

STANISLAUS COUNTY PLANNING COMMISSION

May 5, 2016

STAFF REPORT

USE PERMIT APPLICATION NO. PLN2014-0044
KB DAIRY

REQUEST: TO INCREASE THE NUMBER OF PERMITTED COWS FROM 851 TO 2,150, CONSISTING OF: 1,500 MILK COWS; 300 DRY COWS; 75 BRED HEIFERS (15-24 MOS); 220 CALVES (4-6 MOS); AND 55 CALVES (0-3 MOS) ON AN EXISTING DAIRY FACILITY.

APPLICATION INFORMATION

Applicant/Property owner:	Mike Barry and/or Paul Zonzen/David Pacheco, Pacheco 1999 Family Limited Partnership
Agent:	Dairy Monitoring Co., Jim Avila
Location:	3701 Langworth Road, on the southwest corner of Langworth and Rice Roads, east of the City of Modesto and southeast of the City of Riverbank.
Section, Township, Range:	8-3-10
Supervisorial District:	One (Supervisor O'Brien)
Assessor's Parcel:	014-015-002
Referrals:	See Exhibit H Environmental Review Referrals
Area of Parcel(s):	105.14 acres
Water Supply:	Private well
Sewage Disposal:	Septic/leach system
General Plan Designation:	AG (Agriculture)
Existing Zoning:	A-2-40 (General Agriculture)
Sphere of Influence:	N/A
Community Plan Designation:	N/A
Williamson Act Contract No.:	1975-1996
Environmental Review:	Negative Declaration
Present Land Use:	Dairy, milk barns, animal shelter structures, waste storage structures, single-family dwelling, row crops
Surrounding Land Use:	Agricultural parcels ranging in size from 1 to 300 acres in size, mostly planted in row crops, with scattered single-family dwellings surround the site to the north, south, east, and west. A number of dairies are located within a two mile radius of the project site. The MID Main Canal runs along the western property line. The City of Modesto is located west of the project site and the City of Riverbank is located northwest of the project site.

RECOMMENDATION

Staff recommends the Planning Commission approve this request based on the discussion below and on the whole of the record provided to the County. If the Planning Commission chooses to approve the project, Exhibit A provides an overview of all of the findings required for project approval which include use permit findings.

PROJECT DESCRIPTION

This project is a request to increase the number of permitted cows, on a 105± acre parcel, from 851 to 2,150, consisting of: 1,500 milk cows; 300 dry cows; 75 bred heifers (15-24 months); 220 calves (4-6 months); and 55 calves (0-3 months) on an existing dairy facility. The proposed increased herd will be located on the already developed site, which contains the current dairy operation and covers approximately 29 acres of the total 105 acre parcel. All new animals will be housed in the existing on-site facilities. The Waste Water Management Plan (WMP) and Nutrition Management Plan (NMP) provided with the application, includes details on managing the expanded dairy cows within the current 20-acre dairy production area and 9 acres of waste water storage ponds. Waste is proposed to be spread on 230 acres of land application areas currently planted in oats and corn, 154 acres of which are located on two adjacent parcels north of the project site. (See Exhibit E – *Revised Initial Study, with Attachments*) Traffic is anticipated to increase from 22 semi-truck trips to 38 semi-truck trips per month for the delivery of feed, and from 9 trips to 16 trips per day of in-farm feeding of livestock (not on county Roads). The number of semi-truck trips per month for milk pick-ups is estimated to remain the same, at 60 trips per month, due to the recent installation of a larger milk tank. Employees are anticipated to increase from 14 current employees, to a maximum of 18 employees, post-project approval.

SITE DESCRIPTION

The site is located at 3701 Langworth Road, on the southwest corner of Langworth and Rice Roads, east of the City of Modesto and southeast of the City of Riverbank. The site is surrounded by agricultural parcels ranging in size from 1 to 300 acres in size, mostly planted in row crops, with scattered single-family dwellings. A number of dairies are located within a two mile radius of the project site. The MID Main Canal runs along the western property line.

The site is served by a private well and septic/leach system and includes numerous structures associated with the dairy operation, including: seven free stall barns, six shaded corrals, two open corrals, one ag storage building utilized for feed storage, oat, corn, and pistachio silage piles, a milk barn, four wastewater storage ponds, and a single-family dwelling.

ISSUES

The project was scheduled to be heard at the April 21, 2016 Planning Commission hearing, but was continued to allow staff the necessary time to address comments received from the San Joaquin Valley Air Pollution Control District (SJVAPCD), which were received too late for incorporation into the April 21, 2016, agenda (See Exhibit D - *April 21, 2016 Planning Commission Memo*). The SJVAPCD raised concerns regarding potential air impacts resulting from the proposed additional milk/dry cows (mature cows), which may potentially exceed the District's thresholds of significance (which includes an increase of NO_x or VOC emissions in excess of 10.0 tons/year or an excess of 20 in one million for carcinogens, and an acute hazard index of one for non-carcinogens for TACs). This analysis was completed by the SJVAPCD as part of KB Dairy's Permit to Operate (PTO) application and was found to be below the District's thresholds for significance (See Exhibit F - *San Joaquin Valley Air Pollution Control District Comment Letter*). The PTO application for the increase

in the number of permitted dairy cows has been placed on hold by the SJVAPCD until such time that the project receives land use approval from the Stanislaus County Planning Commission.

The Central Valley Regional Water Quality Control Board (RWQCB) is responsible for water quality issues related to the project. The project was circulated for CEQA purposes, as RWQCB determined that Waste Discharge Requirements were required. The RWQCB provided an early consultation referral response requesting that the applicant coordinate with their agency to clarify information provided in the Waste Management Plan (WMP) and Nutrient Management Plan (NMP) included with the application. The applicant has since coordinated with the RWQCB, and has provided clarification on their WMP and NMP. An e-mail provided by RWQCB, on February 3, 2016, deemed the WMP and NMP provided by the applicant complete and acceptable. The applicant will be required to adhere to the accepted WMP and all RWQCB standards. This requirement has been incorporated into the conditions of approval for the project. (See Exhibit C - *Conditions of Approval* and Exhibit E – *Revised Initial Study, with Attachments.*)

GENERAL PLAN CONSISTENCY

The site is currently designated as “Agriculture” in the Stanislaus County General Plan and this designation is consistent with an A-2 (General Agriculture) zoning district. The agricultural designation recognizes the value and importance of agriculture by acting to preclude incompatible urban development within agricultural areas.

The following goals, objectives, and policies of the County General Plan reflect the County's commitment to a strong agricultural economy.

Land Use Element

Goal Three - Foster stable economic growth through appropriate land use policies.

Policy Sixteen - Agriculture, as the primary industry of the County, shall be promoted and protected.

