

**AUTHORITY TO CONSTRUCT
APPLICATION REVIEW
DAIRY OPERATION**

Facility Name:	Wickstrom Dairy/Valsigna Farms	Date:	December 12, 2005
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Project Number:	1054047		
Permit Numbers:	N-5753-1-1, 2-1, 3-1 and 4-1		
Deemed Complete:	November 13, 2005		

I. PROPOSAL:

Wickstrom Dairy is applying for an Authority to Construct (ATC) permit to modify their existing operation. The applicant proposes to install a fourth freestall barn to house an additional 600 milk cows. This will bring the dairy's milk cows capacity to the 2,400 maximum allowed by the conditional use permit. Although the initial farm permit indicates 2,400 cows, the dairy does not at the moment have the capacity to house 2,400 cows. The existing as-built capacity of the dairy is physically limited to 1,800 cows.

The applicant has also proposed to discontinue flushing from the 720 heifers housed in open corrals, as one way of mitigating increases in lagoon emissions from the addition of 600 cows. The manure from these heifers will now be scraped and handled as solid manure rather than being flushed into the lagoon.

The proposed project constitutes a modification of the milk parlor (unit 1-0), cow housing (unit 2-0), liquid manure management (unit 3-0) and solid manure management (unit 4-0).

Increasing the number of cows to be milked by 600 will result in an increase in potential emissions from the milk parlor, hence the proposed project is a modification of the milk parlor.

Building a new freestall barn is a physical modification of the cow housing at the dairy. Increasing the number of cows to housed by 600 will result in an increase in potential emissions, hence the proposed project is a modification of the cow housing.

This project modifies the liquid manure management system in two ways: (1) Increasing the number of milk cows at the dairy by 600 will result an increase in liquid manure being flushed into the lagoons, and an increase in emissions from

the liquid manure system. (2) In order to mitigate lagoon emissions due to the increase in the number of milk cows, the applicant is proposing to stop flushing from the heifer corrals.

Since the project includes a proposal to stop flushing in the heifer corrals and remove all corral manure by scraping, there is an increase manure that will be handled as solid. This increases potential emissions from the solid manure management system, and therefore the project also results in a modification of this emissions unit.

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 (4/20/05)
Rule 4101 Visible Emissions (2/17/05)
Rule 4102 Nuisance (12/17/92)
CH&SC 41700 (Health Risk Assessment)
Rule 4550 Conservation Management Practices (8/19/04)
CH&SC 42301.6 (School Notice)
SB 700 (Senate Bill 700)
California Environmental Quality Act (CEQA)

III. PROJECT LOCATION:

This project is located at 6071 Larson Rd in Hilmar, CA. This project is not located within 1000 feet of a school; therefore the public notification requirements of CH&SC do not apply.

IV. PROCESS DESCRIPTION:

The primary function of Wickstrom Dairy is the production of milk, which 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 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 are several types of cows at this dairy.

The milk cows at this dairy generate anywhere from 130 to 150 pounds of manure per day. How the manure is collected, stored and treated depends directly on the manure management techniques of a 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.

Manure accumulates in confinement areas such as barns, drylots (open corrals), milking center, and is primarily deposited in areas where the herd is fed and

watered.

The following is a more detailed description of each process at this dairy.

1. Type of Cow Housing

Freestalls & Open Corrals

The cows in this dairy are housed in both freestalls and open corrals. All of milk cows will be housed in freestall barns (2,400 milk cows, post project). The support stock (dry cows and heifers) will be housed in open corrals. There are currently no calves at this dairy.

In the freestalls, the milk cows are grouped in large pens (as shown in the picture below) with free access to feed bunks, waterers, and stalls for resting. A standard free-stall barn design has a feed alley in the center of the barn separating two feed bunks on each side.



Freestall and Concrete Feed lane

An open corral is a large open area where cows are confined, also with unlimited access to feed bunks, water. The open corrals at Wickstrom Dairy will consist of structures that will provide shade for the animals.

Special Needs Housing

The special needs area serves the gestating cows at the dairy or any cow that are in need of medical condition. This area acts as a veterinary area and gives the cows special attention as they move from dry cow¹ to maternity to milking status or until their health improves.

¹ A mature cow that is gestating and not lactating.

Milking Center (parlor)

The lactating cows are milked two times per day in the milking center. The milking center (also called parlor) is a separate building, apart from the lactating cow confinement (freestalls). The center 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 center, which in turn, is located in the immediate vicinity of the cow housing. After each milking, the operator sprays or flushes out the manure and urine from the milking center, usually towards the lagoon.

2. Type of dairy

Wickstrom Dairy is referred to as a flush dairy, which means that the manure is removed primarily through flushing. The flush system removes manure from the freestalls (milk cow housing), as well as the concrete feedlanes in the corrals. Manure from unpaved areas of the open corrals (dry cow and heifer housing) is removed by scraped.

The applicant is requesting to modify the manure management system for the existing open corrals. In order to mitigate lagoon emissions due to this project, the applicant proposes to stop flushing the paved areas of the corrals, and remove corral manure exclusively by scraping. The existing flush system serving the open corrals will be disabled.

Flush manure management removes the manure by introducing a large volume of water at the head of a paved area. The cascading water removes the manure. The required volume of flush water varies with the size of the area to be flushed and slope of the area. Scraping entails the use of a tractor-pulled box-type scraper that collects manure from the corral into the central location from where it is occasionally removed.

Operating Schedule:

The maximum operating schedule for this dairy is 24 hours per day, 52 weeks/year.

