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 Rule 4570]
15. {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 Rule 4570]
16. {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 Rule 4570]
17. Freestall barn exercise pens shall be adequately sloped to promote drainage (minimum of 3% slope where the available space for each animal is 400 square feet or less and minimum of 1.5% slope where the available space for each animal is more than 400 square feet). [District Rule 2201]
18. Freestall barn exercise pens shall be scraped every two weeks using a pull-type scraper in the morning hours except when prevented by wet conditions. [District Rule 2201]
19. Permittee shall maintain sufficient records to demonstrate that freestall barn exercise pens are scraped every two weeks using a pull-type scraper in the morning hours except when prevented by wet conditions. [District Rule 2201]
Federally Enforceable Through Title V Permit
20. {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 Rule 4570]
21. {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 Rule 4570]
22. {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 Rule 4570]

CONDITIONS CONTINUE ON NEXT PAGE

23. {4519} Permittee shall measure and document the depth of manure in the corrals at least once every ninety (90) days. [District Rule 4570]
24. 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]
25. Inspection for potholes and other sources of emissions shall be done on a monthly basis. Permittee shall maintain records of such inspections. [District Rule 2201]
26. Firm, stable, and not easily eroded soils shall be used for the exercise pens. A supply of fill soil shall be kept on site in order to fill areas where erosion and gouging occurs. [District Rule 2201]
27. Clean rainfall runoff shall be diverted around exercise pens to reduce the amount of water that is potentially detained on the exercise pen surfaces. [District Rule 2201]
28. {3657} All records shall be kept and maintained for a minimum of five (5) years and shall be made available to the APCO, ARB and EPA upon request. [District Rule 4570]
29. {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]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-6986-2-1

LEGAL OWNER OR OPERATOR: CIRCLE A DAIRY
MAILING ADDRESS: PO BOX 1087
TIPTON, CA 93272

LOCATION: 11275 ROAD 96
PIXLEY, CA

EQUIPMENT DESCRIPTION:

MODIFICATION OF LIQUID MANURE MANAGEMENT SYSTEM CONSISTING OF A MECHANICAL SEPARATOR, TWO SETTLING BASINS (895' X 70' X 16'), AND ONE STORAGE POND (1192' X 170' X 18'): INCORPORATE RULE 4570 MITIGATION MEASURES.

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. {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 Rule 4570]
4. {4538} Permittee shall remove solids with a solid separator system, prior to the manure entering the lagoon. [District Rule 4570]
5. {4550} Permittee shall not allow liquid manure to stand in the fields for more than twenty-four (24) hours after irrigation. [District Rule 4570]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director / APCO

Arnaud Marjollet, Director of Permit Services

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6. {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]
7. {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 Rule 4570]
8. {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]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-6986-3-1

LEGAL OWNER OR OPERATOR: CIRCLE A DAIRY
MAILING ADDRESS: PO BOX 1087
TIPTON, CA 93272

LOCATION: 11275 ROAD 96
PIXLEY, CA

EQUIPMENT DESCRIPTION:

MODIFICATION OF SOLID MANURE MANAGEMENT SYSTEM CONSISTING OF MANURE STOCKPILES AND WINDROW COMPOSTING; MANURE IS HAULED OFFSITE. INCORPORATE RULE 4570 MITIGATION MEASURES.

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. {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 Rule 4570]
4. {4526} 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, except for times when wind events remove the covering, not to exceed twenty-four (24) hours per event. [District Rule 4570]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

Arnaud Marjollet, Director of Permit Services

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5. {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 Rule 4570]
6. {4528} If weatherproof coverings are used, permittee shall maintain records, such as manufacturer warranties or other documentation, demonstrating that the weatherproof covering over dry manure are installed, used, and maintained in accordance with manufacturer recommendations and applicable standards listed in NRCS Field Office Technical Guide Code 313 or 367, or any other applicable standard approved by the APCO, ARB, and EPA. [District Rule 4570]
7. {4545} Permittee shall not apply solid manure with a moisture content of more than 50%. [District Rule 4570]
8. {4546} Permittee shall maintain records of the moisture content of the solid manure each time solid manure is land applied. [District Rule 4570]
9. {4547} Moisture content shall be determined using test Methods for the examination of compost and Composting (TMECC) Method 3.09 or any other alternative test method approved by the APCO, ARB, and EPA. [District Rule 4570]
10. {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 Rule 4570]
11. {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]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-6986-4-1

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: CIRCLE A DAIRY
MAILING ADDRESS: PO BOX 1087
TIPTON, CA 93272

LOCATION: 11275 ROAD 96
PIXLEY, CA

EQUIPMENT DESCRIPTION:

MODIFICATION OF FEED STORAGE AND HANDLING OPERATION CONSISTING OF SILAGE PILES: ADD COMMODITY/FEED STORAGE BARNS; INCORPORATE RULE 4570 MITIGATION MEASURES.

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. {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 Rule 4570]
4. Permittee shall feed all animals according to National Research Council (NRC) guidelines. [District Rules 2201 and 4570]
5. 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]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director, APCO

Arnaud Marjollet, Director of Permit Services
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6. {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 Rule 4570]
7. {4457} Permittee shall maintain an operating plan/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]
8. {4458} Permittee shall begin feeding total mixed rations within two hours of grinding and mixing rations. [District Rule 4570]
9. {4459} Permittee shall maintain an operating plan/record of when feeding of total mixed rations began within two hours of grinding and mixing rations. [District Rule 4570]
10. {4460} Permittee shall store grain in a weatherproof storage structure or under a weatherproof covering from October through May. [District Rule 4570]
11. {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 Rule 4570]
12. {4464} Permittee shall remove uneaten wet feed from feed bunks within twenty-four (24) hours after the end of a rain event. [District Rule 4570]
13. {4465} Permittee shall maintain records demonstrating that uneaten wet feed was removed from feed bunks within twenty-four (24) hours after the end of a rain event. [District Rule 4570]
14. {4468} For bagged silage/feedstuff, permittee shall utilize a sealed feed storage system (e.g., ag bag). [District Rule 4570]
15. {4469} 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]
16. {4470} 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]
17. {4471} 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]
18. {4472} 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]
19. {4473} 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]
20. {4474} 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]

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CONDITIONS CONTINUE ON NEXT PAGE

21. {4475} 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]
22. {4476} 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]
23. {4477} 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]
24. {4478} 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]
25. {4479} 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]
26. {4480} 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]
27. {4481} 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]
28. {4482} For each silage pile that Option 2 (Shaver/Facer or Smooth Face) is chosen as a mitigation measure for building 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]
29. {4483} For each silage pile that Option 3 (Silage Additives) is chosen as a mitigation measure for building 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]
30. {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 Rule 4570]
31. {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]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-6986-7-0

LEGAL OWNER OR OPERATOR: CIRCLE A DAIRY
MAILING ADDRESS: PO BOX 1087
TIPTON, CA 93272

LOCATION: 11275 ROAD 96
PIXLEY, CA

EQUIPMENT DESCRIPTION:
2,550 COW MILKING OPERATION WITH ONE 72-STALL ROTARY MILKING PARLOR.

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. {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 Rule 4570]
4. Permittee shall flush or hose down milk parlor immediately after each milking. [District Rules 2201 and 4570]
5. Permittee shall provide verification that milk parlor is flushed or hosed down immediately after each milking. [District Rules 2201 and 4570]
6. {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 Rule 4570]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

Arnaud Marjollet, Director of Permit Services

S-6986-7-0 : Aug 5 2014 8:31AM - AIYABEU : Joint Inspection NOT Required

7. {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]

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