Agricultural Element

Goal One - Strengthen the agricultural sector of our economy.

Objective No. 1.3 - Minimizing Agricultural Conflicts.

Implementation Measure No 1 - The County shall continue to implement the Right-to-Farm ordinance.

Goal Two - Conserve our agricultural lands for agricultural uses.

Staff believes this project to be consistent with the General Plan. An expanded discussion about dairy facilities in terms of compatibility with agriculture is provided in the following Zoning Ordinance Consistency section.

ZONING & SUBDIVISION ORDINANCE CONSISTENCY

The site is currently zoned A-2-40 (General Agriculture). It is the intent of A-2 zoning district to support and enhance agriculture as the predominant land use in the unincorporated areas of Stanislaus County. The procedures contained within the A-2 zoning district are specifically established to ensure that all land uses are compatible with agriculture.

Confined Animal Facilities (CAF), which include dairies, are considered to be permitted agricultural uses; however, a use permit is required for new or expanding CAFs requiring a new or modified permit waiver, order, or Waste Discharge Requirements (WDRs) from the Regional Water Quality Control Board (RWQCB), where the issuance of such permit, waiver, order, or WDR requires compliance with CEQA (Section 21.20.030 (F) of the Stanislaus County Zoning Code). The County adopted the use permit requirement in 2003 in order to allow the County to facilitate the environmental review (in accordance with CEQA) required for issuance of any permit, waiver, order, or WDR by the RWQCB.

The proposed project is only required to obtain a use permit because the RWQCB has determined that the proposed dairy is subject to issuance of WDRs requiring CEQA review. WDRs are State regulations pertaining to the treatment, storage, processing or disposal of solid waste.

Any project required to obtain a use permit is subject to the following finding for approval:

1. *The establishment, maintenance, and operation of the proposed use or building applied for is consistent with the General Plan designation of "Agriculture" and will 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 of the use and that it will not be detrimental or injurious to property and improvements in the neighborhood or to the general welfare of the County.*

The RWQCB monitors dairies for compliance with their NMP, WMP, and WDRs. A NMP and WMP are required by the RWQCB in order to determine the need for permits, waivers, or WDRs. The applicant has submitted both an NMP and WMP to RWQCB. Both were deemed complete and acceptable by the RWQCB.

CAFs are agricultural uses protected by the County's Right-to-Farm Ordinance which was adopted in 1991. The ordinance states that:

The County of Stanislaus recognizes and supports the right-to-farm agricultural lands in a manner consistent with accepted customs and standards. Residents of property on or near agricultural land should be prepared to accept the inconveniences or discomforts associated with agricultural operations, including but not limited to noise, odors, flies, fumes, dust, the operation of machinery of any kind during any 24-hour period (including aircraft), the storage and disposal of manure, and the application by spraying or otherwise of chemical fertilizers, soil amendments, herbicides, and pesticides. Stanislaus County has determined that inconveniences or discomforts associated with such agricultural operations shall not be considered to be a nuisance if such operations are consistent with accepted customs and standards.

The project site is enrolled in Williamson Act Contract No. 75-1996. Section 21.20.045(A) of the A-2 zoning district requires that all uses requiring use permits that are approved on Williamson Act contracted lands shall be consistent with the following three principles of compatibility:

1. *The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in the A-2 zoning district;*
2. *The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in the A-2 zoning district. Uses that significantly displace agricultural operations on the subject*

contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping; and

3. *The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use.*

Approval of this project will not significantly compromise the long-term productive agricultural capability of the subject property or of surrounding agricultural operations. Nor will the proposed project result in new facilities limiting the return of the property to agricultural production in the future, or in the removal of any adjacent contracted land from agricultural or open space use.

The project was referred to the State Department of Conservation during the Early Consultation and 30-day Initial Study reviews and no comments were received.

Staff believes the necessary findings for approval of this project can be made. With conditions of approval in place, there is no indication that, under the circumstances of this particular case, the proposed project will be detrimental to the health, safety, and general welfare of persons residing or working in the neighborhood of the use or that it will be detrimental or injurious to property and improvements in the neighborhood or to the general welfare of the County. Dairy facilities are an important component of the agricultural economy in Stanislaus County. There is no indication this project will interfere or conflict with other agricultural uses in the area.

ENVIRONMENTAL REVIEW

Pursuant to the California Environmental Quality Act (CEQA), the proposed project was circulated to all interested parties and responsible agencies for review and comment and no significant issues were raised. (See Exhibit H - *Environmental Review Referrals*.) A Negative Declaration has been prepared for approval prior to action on the map itself as the project will not have a significant effect on the environment. (See Exhibit G - *Negative Declaration*.) Conditions of approval reflecting referral responses have been placed on the project. (See Exhibit C - *Conditions of Approval*.)

A comment was received from the San Joaquin Valley Air Pollution Control District (SJVAPCD) requesting that the environmental review for the project include a Health Impact Assessment, including an analysis of the project's impacts on Toxic Air Contaminants (TACs). The District's thresholds of significance for TACs includes risk to maximally exposed individuals equal to or greater than 20 in one million for carcinogens, and an acute hazard index of one for non-carcinogens. A screening of the project's Health Impacts was completed by the Air District as part of the operation's Permit to Operate (PTO) application process and the project was found to be under the District's threshold of significance for TACs. The following language was added to Chapter III Air Quality of the Initial Study (See Exhibit E – *Revised Initial Study, with Attachments*):

A screening of the project's Health Impacts was completed by the Air District as part of the operation's Permit to Operate (PTO) application process and the project was found to be under the District's threshold of significance for TACs.

As permitted by CEQA Guidelines Section 15073.5(c), revisions to a Negative Declaration may be approved by the Planning Commission without a new period of environmental review if the project revisions are added in response to written or verbal comments on the project's effects identified in the proposed negative declaration which are not new avoidable significant effects, or if the new information merely clarifies, amplifies, or makes insignificant modifications to the negative declaration. This additional language is considered to be informational in nature and to have no

new significant effects. The operation is under the Air District's threshold for Toxic Air Contaminants, therefore, there are no additional impacts related to this additional information. Planning staff believes that the modification meets this statute and that re-circulation of the environmental assessment document is not required.

Note: Pursuant to California Fish and Game Code Section 711.4, all project applicants subject to the California Environmental Quality Act (CEQA) shall pay a filing fee for each project; therefore, the applicant will further be required to pay **\$2,267.25** for the California Department of Fish and Wildlife (formerly the Department of Fish and Game) and the Clerk Recorder filing fees. The attached Conditions of Approval ensure that this will occur.