V. EQUIPMENT LISTING:

Table 1 Pre-Project Equipment Listing	
Permit Number	Equipment Description
N-5753-1-0	MILKING PARLOR FOR 2,400 MILKCOWS
N-5753-2-0	COW HOUSING - SCRAPE/FLUSH DAIRY CONSISTING OF 2,400 MILKCOWS, 360 DRYCOWS, 360 LARGE HEIFERS (BETWEEN 15-24 MONTHS OLD), 360 MEDIUM HEIFERS

Table 1 Pre-Project Equipment Listing	
Permit Number	Equipment Description
	(BETWEEN 7-14 MONTHS OLD) INCLUDING, OPEN CORRALS AND SPECIAL NEEDS HOUSING.
N-5753-3-0	LIQUID MANURE HANDLING SYSTEM CONSISTING OF 2 SETTLING BASIN(S) AND 2 STORAGE POND(S) (200'X500'X20', 126'X273'X20'). MANURE IS LAND APPLIED THROUGH FLOOD IRRIGATION
N-5753-4-0	SOLID MANURE HANDLING CONSISTING OF COVERED MANURE STOCK PILES INCLUDING AN OPEN WINDROW COMPOSTING OPERATION.

Modification: Install an additional freestall barn to house 600 milk cows and switch from scrape/flush in the corrals to complete scrape.

Table 2 Post-Project Equipment Listing	
Permit Number	Equipment Description
N-5753-1-1	MILKING PARLOR FOR 2,400 MILKCOWS
N-5753-2-1	COW HOUSING - SCRAPE/FLUSH DAIRY CONSISTING OF 2,400 MILKCOWS, 360 DRYCOWS, 360 LARGE HEIFERS (BETWEEN 15-24 MONTHS OLD), 360 MEDIUM HEIFERS (BETWEEN 7-14 MONTHS OLD) INCLUDING FOUR FREESTALL BARNS HOUSING 600 MILK COWS EACH, OPEN CORRALS AND SPECIAL NEEDS HOUSING.
N-5753-3-1	LIQUID MANURE HANDLING SYSTEM CONSISTING OF 2 SETTLING BASIN(S) AND 2 STORAGE POND(S) (200'X500'X20', 126'X273'X20'). MANURE IS LAND APPLIED THROUGH FLOOD IRRIGATION
N-5753-4-1	SOLID MANURE HANDLING CONSISTING OF COVERED MANURE STOCK PILES INCLUDING AN OPEN WINDROW COMPOSTING OPERATION.

VI. EMISSION CONTROL TECHNOLOGY EVALUATION:

VOC, Ammonia, and PM10 are the main emissions expected from a dairy operation. At the moment, this dairy does not have any specific control technology for the control of any of these emissions. Various management practices are used to control emissions at this dairy, as outlined in the dairy's Conservation Management Practices Plan (See Attachment I). These practices include frequent flushing and removal of manure from paved areas such as the

milk parlor, milk cows freestalls, feed lanes and walkways. In the corrals, frequent scraping and removal of manure will help to reduce emissions. Cows are also provided with shade to reduce movement and unnecessary activity during hot weather, which reduces PM10 emissions.

Particulate matter emissions from cow housing are expected to be very low for freestall confinement especially since these freestalls do not consist of an exercise area for the milk cows. The manure deposited on the concrete floors allows cleaning of manure through a flushing system.

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 at the dairy.
- The existing dairy has a capacity to house 1,800 milk cows.
- After the proposed modifications, the dairy will have a capacity to house 2,400 milk cows.
- From the dairy, only emissions from the lagoon will be used in determining if this facility will be a major source since the lagoon emissions are considered to be the only non-fugitive emissions at a dairy. (detailed discussion in section VII.C.5.) The engine emissions will also be included in the major source determination since the engine is the only other emission source at this dairy.
- After the proposed modification, only manure from the post project 2,400 milk cows will be flushed into the lagoon.
- The freestall housing PM10 emission factor of 1.845 lb/head/yr assumes a standard freestall barn design with dirt exercise pens on one or both sides of the freestall barn. The proposed new freestall barn will be designed and built without any exercise pens. The cows will remain on paved freestall areas at all times. The District considers this design with no exercise pens to have a significant PM10 reduction. A 40% emissions control will be conservatively applied at this time.
- Currently, there is no approved emission factor or data for Hydrogen Sulfide (H₂S) emissions. Therefore, H₂S emissions will not be calculated for this project. The District expects research data in the near future that may be used to establish an emission factor for Hydrogen Sulfide.

B. Emission Factors:

The following emission factors will be used to calculate the emissions from permits N-5753-1 (milking center), N-5753-2 (cow housing), N-5753-3 (liquid manure handling), and N-5753-4 (solid manure handling).

Table 3 Overall Emission Factors²		
Type of Cow	(lb-VOC/hd-yr)	(lb-NH ₃ /hd-yr)
Milking Cow	21.0	74.0
Dry Cow	11.9	50.0
Heifer (15 months to 24 months)	8.3	35.0
Heifer (7 months to 14 months)	7.2	30.6
Heifer (4 months to 6 months)	6.6	27.7
Calf (under 3 months)	6.2	26.0

Table 4 PM₁₀ Emission Factors for Open Corrals		
	(lbs- PM ₁₀ /head-yr)	Source
Milk cows	4.6	SJVAPCD
Support stock	7.94	SJVAPCD

Table 5 PM₁₀ Emission Factor for Freestalls		
	(lbs- PM ₁₀ /head-yr)	Source
Milk cows	1.845	CARB & SJVAPCD

The following table shows a breakdown of the above milk cow emissions into permit units for milk cows only. Emission calculations for all the other types of cows will be performed using the above VOC emission factors multiplied by the number of cows. The breakdown emission factors will only be used to determine if BACT is triggered for any of the permit units. This calculation is included in section VIII.A.1.

Table 6 Milk Cow Emissions - Freestall Housing		
Permit Unit or Sub-Operation	VOC Emissions (lb/hd-yr)	NH ₃ Emissions (lb/hd-yr)
Milking Center (1-0)	0.9	1.2
Cow Housing & Feed (2-0)	12.4	28
Liquid Manure Handling (3-0)	2.7	15.7
Solid Manure Handling (4-0)	N/A	N/A
Land Application	5.0	29.1
Total	21.0	74

² These emission factors were developed in a District document entitled “*Breakdown of Dairy VOC Emission Factor into Permit Units*”, however, the basis of the emission factors is District document titled “APCO’s Determination of VOC Emission Factors for Dairies”.