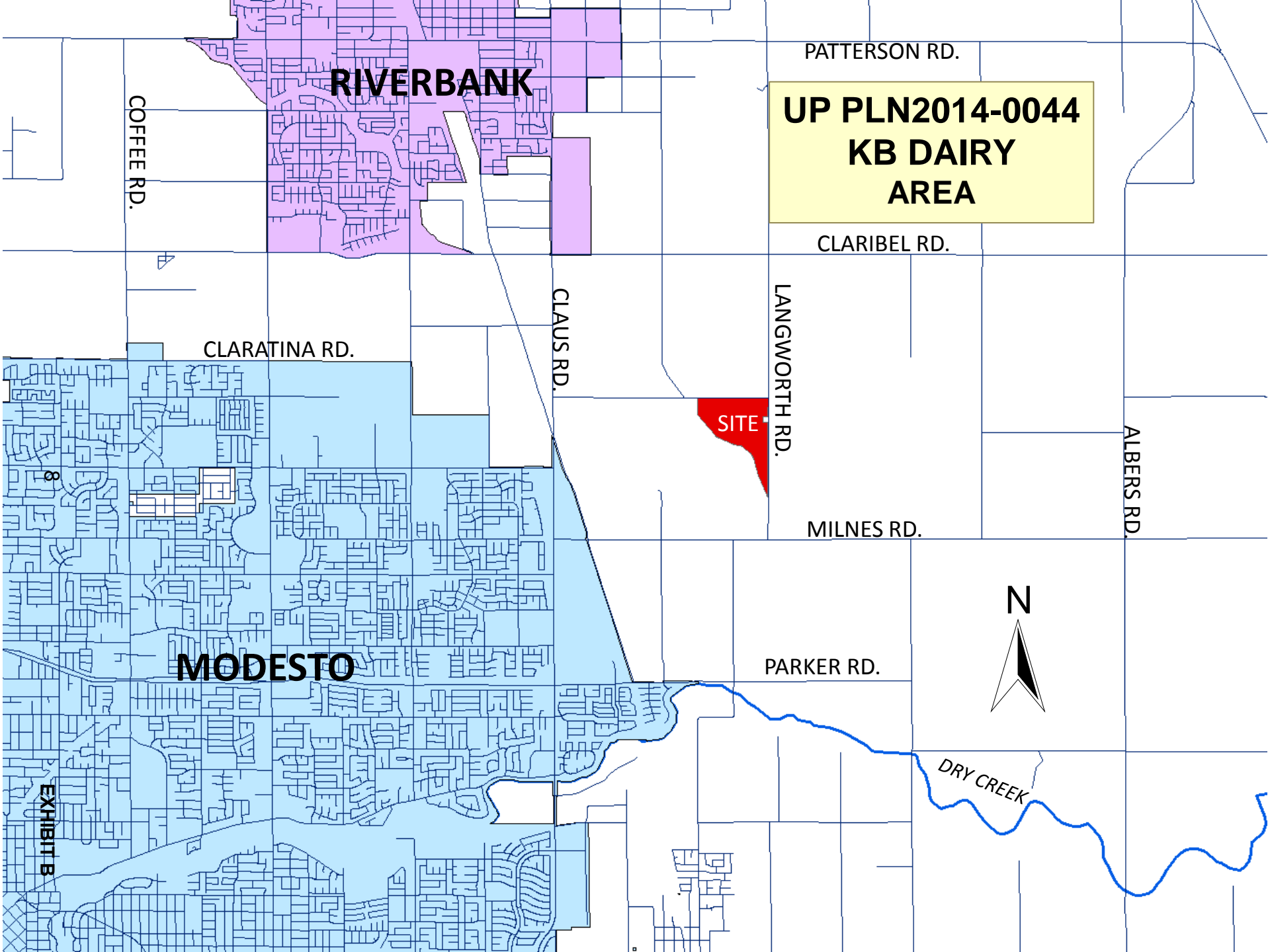
Contact Person: Kristin Doud, Associate Planner, (209) 525-6330

Attachments:

- Exhibit A - Findings and Actions Required for Project Approval
- Exhibit B - Maps
- Exhibit C - Conditions of Approval
- Exhibit D - April 21, 2016, Planning Commission Memo
- Exhibit E - Revised Initial Study, with Attachments
- Exhibit F - San Joaquin Valley Air Pollution Control District Comment Letter
- Exhibit G - Negative Declaration
- Exhibit H - Environmental Review Referral

Exhibit A
Findings and Actions Required for Project Approval

1. Adopt the Negative Declaration pursuant to CEQA Guidelines Section 15074(b), by finding that on the basis of the whole record, including the Initial Study and any comments received, that there is no substantial evidence the project will have a significant effect on the environment and that the Negative Declaration reflects Stanislaus County's independent judgment and analysis.
2. Order the filing of a Notice of Determination with the Stanislaus County Clerk-Recorder's Office pursuant to Public Resources Code Section 21152 and CEQA Guidelines Section 15075.
3. Find that:
 - (a) The establishment, maintenance, and operation of the proposed use or building applied for is consistent with the General Plan designation of "Agriculture" and will 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 of the use and that it will not be detrimental or injurious to property and improvements in the neighborhood or to the general welfare of the County.
 - (b) The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in the A-2 zoning district.
 - (c) The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in the A-2 zoning district. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping.
 - (d) The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use.
4. Approve Use Permit Application No. PLN2014-0044 – KB Dairy, subject to the attached Conditions of Approval.



RIVERBANK

PATTERSON RD.

**UP PLN2014-0044
KB DAIRY
AREA**

CLARIBEL RD.

COFFEE RD.

CLARATINA RD.

CLAUS RD.

LANGWORTH RD.

ALBERS RD.

SITE

MILNES RD.

MODESTO

PARKER RD.

N

DRY CREEK

EXHIBIT B

RIVERBANK

UT

**UP PLN2014-0044
KB DAIRY
GENERAL PLAN**

ELEANOR RD.

LARIBEL RD.

PD

AG

PLAINVIEW RD.

CLAUS RD.

LANGWORTH RD.

UT

9

AG

SITE

N

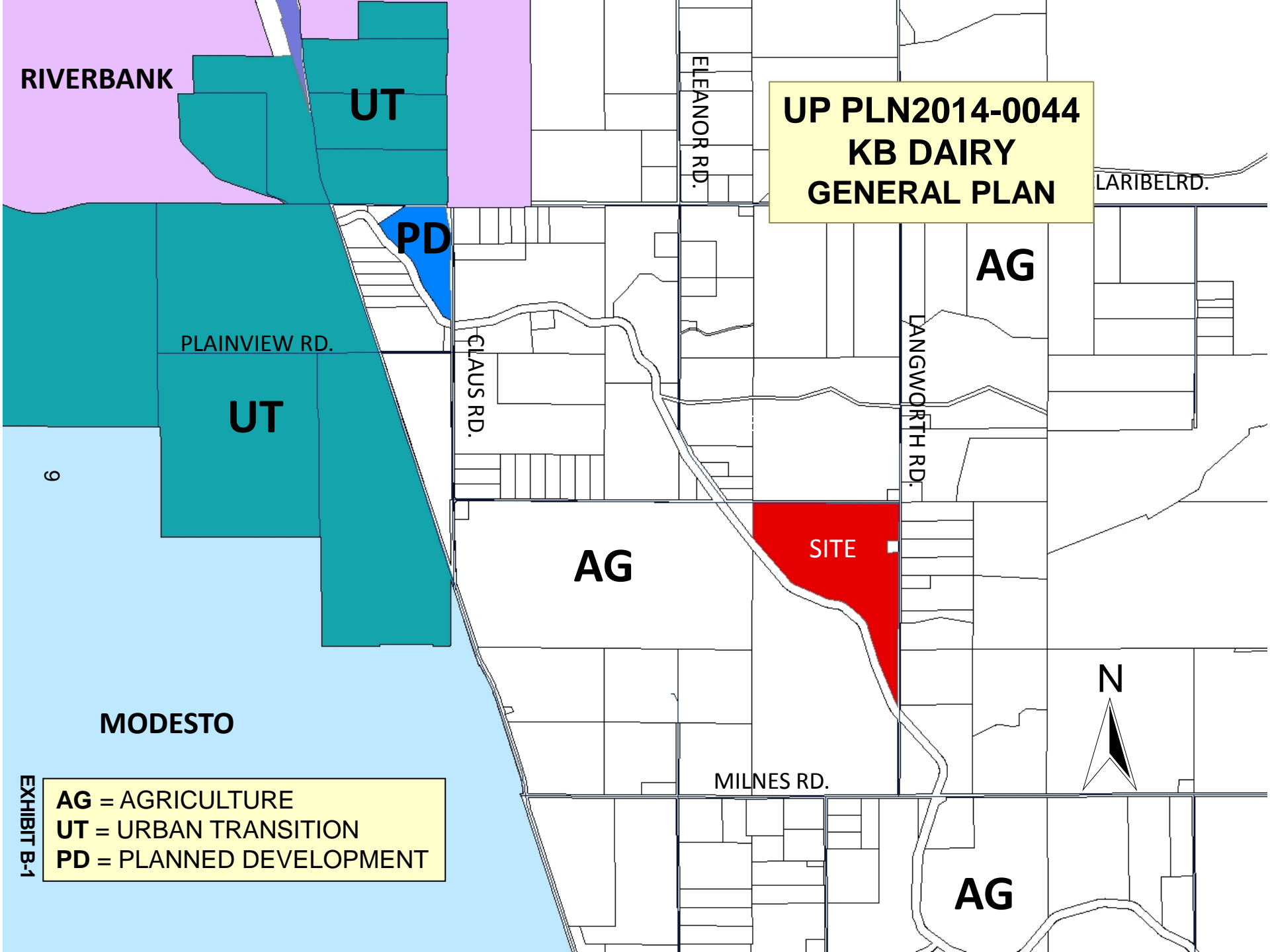
MODESTO

MILNES RD.

AG

**AG = AGRICULTURE
UT = URBAN TRANSITION
PD = PLANNED DEVELOPMENT**

EXHIBIT B-1



RIVERBANK

A-2-10

**UP PLN2014-0044
KB DAIRY
ZONING MAP**

LARIBEL RD.

PD

A-2-40

PLAINVIEW RD.

CLAUS RD.

LANGWORTH RD.

A-2-10

10

A-2-40

SITE

N



MODESTO

MILNES RD.

A-2-40

A-2-40 = GENERAL AGRICULTURE (40 acre minimum)
A-2-10 = GENERAL AGRICULTURE (10 acre minimum)
PD = PLANNED DEVELOPMENT