Since the emissions from the lagoons/storage pond are the only non-fugitive emissions at a dairy, the following emission factors are needed to determine if the emissions from this facility exceed the major source threshold.

Table 7 Lagoon Emission Factors*			
Type of Cow	Emission Factor (lbs-VOC/head-yr) ³	Emission Factor (lbs-NH3/head-yr)	Source
Milking Cow	2.7	15.7	SJVAPCD
Dry Cow	1.4	9.5	SJVAPCD
Heifer (15 months to 24 months)	1.0	6.7	SJVAPCD
Heifer (7 months to 14 months)	0.9	5.8	SJVAPCD
Heifer (4 months to 6 months)	0.8	5.3	SJVAPCD
Calf (under 3 months)	0.7	4.9	SJVAPCD

*Based on freestall housing for milk cows and open corral housing for all other categories

Table 8 Land Application Of Manure - Emission Factors*			
Type of Cow	Emission Factor (lbs-VOC/head-yr)	Emission Factor (lbs-NH3/head-yr)	Source
Milking Cow	5.0	29.1	SJVAPCD
Dry Cow	2.3	15.2	SJVAPCD
Heifer (15 months to 24 months)	1.6	10.7	SJVAPCD
Heifer (7 months to 14 months)	1.4	9.3	SJVAPCD
Heifer (4 months to 6 months)	1.3	8.4	SJVAPCD
Calf (under 3 months)	1.2	7.9	SJVAPCD

*Based on freestall housing for milk cows and open corral housing for all other categories

C. Calculations:

1. Pre-Project Potential to Emit (PE₁):

Section 3.26 of Rule 2201 defines the potential to emit (PE) as the maximum capacity of an emissions unit to emit a pollutant under its physical and operational design. The potential to emit for the operation is summarized in the following table:

³ The lagoon emission factor for milk cows is based on an internal document entitled “*Breakdown of Dairy VOC Emission Factor into Permit Units*”. The emission factors for dry cows, heifers and calves were developed by taking the ratio of manure generated by the different types of cows to the milk cows and multiplying it with 2.7 lbs/hd-yr.

Table 9							
Pre-Project VOC Emissions (Units 1-0 through 4-0)							
Category	# of cows		lb/hd-yr		lb/year		lb/day
Milk cows	1,800	x	21.0	=	37,800	/	365 = 103.6
Dry cows	360	x	11.9	=	4,284	/	365 = 11.7
Large heifers	360	x	8.3	=	2,988	/	365 = 8.2
Medium heifers	360	x	7.2	=	2,592	/	365 = 7.1
Small heifers	0	x	6.6	=	0	/	365 = 0.0
Calves	0	x	6.2	=	0	/	365 = 0.0
Total	2,880				47,664		130.6

Table 10							
Pre-Project NH3 Emissions (Units 1-0 through 4-0)							
Category	# of cows		lb/hd-yr		lb/year		lb/day
Milk cows	1,800	x	74	=	133,200	/	365 = 364.9
Dry cows	360	x	50	=	18,000	/	365 = 49.3
Large heifers	360	x	35	=	12,600	/	365 = 34.5
Medium heifers	360	x	30.6	=	11,016	/	365 = 30.2
Small heifers	0	x	27.7	=	0	/	365 = 0.0
Calves	0	x	26	=	0	/	365 = 0.0
Total	2,880				174,816		478.9

Table 11							
Pre-Project PM10 Emissions (Units 1-0 through 4-0)							
Category	# of cows		lb/hd/yr		Control Efficiency		lb/day
Freestalls	1,800	x	1.845	x	0.6 ⁴	=	1,993 / 365 = 5.5
Corrals	1,080	x	7.94	X	1.0	=	8,575 / 365 = 23.5
Total	2,880						29.0

The following calculations show the breakdown of the emissions by each permit unit. These values will be used to determine the Quarterly Net Emissions Change (QNEC) as well as the Adjusted Increase in Permitted Emissions (AIPE).

⁴ This calculation reflects the 40% emissions reduction discussed in section VII.A.

Table 12									
Pre-Project VOC PE for Milk Cows (Units 1-0 and 2-0)									
Emissions Unit	# of cows		lb/hd-yr	=	lb/year	/	Days/yr	=	lb/day
Unit 1-0 Milking Center	1,800	x	0.9	=	1,620	/	365	=	4.4
Unit 2-0 Cow Housing & Feed	1,800	x	12.4	=	22,320	/	365	=	61.2

Table 13									
Pre-Project VOC PE From Lagoons (Unit 3-0)									
Category	# of cows		lb/hd-yr	=	lb/year	/	Days/yr	=	lb/day
Milk cows	1,800	x	2.7	=	4,860	/	365	=	13.3
Dry cows	360	x	1.7	=	612	/	365	=	1.7
Large heifers	360	x	1.2	=	432	/	365	=	1.2
Medium heifers	360	x	1	=	360	/	365	=	1.0
Small heifers	0	x	0.9	=	0	/	365	=	0.0
Calves	0	x	0.9	=	0	/	365	=	0.0
Total	2,880				6,264				17.2

Table 14									
Pre-Project VOC PE From Land Application of Manure									
Category	# of cows		lb/hd-yr	=	lb/year	/	Days/yr	=	lb/day
Milk cows	1,800	x	5	=	9,000	/	365	=	24.7
Dry cows	360	x	2.3	=	828	/	365	=	2.3
Large heifers	360	x	1.6	=	576	/	365	=	1.6
Medium heifers	360	x	1.4	=	504	/	365	=	1.4
Small heifers	0	x	1.3	=	0	/	365	=	0.0
Calves	0	x	1.2	=	0	/	365	=	0.0
Total	2,880				10,908				29.9