EXHIBIT B-2

UP PLN2014-0044
KB DAIRY
2013 AERIAL



SITE

11



**UP PLN2014-0044
KB DAIRY
SITE PLAN**

P6 30 ac
oats/corn

P7 17 ac
oats/corn

Rice Rd

P3 30 ac
oats/corn

P4 26 ac
oats/corn

P5 12 ac
oats/corn

P2 4 ac
oats/corn

Dairy
Production
Area

#1 Flush from here

#2

#3

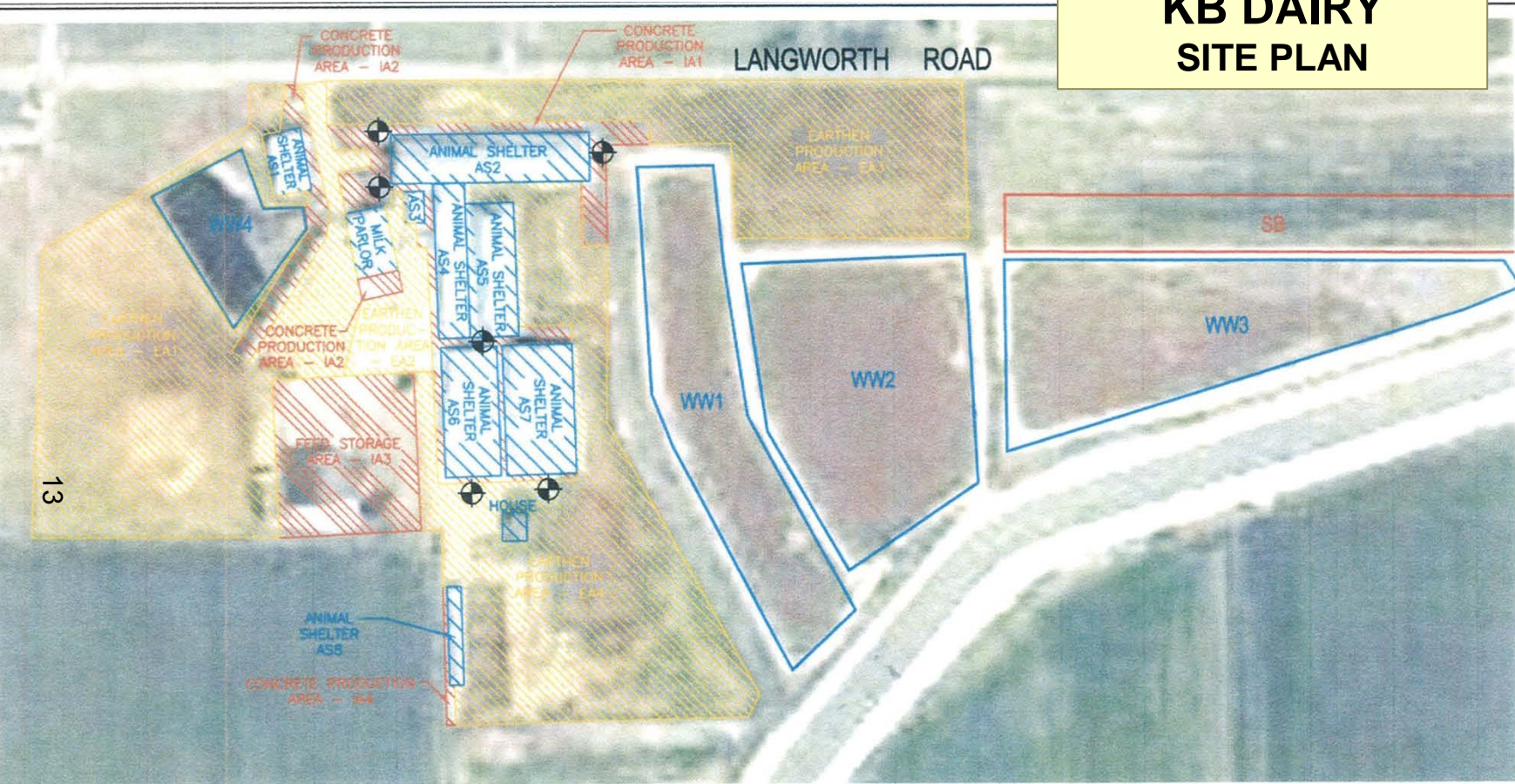
#4 settling pond
p1 4 ac
oats/corn

12

EXHIBIT B-4







UP PLN2014-0044 KB DAIRY SITE PLAN



13

LEGEND

-  ROOF AREA
-  IMPERVIOUS AREA
-  EARTHEN AREA
-  INSPECTION POINT FOR MONITORING ANIMAL HOUSING AND FLUSH WATER CONVEYANCE SYSTEM

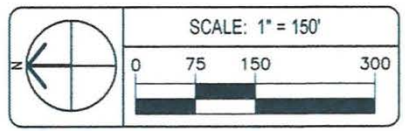


EXHIBIT B-5

SHEET 3 OF 5

SOSA
ENGINEERING
CIVIL - SURVEY - PLANNING
PH: (209)228-3151
FAX: (209)228-3158
100% EET
MOD. A 9/3/04

SITE MAP - PRODUCTION AREA
KB DAIRY
STANISLAUS COUNTY, CA

DATE: 7/10/2010
FILE: 03_dco_dwg.dwg
JOB NO.: 2010-WMP001
SYMBOL DESCRIPTION
APPRO.

UP PLN2014-0044 KB DAIRY SITE PLAN

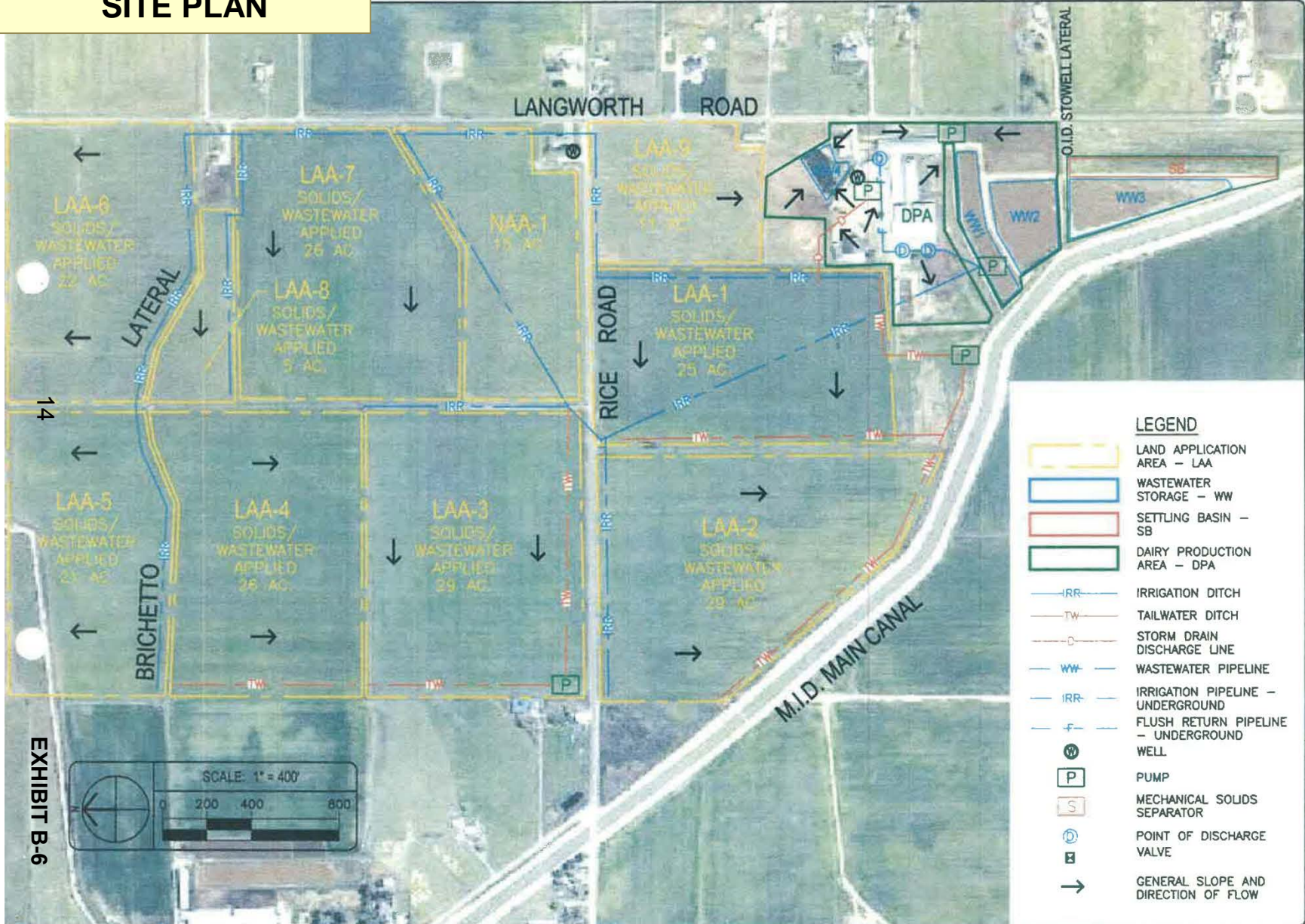


EXHIBIT B-6



- ### LEGEND
- LAND APPLICATION AREA - LAA
 - WASTEWATER STORAGE - WW
 - SETTLING BASIN - SB
 - DAIRY PRODUCTION AREA - DPA
 - IRR — IRRIGATION DITCH
 - TW — TAILWATER DITCH
 - D — STORM DRAIN DISCHARGE LINE
 - WW — WASTEWATER PIPELINE
 - IRR — IRRIGATION PIPELINE - UNDERGROUND
 - f — FLUSH RETURN PIPELINE - UNDERGROUND
 - ⊙ WELL
 - P PUMP
 - S MECHANICAL SOLIDS SEPARATOR
 - D POINT OF DISCHARGE VALVE
 - GENERAL SLOPE AND DIRECTION OF FLOW

SHEET 2 OF 5

SOSA
SURVEYING
CIVIL - SURVEY - PLANNING

PH: (209)264-3151
FAX: (209)264-3156

1008 6TH STREET
MODESTO, CA 95354

SITE MAP

KB
BRICHETTO DAIRY

STANISLAUS COUNTY, CA

NO.	DATE	REVISIONS	DESCRIPTION
1	11/2/2010		APPD.
2	11/2/2010		APPD.
3	11/2/2010		APPD.
4	11/2/2010		APPD.
5	11/2/2010		APPD.
6	11/2/2010		APPD.
7	11/2/2010		APPD.
8	11/2/2010		APPD.
9	11/2/2010		APPD.
10	11/2/2010		APPD.

NOTE: Approval of this application is valid only if the following conditions are met. This permit shall expire unless activated within 18 months of the date of approval. In order to activate the permit, it must be signed by the applicant and one of the following actions must occur: (a) a valid building permit must be obtained to construct the necessary structures and appurtenances; or, (b) the property must be used for the purpose for which the permit is granted. (Stanislaus County Ordinance 21.104.030)

CONDITIONS OF APPROVAL

USE PERMIT APPLICATION NO. PLN2014-0044 KB DAIRY

Department of Planning and Community Development

1. Use(s) shall be conducted as described in the application and supporting information (including the plot plan) as approved by the Planning Commission and/or Board of Supervisors and in accordance with other laws and ordinances.
2. Pursuant to Section 711.4 of the California Fish and Game Code (effective January 1, 2016), the applicant is required to pay a California Department of Fish and Wildlife (formerly the Department of Fish and Game) fee at the time of filing a "Notice of Determination." Within five (5) days of approval of this project by the Planning Commission or Board of Supervisors, the applicant shall submit to the Department of Planning and Community Development a check for **\$2,267.25**, made payable to **Stanislaus County**, for the payment of California Department of Fish and Wildlife and Clerk Recorder filing fees.

Pursuant to Section 711.4 (e) (3) of the California Fish and Game Code, no project shall be operative, vested, or final, nor shall local government permits for the project be valid, until the filing fees required pursuant to this section are paid.
3. Developer shall pay all Public Facilities Impact Fees and Fire Facilities Fees as adopted by Resolution of the Board of Supervisors. The fees shall be payable at the time of issuance of a building permit for any construction in the development project and shall be based on the rates in effect at the time of building permit issuance.
4. The applicant/owner is required to defend, indemnify, or hold harmless the County, its officers, and employees from any claim, action, or proceedings against the County to set aside the approval of the project which is brought within the applicable statute of limitations. The County shall promptly notify the applicant of any claim, action, or proceeding to set aside the approval and shall cooperate fully in the defense.
5. All exterior lighting shall be designed (aimed down and toward the site) to provide adequate illumination without a glare effect. This shall include, but not be limited to, the use of shielded light fixtures to prevent skyglow (light spilling into the night sky) and the installation of shielded fixtures to prevent light trespass (glare and spill light that shines onto neighboring properties).

6. During the construction phases of the project, if any human remains, significant or potentially unique, are found, all construction activities in the area shall cease until a qualified archeologist can be consulted. Construction activities shall not resume in the area until an on-site archeological mitigation program has been approved by a qualified archeologist.
7. Pursuant to Section 404 of the Clean Water Act, prior to construction, the developer shall be responsible for contacting the US Army Corps of Engineers to determine if any "wetlands," "waters of the United States," or other areas under the jurisdiction of the Corps of Engineers are present on the project site, and shall be responsible for obtaining all appropriate permits or authorizations from the Corps, including all necessary water quality certifications, if necessary.
8. Any construction resulting from this project shall comply with standardized dust controls adopted by the San Joaquin Valley Air Pollution Control District (SJVAPCD) and may be subject to additional regulations/permits, as determined by the SJVAPCD.
9. A sign plan for all proposed on-site signs indicating the location, height, area of the sign(s), and message must be approved by the Planning Director or appointed designee(s) prior to installation.
10. Pursuant to Sections 1600 and 1603 of the California Fish and Game Code, prior to construction, the developer shall be responsible for contacting the California Department of Fish and Game and shall be responsible for obtaining all appropriate stream-bed alteration agreements, permits, or authorizations, if necessary.
11. The Department of Planning and Community Development shall record a Notice of Administrative Conditions and Restrictions with the County Recorder's Office within 30 days of project approval. The Notice includes: Conditions of Approval/Development Standards and Schedule; any adopted Mitigation Measures; and a project area map.
12. Should any archeological or human remains be discovered during development, work shall be immediately halted within 150 feet of the find until it can be evaluated by a qualified archaeologist. If the find is determined to be historically or culturally significant, appropriate mitigation measures to protect and preserve the resource shall be formulated and implemented. The Central California Information Center shall be notified if the find is deemed historically or culturally significant.
13. Within six months of project approval, the applicant shall complete Individual Waste Discharge Requirements (WDR) for the project through the Central Valley Regional Water Quality Control Board (CVRWQCB). The applicant and/or property owner shall, at all times, implement and comply with all waste management practices as approved by the Regional Water Quality Control Board (RWQCB); including future modification to Nutrient Management Plan (NMP) and Waste Management Plan (WMP) in accordance with RWQCB review, permitting, and approval.

Department of Public Works

14. An encroachment permit shall be obtained to pave the driveway on the Langworth Road right-of-way. Any new driveway location shall be approved by Public Works.