Table 15									
Pre-Project Ammonia PE for Milk Cows (Units 1-0 and 2-0)									
Emissions Unit	# of cows		lb/hd-yr	=	lb/year	/	Days/yr	=	lb/day
Unit 1-0 Milking Center	1,800	x	1.2	=	2,160	/	365	=	5.9
Unit 2-0 Cow Housing & Feed	1,800	x	28.0	=	50,400	/	365	=	138.1

Table 16							
Pre-Project Ammonia PE From Lagoons (Unit 3-0)							
Category	# of cows		lb/hd-yr		lb/year	Days/yr	lb/day
Milk cows	1,800	x	15.7	=	28,260	/	365 = 77.4
Dry cows	360	x	9.5	=	3,420	/	365 = 9.4
Large heifers	360	x	6.7	=	2,412	/	365 = 6.6
Medium heifers	360	x	5.8	=	2,088	/	365 = 5.7
Small heifers	0	x	5.3	=	0	/	365 = 0.0
Calves	0	x	4.9	=	0	/	365 = 0.0
Total	2,880				36,180		99.1

Table 17							
Pre-Project Ammonia PE From Land Application of Manure							
Category	# of cows		lb/hd-yr		lb/year	Days/yr	lb/day
Milk cows	1,800	x	29.1	=	52,380	/	365 = 143.5
Dry cows	360	x	15.2	=	5,472	/	365 = 15.0
Large heifers	360	x	10.7	=	3,852	/	365 = 10.6
Medium heifers	360	x	9.3	=	3,348	/	365 = 9.2
Small heifers	0	x	8.4	=	0	/	365 = 0.0
Calves	0	x	7.9	=	0	/	365 = 0.0
Total	2,880				65,052		178.2

2. Post-Project Potential to Emit (PE₂):

Section 3.26 of Rule 2201 defines the potential to emit (PE) as the maximum capacity of an emissions unit to emit a pollutant under its physical and operational design. The post project emissions (PE₂) for this dairy are summarized in the following tables:

Table 18							
Post-Project VOC Emissions (Units 1-1 through 4-1)							
Category	# of cows		lb/hd-yr		lb/year	Days/yr	lb/day
Milk cows	2,400	x	21.0	=	50,400	/	365 = 138.1
Dry cows	360	x	11.9	=	4,284	/	365 = 11.7
Large heifers	360	x	8.3	=	2,988	/	365 = 8.2
Medium heifers	360	x	7.2	=	2,592	/	365 = 7.1
Small heifers	0	x	6.6	=	0	/	365 = 0.0
Calves	0	x	6.2	=	0	/	365 = 0.0
Total	3,480				60,264		165.1

Table 19									
Post-Project NH3 Emissions (Units 1-1 through 4-1)									
Category	# of cows		lb/hd-yr	=	lb/year	/	Days/yr	=	lb/day
Milk cows	2,400	x	74	=	177,600	/	365	=	486.6
Dry cows	360	x	50	=	18,000	/	365	=	49.3
Large heifers	360	x	35	=	12,600	/	365	=	34.5
Medium heifers	360	x	30.6	=	11,016	/	365	=	30.2
Small heifers	0	x	27.7	=	0	/	365	=	0.0
Calves	0	x	26	=	0	/	365	=	0.0
Total	3,480				219,216				600.6

Table 20											
Post-Project PM10 Emissions (Units 1-1 through 4-1)											
Category	# of cows		lb/hd-yr	Control Efficiency	lb/year	Days/yr	lb/day				
Freestalls	2,400	x	1.845	x	0.6	=	2,657	/	365	=	7.3
Corrals	1,080	x	7.94	x	1.0	=	8,575	/	365	=	23.5
Total	3,480						11,232				30.8

The following calculations show the breakdown of the emissions by each permit unit. These values will be used to determine the Quarterly Net Emissions Change (QNEC) as well as the Adjusted Increase in Permitted Emissions (AIPE).

Table 21									
Post-Project VOC Emissions (Units 1-1 through 3-1)									
Emissions Unit	# of cows		lb/hd-yr	=	lb/year	/	Days/yr	=	lb/day
Unit 1-1 Milking Center	2,400	x	0.9	=	2,160	/	365	=	5.9
Unit 2-1 Cow Housing & Feed	2,400	x	12.4	=	29,760	/	365	=	81.5
Unit 3-1 Lagoons ⁵	2,400	x	2.7	=	6,480	/	365	=	17.8
Land Application ⁶	2,400	x	5.0	=	12,000	/	365	=	32.9

⁵ As discussed in previous sections, only manure from milk cows will be flushed into the lagoons after the proposed project.

⁶ Only manure from the milk cows is taken out for land application from the lagoons.

Table 22									
Post-Project Ammonia Emissions (Units 1-1 through 3-1)									
Emissions Unit	# of cows	x	lb/hd-yr	=	lb/year	/	Days/yr	=	lb/day
Unit 1-1 Milking Center	2,400	x	1.2	=	2,880	/	365	=	7.9
Unit 2-1 Cow Housing & Feed	2,400	x	28.0	=	67,200	/	365	=	184.1
Unit 3-1 Lagoons ⁵	2,400	x	15.7	=	37,680	/	365	=	103.2
Land Application ⁶	2,400	x	29.1	=	69,840	/	365	=	191.3

3. 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.

Table 23						
Pre-Project Stationary Source Potential to Emit (SSPE1)						
Permit #	NOx	SOx	PM10	CO	VOC	NH ₃
Units 1-0 through 4-0	0	0	10,568	0	47,664	174,816
Unit 5-0*	441	42	22	134	50	
Unit 6-0*	364	35	18	111	41	
Unit 7-0*	992	94	50	302	113	
Total	1,797	171	10,658	547	47,868	174,816

* Emissions are as determined in initial farm permit project #N-1042341.