15. No parking, loading, or unloading of vehicles will be permitted within the County Road right-of-way.
16. A grading, drainage, and erosion/sediment control plan for the project site shall be submitted before any building permit for the site is issued that creates a new or bigger building footprint on this parcel. Public Works will review and approve the drainage calculations. The grading and drainage plan shall include the following information:
 - A. Drainage calculations shall be prepared as per the Stanislaus County Standards and Specifications that are current at the time the permit is issued.
 - B. The plan shall contain enough information to verify that all runoff will be kept from going onto adjacent properties and Stanislaus County road right-of-way.
 - C. The grading, drainage, and erosion/sediment control plan shall comply with the current Stanislaus County National Pollutant Discharge Elimination System (NPDES) General Permit and the Quality Control standards for New Development and Redevelopment contained therein.
 - D. The grading, drainage, and associated work shall be accepted by Stanislaus County Public Works prior to a final inspection or occupancy, as required by the building permit.
 - E. The applicant of the building permit shall pay the current Stanislaus County Public Works weighted labor rate for the plan review of the building and/or grading plan.
 - F. The applicant of the building permit shall pay the current Stanislaus County Public Works weighted labor rate for all on-site inspections. The Public Works inspector shall be contacted 48 hours prior to the commencement of any grading or drainage work on-site.

Building Permits Division

17. Building permits are required, in conformance with the California Code of Regulations, Title 24, for any project related construction.

Oakdale Irrigation District (OID)

18. Prior to issuance of any grading or building permit, any proposed improvements within the limits of the OID right-of-way shall be reviewed and approved by OID. The Oakdale Irrigation District (OID) Modesto Drain, Rice Reclamation Pump, and Kuhn Lateral all exist within the boundaries of the project site. OID maintains a prescriptive right-of-way for the Modesto Drain, which runs along the western property line, across the middle of the property, to a small section along the eastern property line.

San Joaquin Valley Air Pollution Control District (SJVAPCD)

19. The proposed project will be subject to District Rule 2010 (Permits Required) and Rule 2201 (New and Modified Stationary Source Review) and will require District permits. Prior to the start of construction the project proponent shall submit to the District an application for an Authority to Construct (ATC).

20. The proposed project is subject to all applicable District Rules. These may include the following:
- Regulation VIII (Fugitive PM10 Prohibitions);
 - Rule 4102 (Nuisance) – This rule applies to any source operation that emits or may emit air contaminants or other materials. In the event that the project or construction of the project creates a public nuisance, it could be in violation and be subject to District enforcement action;
 - Rule 4601 (Architectural Coatings);
 - Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations);
 - Rule 4002 (National Emission Standards for Hazardous Air Pollutants); and
 - Rule 4550 (Conservation Management Practices) – The purpose of this rule is to limit fugitive dust emissions from agricultural operation sites. These sites include areas of crop production, animal feeding operations and unpaved roads/equipment areas.
21. If applicable, a Rule 4570 (Confined Animal Facilities) application shall be submitted to the District. District Rule 4570 was adopted by the District's Governing Board on June 15, 2006. Dairies with greater than or equal to 500 milk cows are subject to the requirements of District Rule 4570.
22. Within six months of project approval, the operator shall complete a Permit to Operate (PTO), through the Air District.
23. The project shall comply with any existing or future Best Management Practices adopted by the SJVAPCD.

*Please note: If Conditions of Approval/Development Standards are amended by the Planning Commission or Board of Supervisors, such amendments will be noted in the upper right-hand corner of the Conditions of Approval/Development Standards; new wording is in **bold**, and deleted wording will have a ~~line through it~~.*



DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

1010 10th Street, Suite 3400, Modesto, CA 95354
Phone: 209.525.6330 Fax: 209.525.5911

April 21, 2016

MEMO TO: Stanislaus County Planning Commission
FROM: Department of Planning and Community Development
SUBJECT: USE PERMIT APPLICATION NO. PLN2014-0044 – KB DAIRY

Staff is requesting that Use Permit Application No. PLN2014-0044 – KB Dairy be continued to the May 5, 2016, Planning Commission meeting. The applicant has been working with the San Joaquin Valley Air Pollution District (SJVAPCD) on addressing potential health impacts from the project. The continuance is requested to provide staff the necessary time to address the Air District's latest comments, which were received too late for incorporation into the April 21, 2016, agenda.

RECOMMENDATION

Staff recommends that Use Permit Application No. PLN2014-0044 – KB Dairy be continued to May 5, 2016.



CEQA INITIAL STUDY

Adapted from CEQA Guidelines APPENDIX G Environmental Checklist Form, Final Text, December 30, 2009

- 1. **Project title:** Use Permit Application No. PLN2014-0044 – KB Dairy
- 2. **Lead agency name and address:** Stanislaus County
1010 10th Street, Suite 3400
Modesto, CA 95354
- 3. **Contact person and phone number:** Kristin Doud, Associate Planner
- 4. **Project location:** 3701 Langworth Road, on the southwest corner of Langworth and Rice Roads, east of the city of Modesto and southeast of the city of Riverbank. (APN: 014-015-002).
- 5. **Project sponsor’s name and address:** KB Dairy, Mike Barry and Paul Konzen
5707 Langworth Rd.
Oakdale, CA 95361
- 6. **General Plan designation:** Agriculture
- 7. **Zoning:** A-2-40 (General Agriculture)
- 8. **Description of project:**

Request to increase the number of permitted cows, on a 105± acre parcel, from 851 to 2,150, consisting of: 1,500 milk cows; 300 dry cows; 75 bred heifers (15-24 months); 220 calves (4-6 months); and 55 calves (0-3 months) on an existing dairy facility. The site has well and septic services and includes 7,480 square feet of waste storage structures, milk barns, and animal shelter structures. No structural improvements are proposed as a part of this application. All new animals will be housed in the existing on-site facilities. The attached Waste Water Management Plan (WMP) and Nutrition Management Plan (NMP) provide details on managing the expanded dairy cows within the current 20 acre dairy production area and 9 acres of waste water storage ponds. Waste is proposed to be spread on 230 acres of land application areas currently planted in oats and corn, 154 acres of which are located on two adjacent parcels north of the project site. Traffic is anticipated to increase from 22 Loads of Feed per month (semi-trucks) to 38 loads of feed per month (semi-trucks), and from 9 Loads per day of in-farm feeding of livestock (not on county Roads) to 16 Loads per day. The loads of milk pick-ups per month (semi-trucks) are estimated to remain the same, at 60 loads per month, due to the recent installation of a larger milk tank. Employees are anticipated to increase from 14 current employees, to a maximum of 18 employees post-project.

- 9. **Surrounding land uses and setting:** The property is surrounded by agricultural parcels ranging in size from 1 to 300 acres in size, mostly planted in row crops, with scattered single family dwellings. A number of dairies are located within a two mile radius of the project site. The MID Main Canal runs along the western property line.