4. 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 post-project annual PE of all units at the Stationary Source. The SSPE2 is presented in the following table:

Table 24						
Stationary Source Potential to Emit (SSPE2)						
Permit #	NOx	SOx	PM10	CO	VOC	NH ₃
Units 1-1 through 4-1	0	0	11,232	0	60,264	219,216
Unit 5-0*	441	42	22	134	50	
Unit 6-0*	364	35	18	111	41	
Unit 7-0*	992	94	50	302	113	
Total	1,797	171	11,322	547	60,468	219,216

* Emissions are as determined in initial farm permit project #N-1042341.

5. 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 following threshold values. However, Section 3.25.2 states, “for the purposes of determining major source status, the SSPE2 shall not include 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.

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 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. However, emissions from other sources at the dairy, such as enteric emissions from cows and on-field activities are fugitive, since there is no control technology that could be used to capture emissions from these sources without radical changes to these operations. Therefore, only emissions from the lagoon and the IC engines will be used in determining if this facility is a major source.

The emissions from the lagoon are calculated as follows:

Lagoon Emissions = [(# of Milk Cows x 2.7 lbs-VOC/head-yr) + [(# of Dry Cows x 1.4 lbs-VOC/head-yr) + (# of Heifers 15-24 months of age x 1.0 lbs-VOC/head-yr) + (# of Heifers 7-14 months of age x 0.9 lbs-VOC/head-yr) + (# of Heifers 3-6 months of age x 0.8 lbs-VOC/head-yr) + (# of Calves x 0.7 lbs-VOC/head-yr)]

Lagoon Emissions = [(2400 Milk Cows x 2.7 lbs-VOC/head-yr) + [(0 Dry Cows x 1.4 lbs-VOC/head-yr) + (0 Heifers 15-24 months of age x 1.0 lbs-VOC/head-yr) + (0 Heifers 7-14 months of age x 0.9 lbs-VOC/head-yr) + (0 Heifers 3-6 months of age x 0.8 lbs-VOC/head-yr) + (0 Calves x 0.7 lbs-VOC/head-yr)] = 6,480 lb/hd-yr

Table 25					
Major Source Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Units 1-1 through 4-1	0	0	0	0	6,480
Unit 5-0	441	42	22	134	50
Unit 6-0	364	35	18	111	41
Unit 7-0	992	94	50	302	113
Stationary Source Potential to Emit	1,797	171	90	547	6,684
Major Source Threshold	50,000	140,000	140,000	200,000	50,000
Major Source?	No	No	No	No	No

As seen in the table above, this facility is not a Major Source.

6. Baseline Emissions (BE)

a. Annual BE

The annual BE is performed pollutant by pollutant to determine the amount of offsets required, where necessary, when the SSPE1 is greater than the offset threshold.

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

Since this unit is not located at a major source BE = Pre-project Potential to Emit, as summarized in the following table by permit unit:

Table 26						
Annual BE lb/year						
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC	NH ₃
Unit 1-0	0	0	0	0	1,620	2,160
Unit 2-0	0	0	10,568	0	28,872	71,424
Unit 3-0	0	0	0	0	17,172	101,232
Unit 4-0	0	0	0	0	0	0
Total	0	0	10,568	0	47,664	174,816

The following assumptions were used in assigning the baseline emissions shown above to the permit units:

VOC and NH3:

- There are no emission factors for solid manure management (unit 4-0). Baseline emissions for this unit are assumed to be 0 for all pollutants.
- Pre-Project emissions for the milking center (unit 1-0) are as determined in section VII.C.1. (Tables 12 and 15), and require no adjustment.
- Annual emissions from lagoons (section VII.C.1. Tables 13 and 16) and from land application (section VII.C.1. Tables 14 and 17), have been summed up together to obtain the baseline emissions for unit 3-0. Land application, mostly of liquid manure from the storage ponds, is assumed in this case to constitute part of the liquid manure system.
- The difference between total dairy emissions (section VII.C.1. Tables 9 and 10), and the sum of the baseline emissions assigned to units 1-0 and 3-0, has been used as the baseline emission value for unit 2-0. This way, the total baseline emissions for each pollutant equal the total PE1 emissions.

PM10:

- For PM10, all emissions are assumed to be from cow housing, unit 2-0. There are currently no emission factors that can be used to distribute PM10 emissions to the individual permit units.

b. Quarterly BE (QBE)

The QBE is required, unit by unit, pollutant by pollutant, to determine the Quarterly Net Emissions Change. A dairy operates year-round, therefore

the quarterly BE calculations are as shown below:

$$QBE \text{ (lb/qtr)} = BE \text{ (lb/yr)} / 4 \text{ qtrs/yr}$$

QBE values are summarized in the following table:

Table 27 Quarterly BE (lb/Qtr)						
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC	NH ₃
Unit 1-0	0	0	0	0	405	540
Unit 2-0	0	0	2,642	0	7,218	17,856
Unit 3-0	0	0	0	0	4,293	25,308
Unit 4-0	0	0	0	0	0	0

7. Contemporaneous Increase in Permitted Emissions (CIPE) & Title I Modification

Calculating the CIPE is required for existing Major Sources to determine if the current project has emissions increases above Title I Modification thresholds or is required for existing non-Major Sources becoming Major Sources, to determine if the current project has emissions increases above Major Source thresholds.

a. For an existing Major Source:

Table 28 Title I Modification Thresholds	
Pollutant	CIPE (lb/year)
NO _x	50,000
SO _x	30,000
PM ₁₀	30,000
CO	100,000
VOC	50,000

b. For an existing non-Major Source which becomes a Major Source:

Table 29 Major Source Thresholds	
Pollutant	CIPE (lb/year)
NO _x	50,000
SO _x	140,000
PM ₁₀	140,000
CO	200,000
VOC	50,000

Section 3.39 of District Rule 2201 defines a Title I Modification as “the same as a Major Modification.” District Policy APR 1125 (currently in draft form)

defines a Major Modification 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."

As discussed in Section VII.C.5 above, the facility is not a Major Source for any criteria pollutant; therefore according to District Policy APR 1125 (currently in draft form), CIPE calculations are not necessary and the project does not constitute a Title I Modification.

8. 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 calculation are shown in attachment V.

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] N

{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] N

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. The following condition will be placed on the permit(s) for the emergency IC engines in order to demonstrate compliance with District Rules and Regulations.

Rule 2201 - New and Modified Stationary Source Review Rule

A. BACT

1. BACT Applicability:

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. BACT is required for the following actions: (1) Any new emissions unit with a potential to emit exceeding two pounds in any one day, (2) The relocation of an existing emissions unit from one stationary source to another with a potential to emit exceeding two pounds in any one day, (3) Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds in any one day, and (4) Title I/Major Modifications. Also, if the SSPE2 for CO is less than 200,000 pounds per year, BACT is not required for CO.

Adjusted Increase in Permitted Emissions (AIPE)

AIPE = PE2 – 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)

$$HAPE = PE1 \times (EF2/EF1)$$

Where,

PE1 = The emissions unit's Potential to Emit 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

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

Unit 1-1 (Milking Center)

$$AIPE = 5.9 \text{ lb-VOC/day} - [4.4 (0.9/0.9)] \\ 5.9 \text{ lb-VOC/day} - 4.4 \text{ lb-VOC/day} = \mathbf{1.5 \text{ lb-VOC/day}}$$

AIPE = 7.9 lb-NH₃/day – [5.9 (1.2/1.2)]
7.9 lb-NH₃/day – 5.9 lb- NH₃/day = 2.0 lb-NH₃/day

Unit 2-1 (Cow Housing)

AIPE = 81.5 lb-VOC/day – [61.2 (12.4/12.4)]
81.5 lb-VOC/day – 61.2 lbs-VOC/day = 20.3 lbs-VOC/day

AIPE = 184.1 lbs-NH₃/day – [138.1 (28/28)]
184.1 lbs-NH₃/day – 138.1 lbs- NH₃/day = 46 lb-NH₃/day

Unit 3-1 (Liquid Manure Handling)

Lagoon/Storage Pond

AIPE = 17.8 lb-VOC/day – [17.2 (2.7/2.7)]
17.8 lb-VOC/day – 17.2 lbs-VOC/day = 0.6 lb-VOC/day

AIPE = 103.2 lb-NH₃/day – [99.1 (15.7/12.6)]
103.2 lb-NH₃/day – 99.1 lbs-NH₃/day = 4.1 lb-NH₃/day

Land Application

AIPE = 32.9 lb-VOC/day – [29.9 (5.0/3.8)]
32.9 lbs-VOC/day – 29.9 lbs-VOC/day = 3.0 lb-VOC/day

AIPE = 191.3 lb-NH₃/day – [178.2 (29.1/22.6)]
191.3 lbs-NH₃/day – 178.2 lb-NH₃/day = 13.1 lb-NH₃/day

Units 1-1 through 4-1

AIPE – Freestall housing = 7.3 lb-PM₁₀/day – [5.5 (1.845/1.845)]
= 7.3 lbs-PM₁₀/day – 5.5 lbs-PM₁₀/day
= 1.8 lb-PM₁₀/day

AIPE – Corral housing = 23.5 lb-PM₁₀/day – [23.5 (7.94/7.94)]
= 23.5 lbs-PM₁₀/day – 23.5 lbs-PM₁₀/day
= 0.0 lb-PM₁₀/day

Table 30			
AIPE Summary (lb/day)			
Permit Number	VOC	PM ₁₀	NH ₃
N-5753-1-1 Milk parlor	1.5	N/A	2.0
N-5753-2-1 (Cow Housing)	20.3	1.8 (freestall)	46.0
N-5753-3-1			
Lagoon/Storage Pond	0.6	N/A	4.1
Land Application	3.0	N/A	13.1

As shown in the table above, cow housing and land application both have an increase in VOC and Ammonia emissions of greater than 2.0 lb/day. There is also an increase greater than 2 lb/day of Ammonia emissions from lagoons.

Therefore, BACT is triggered for VOC and Ammonia from the new freestalls, VOC and Ammonia from land application of manure, and Ammonia from lagoons.

BACT Analysis

Per District BACT Policy APR 1305 (11/09/99), a Top Down BACT analysis shall be performed as a part of the application review for each emission unit subject to the BACT requirements pursuant to the District's NSR Rule.

Per the top down BACT analysis in Attachment II, the cow housing and land application meets the District BACT requirements, as summarized below:

Unit 2-1 (Cow Housing)

- Feed animals in accordance with NRC guidelines utilizing routine nutritional analysis for rations.
- Feed lanes, freestalls, and drylot walkways will be constructed of concrete.
- The new freestall barn (#4) shall not have any exercise pens.
- Feed lanes and walkways shall be flushed twice daily.
- Feed shall be removed on a daily basis to prevent decomposition.

Unit 3-1 (Liquid Manure – Lagoons)

- Feed animals in accordance with NRC guidelines utilizing routine nutritional analysis for rations.

Unit 3-1 (Liquid Manure – Land Application)

The applicant has proposed to irrigate the crops using effluent from the holding/storage pond

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 very strict federal requirements for the "quality" of 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 reductions 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 local district has adopted the needed regulations, and EPA has approved those regulations and incorporated them into the SIP.

The local regulation that implements federal Title I review for agricultural sources will need to specify the offsetting requirements for sources subject to federal NSR. For an air district to provide exemptions from this requirement, they must have EPA approval and may need to make certain adjustments in their SIP-approved NSR regulations, until a SIP-approved rule enabling the district to grant ERCs for agricultural sources is in place.

C. Public Notification:

1. Applicability

Public noticing is required for:

- a. Any new facility which is also a Major Source,
- b. Title I Modifications,
- c. Any project which results in the offset thresholds being reached or surpassed,
- d. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant, and/or
- e. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

a. New Major Source

Based upon the determination in Section VII.C.6 above, this facility is not a new major source. Therefore, public notification is not required for new major source purposes.

b. Title I Modification

Since this facility is not an existing Major Source, the Title I modification calculations are not necessary and are not presented. Therefore, public noticing is not required for Title I modification.

c. Offset Threshold

As stated in section VII.B, offsets are not currently required of dairy operations, therefore, public notice requirements will not be triggered under this section.

d. 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. There are no new emissions units associated with this project; therefore public noticing is not required for this project for Potential to Emit Purposes.

e. SSIPE > 20,000 lb/year

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

Table 31 Stationary Source Increase in Permitted Emissions (SSIPE)			
Pollutant	SSIPE (lb/year)	Public Notice Threshold (lb/year)	Public Notice Triggered?
NO _x	0	20,000	No
SO _x	0	20,000	No
PM ₁₀	706	20,000	No
CO	0	20,000	No
VOC	12,600	20,000	No
NH ₃	44,000	20,000	Yes

As shown above, the SSIPE for Ammonia is greater than 20,000 lb/year; therefore public noticing for SSIPE purposes is required.

2. Public Notice Action

The appropriate public notice, including EPA Region IX and CARB notification, and publication in a newspaper of general circulation in the project county, and a required comment period 30 days, will be completed prior to ATC issuance.

D. Daily Emission Limits

Daily emissions limitations (DELs) and other enforceable conditions are required by District Rule 2201 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.

Rule 2201, Section 5.7.2 requires a daily emissions limitation to be included on the Permit to Operate (PTO). For dairies, the DEL is satisfied based on the number and type of cow at the dairy. The numbers of cows are listed in the equipment description under Permit N-5753-2-1. The milk parlor and liquid manure handling are also affected by this modification. The equipment descriptions in permit units N-5753-1-1 and 3-1 satisfy the DEL requirements. The following condition will also be added to permit unit N-5753-2-1 to limit the number of cows in the new freestall barn:

- The new freestall barn (#4) shall not house or be constructed to house more than 600 milk cows. [District Rule 2201] N

E. Compliance Assurance

The following measures shall be taken to ensure continued compliance with District Rules:

1. Source Testing

No source testing is currently required for dairy operations.

2. Monitoring

Based on guidelines from University of Idaho in a document entitled "*Dairy Odor Management & Control Practices*"⁷, 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 done on a monthly basis.
- Firm, stable, and not easily eroded soils shall be used for corrals and any exercise pens.
- 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.
- Clean rainfall runoff shall be diverted around corrals and exercise pens

⁷ <http://courses.ag.uidaho.edu/bae/bae404/Dairy%20Odor%20Mgmt.pdf>

to reduce the amount of water that is potentially detained on the corral surface.

- Manure removal equipment shall be adjusted to ensure a 1- to 2-inch layer of compacted manure above the mineralized soil.
- Applicant shall maintain water systems such as overflow water, misters, and any water distribution area in good condition. These systems if broken or malfunctioning shall be repaired in a timely fashion. Holes and wallows near watering troughs and feeding areas should be a high priority.
- Fence lines shall be inspected to remove any ridges of manure that form under them. The ridges will form dams that will back up the flow of water in the corral and produce odors. The water that puddles because of this is also the prime breeding ground for insects.

3. Record Keeping

Permittee shall maintain records of: (1) the daily number of milk cows in the freestalls (2) the nutritional analysis in the feed for the milk cows, (3) number of times concrete feedlanes are flushed per day, (4) frequency of scraping and manure removal from open corrals, and (5) a log of pothole inspections performed at the dairy. Records shall be maintained for a period of five years, and shall be made available to District personnel upon request

F. Ambient Air Quality Analysis

Section 4.14.2 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.

The proposed project will not result in any emissions of NO_x, CO, or SO_x. Therefore, the proposed project will not cause a violation of an air quality standard for NO_x, CO, or SO_x.

The proposed location is in a non-attainment area for PM₁₀. The increase in the ambient PM₁₀ concentration due to the proposed project is shown in the table entitled Calculated Contribution. The levels of significance, from 40 CFR Part 51.165 (b)(2), are shown on the table titled Significance Levels.

Table 32 Significance Levels					
Pollutant	Significance Levels (µg/m ³) - 40 CFR Part 51.165 (b)(2)				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
PM ₁₀	1.0	5	N/A	N/A	N/A

Table 33					
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	0.931	3.242	N/A	N/A	N/A

As shown, the calculated contribution of PM₁₀ will not exceed the EPA significance level. This project is not expected to cause or make worse a violation of an air quality standard.

Rule 4101: Visible Emissions

Rule 4101 states that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity.

Permit Units 1-1 through 4-1 (Dairy):

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

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

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

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

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

Rule 4102: Nuisance

Rule 4102 states that no air contaminant shall be released into the atmosphere which causes a public nuisance.

Pursuant to Section 3.1, the provisions of this rule does not apply to odors emanating from agricultural operations in the growing of crops or raising of fowl or animals as defined in Rule 4103 (Open Burning). Therefore this Rule does not apply to this project.

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 1.0. According to the Technical Services Memo for this project (Attachment III), the total facility prioritization score including this project was greater than 1.0. Therefore, a health risk assessment was required to determine the short-term acute and long-term chronic exposure from this project.

The cancer risk for this project is shown below:

Table 34 HRA Summary		
Emission Units	Cancer Risk	T-BACT Required
Units 1-1 through 4-1	0.88 per million	No

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is not required for this project because the HRA indicates that the risk is not above the District's thresholds for triggering T-BACT requirements; therefore, compliance with the District's Risk Management Policy is expected.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1.0 and a cancer risk greater than 10 in a million). As outlined by the HRA Summary in Attachment III of this report, the emissions increase for this project was determined to be less than significant.

Rule 4550: Conservation Management Practices

Rule 4550 requires that, effective July 1, 2004, each owner/operator of an agricultural operation shall implement the applicable CMPs selected pursuant to section 6.2 of the rule. Section 5.2 requires that such owner/operator shall prepare and submit a CMP application for each agricultural site. Once approved by the APCO, the CMP application shall become a CMP plan, which shall be implemented by the owner/operator of the agricultural operation.

The CMP application for this facility was received on July 21, 2004. The CMP plan (N-5753-CMPP-0) covers the following agricultural sites:

- Dairy
- Unpaved Roads and Unpaved Vehicle/Equipment Areas for Animal Feeding Operations
- Unpaved Roads and Unpaved Vehicle/Equipment Areas for Crops
- Corn, Grain, and Silage
- Dry Beans, Cereal Grains, Safflower, Wheat, and Barley

The CMP plan was approved on April 13, 2005, and is currently valid. The proposed project does not include any change to the existing CMP plan. There are no other rule 4550 requirements applicable at this point.

California Health & Safety Code 42301.6 (School Notice)

California Health & Safety Code 42301.6 requires that the District prepare a school notice prior to approving an application for a permit to construct or modify a source that emits toxic air emissions which is located within 1,000 feet from the outer boundary of a K-12 school site. This dairy site is not located within 1,000 feet of any K-12 schools. Therefore, school notice requirements are not applicable to the proposed project.

SB700 - Senate Bill 700

This dairy facility has already been issued in-House permits to operate under the provisions of SB700. No other SB700 provisions are applicable to the current project.

California Environmental Quality Act (CEQA)

In 1997, the applicant obtained a conditional use permit from Merced County for up to 2,400 milk cows at this site. Prior to issuance of the CUP, Merced County conducted an initial environmental study. The county concluded that the initial project did not have a significant adverse effect on the environment, and was therefore eligible for a negative declaration.

The proposed expansion is a build-out from the existing 1,800 milk cow capacity to the maximum 2,400 milk cow capacity allowed by the CUP. As shown in section VII.C.2 of this evaluation, the increase in emissions is less than the District's significance threshold of 10 tons of VOCs. The proposed expansion is therefore eligible for a negative declaration to comply with CEQA requirements. The District will file the appropriate negative declaration documents with Merced County and issue the required public notice prior to ATC issuance.

IX. Recommendation

Issue Authority to Construct permits N-5753-1-1, 2-1, 3-1 and 4-1 subject to conditions listed on the attached draft Authority to Construct permits.

X. Billing Information

Table 35 Billing Information		
PERMIT NUMBERS	FEE SCHEDULE	FEE DESCRIPTION
N-5753-1-1	3020-06	Miscellaneous
N-5753-2-1	3020-06	Miscellaneous
N-5753-3-1	3020-06	Miscellaneous
N-5753-4-1	3020-06	Miscellaneous

XI. Attachments

- Attachment I: Current Permits to Operate
- Attachment II: Top-Down BACT Analysis
- Attachment III: Health Risk Assessment (HRA) and Ambient Air Quality Analysis (AAQA) Summary
- Attachment IV: Draft Authority to Construct Permits
- Attachment V: Quarterly Net Emissions Change (QNEC) Calculations

Attachment I

Current Permits to Operate

Attachment II

Top-Down BACT Analysis

Attachment III

Health Risk Assessment (HRA) And Ambient Air Quality Analysis (AAQA) Summary

Attachment IV

Draft Authority to Construct Permits

Attachment V

Quarterly Net Emissions Change (QNEC) Calculations

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 = Quarterly PE2 – Quarterly BE, where:

- QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
- Quarterly PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.
- Quarterly BE = Baseline Emissions (per Rule 2201) for each emissions unit, lb/qtr.

Using the values in Sections VII.C.2 in the evaluation above, Quarterly PE2 can be calculated as follows:

Quarterly PE2 (lb/qtr) = Total PE2 (lb/yr) / 4 (qtrs/yr).

Quarterly PE2 values are summarized in the following tables.

Quarterly BE (lb/qtr) values are as determined in section VII.C.6, Table 27.

Attachment V, Table 1				
Quarterly Net Emissions Change (Unit 1-1, Milking Center)				
Pollutant	Total PE2 (lb/yr)	Quarterly PE2 (lb/qtr)	Quarterly BE (lb/qtr)	QNEC (lb/qtr)
NO _x	0	0	0	0
SO _x	0	0	0	0
PM ₁₀	0	0	0	0
CO	0	0	0	0
VOC	2,160	540	405	135
NH ₃	2,880	720	540	180

Attachment V, Table 2				
Quarterly Net Emissions Change (Unit 2-1, Cow Housing)				
Pollutant	Total PE2 (lb/yr)	Quarterly PE2 (lb/qtr)	Quarterly BE (lb/qtr)	QNEC (lb/qtr)
NO _x	0	0	0	0
SO _x	0	0	0	0
PM ₁₀	11,232	2,808	2,642	166
CO	0	0	0	0
VOC	39,624	9,906	7,218	2,688
NH ₃	108,816	27,204	17,856	9,348

Attachment V, Table 3 Quarterly Net Emissions Change (Unit 3-1, Liquid Manure Management)				
Pollutant	Total PE2 (lb/yr)	Quarterly PE2 (lb/qtr)	Quarterly BE (lb/qtr)	QNEC (lb/qtr)
NO _x	0	0	0	0
SO _x	0	0	0	0
PM ₁₀	0	0	0	0
CO	0	0	0	0
VOC	18,480	4,620	4,293	327
NH ₃	107,520	26,880	25,308	1,572

Attachment V, Table 4 Quarterly Net Emissions Change (Unit 4-1, Solid Manure Management)				
Pollutant	Total PE2 (lb/yr)	Quarterly PE2 (lb/qtr)	Quarterly BE (lb/qtr)	QNEC (lb/qtr)
NO _x	0	0	0	0
SO _x	0	0	0	0
PM ₁₀	0	0	0	0
CO	0	0	0	0
VOC	0	0	0	0
NH ₃	0	0	0	0