10. **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.):** Regional Water Quality Control Board
San Joaquin Valley Air Pollution Control District

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- | | | |
|---|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture & Forestry Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology / Soils |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology / Water Quality |
| <input type="checkbox"/> Land Use / Planning | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise |
| <input type="checkbox"/> Population / Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Transportation / Traffic | <input type="checkbox"/> Utilities / Service Systems | <input type="checkbox"/> Mandatory Findings of Significance |

DETERMINATION: (To be completed by the Lead Agency)
 On the basis of this initial evaluation:

- I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.
- I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.
- I find that the proposed project **MAY** have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Kristin Doud, Associate Planner _____
 Prepared By

February 24, 2016 (as amended on April 20, 2016)
 Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

- 1) A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, than the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
- 4) “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, “Earlier Analyses,” may be cross-referenced).
- 5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration.

Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

- a) **Earlier Analysis Used.** Identify and state where they are available for review.
 - b) **Impacts Adequately Addressed.** Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) **Mitigation Measures.** For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). References to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
 - 7) **Supporting Information Sources:** A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
 - 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project’s environmental effects in whatever format is selected.
 - 9) The explanation of each issue should identify:
 - a) the significant criteria or threshold, if any, used to evaluate each question; and
 - b) the mitigation measure identified, if any, to reduce the impact to less than significant.

ISSUES

I. AESTHETICS -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

Discussion: Any development resulting from this project will be consistent with existing area developments. The site itself is not considered to be a scenic resource or a unique scenic vista. The site is currently developed with existing dairy facilities/structures. The existing structures are comprised of metal, which is a material consistent with accessory structures in and around the A-2 (General Agriculture) zoning district. No additional buildings are proposed as part of this application. Standard conditions of approval will be added to this project to address glare from any previously installed or any proposed supplemental on-site lighting.

Mitigation: None.

References: Stanislaus County General Plan and Support Documentation¹.

II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?			X	
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?			X	

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?			X	

Discussion: The project site is currently enrolled under Williamson Act Contract No. 75-1996. Surrounding land uses consist of mostly cropland and scattered single family homes and agricultural buildings. A number of dairies are located within a two mile radius of the project site.

The portion of the parcel where the dairy operation is located has soils classified by the California Department of Conservation Farmland Mapping and Monitoring Program as Confined Animal Agriculture. The remainder of the parcel is designated mostly as unique farmland with a portion designated as prime farmland, and farmland of local importance. The USDA Natural Resources Conservation Service’s Eastern Stanislaus County Soil Survey indicates that over 85% of the property is made up of grade 4 San Joaquin sandy loam soils (SaA), which has a Storie Index Rating of 24, which is not considered prime soils. The remaining 15% is made up of grade 1 Snelling sandy loam (SnA), which has a Storie Index Rating of 86 and is considered to be prime.

The project proposes to increase the number of permitted cows, on a 105± acre parcel, from 851 to 2,150, consisting of: 1,500 milk cows; 300 dry cows; 75 bred heifers (15-24 months); 220 calves (4-6 months); and 55 calves (0-3 months) on an existing dairy facility. The site has well and septic services and includes 7,480 square feet of waste storage structures, milk barns, and animal shelter structures. No structural improvements are proposed as a part of this application. All new animals will be housed in the existing on-site facilities. The attached Waste Water Management Plan (WMP) and Nutrition Management Plan (NMP) provide details on managing the expanded dairy cows within the current 20 acre dairy production area and 9 acres of waste water storage ponds. Waste is proposed to be spread on 230 acres of land application areas currently planted in oats and corn, 154 acres of which are located on two adjacent parcels north of the project site.

The proposed use is permitted in Stanislaus County; however, the Regional Water Quality Control Board (RWQCB) has determined that Waste Discharge Requirements (WDRs) are required, which requires CEQA compliance. RWQCB has reviewed the applicant’s Waste Management Plan and Nutrient Management Plan and has stated the plans are sufficient.

This project will have no impact to forest land or timberland. The project will not conflict with any agricultural activities in the area and/or lands enrolled in the Williamson Act. The project was referred to the Department of Conservation, but a response has not been received to date.

Mitigation: None.

References: USDA Natural Resource Conservation Service Web Soil Survey; USDA Soil Conservation Service Soil Survey of Eastern Stanislaus Area CA; California Farmland Mapping and Monitoring Program Data; the Stanislaus County Zoning Ordinance; Stanislaus County General Plan and Support Documentation¹.

III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X	
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			X	
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?			X	

Discussion: The project site is within the San Joaquin Valley Air Basin, which has been classified as "severe non-attainment" for ozone and respirable particulate matter (PM-10) as defined by the Federal Clean Air Act. The San Joaquin Valley Air Pollution Control District (SJVAPCD) has been established by the State in an effort to control and minimize air pollution. As such, the District maintains permit authority over stationary sources of pollutants.

This project was referred to SJVAPCD and a response letter was received which indicated concerns with the project's potential impact to operational emissions (both permitted stationary sources and non-permitted mobile sources), nuisance odors, and health impacts from toxic air contaminants (TACs). The letter acknowledged that the operation's current Permit to Operate (PTO) includes 730 milk cows, not to exceed a combined total of 930 mature cows (milk and dry cows) and 373 support stock (heifers, calves, and bulls). Any expansion beyond these numbers will require a new PTO. Additionally, the response letter stated that the application did not provide sufficient information to allow the District to assess the projects' impact on air quality and recommended that the applicant provide a more detailed assessment. The District provided a template spreadsheet to the applicant which allows an operation to calculate emissions from both new and modifying dairies. Ultimately, the spreadsheet must indicate an increase of less than 10 tons per year of oxides of nitrogen (NOx), 10 tons per year of reactive organic gases (ROG), 15 tons per year of particulate matter of 10 microns or less in size (PM10), or 10 tons per year of Volatile Organic Compounds (VOC). The spreadsheet was completed by the operator and was over the threshold for tons of VOC emissions per year, showing an increase of 11.23 tons of VOC per year. After consultation with the Air Board, the VOC mitigations included in the spreadsheet were amended and reduced to 10.14 tons of VOC emissions per year, which is still above the District's threshold of significance. The applicant then amended the spreadsheet once more, through the application of additional VOC mitigations, and was able to show an increase of 17,324 pounds of VOC per year, or 8.66 tons of VOC emissions per year, which is under the Air Board's threshold of significance.

According to SJVAPCD, the project should also be evaluated to determine the likelihood that the project would result in nuisance odors. Nuisance odors are subjective, thus the District has not established a threshold of significance for nuisance odors. Nuisance odors may be assessed qualitatively taking into consideration project design elements and

proximity to off-site receptors that potentially would be exposed to objectionable odors. The subject project is an existing dairy located in the A-2-40 (General Agricultural) zoning district. Chapter 9.32 Agricultural Land Policies requires purchasers and users of rural property be notified of the Right-to-Farm Ordinance; establishes that conditions (noise, odor, dust, etc.) resulting from agricultural operations, conducted in a manner consistent with proper and accepted customs and standards, are not a nuisance; and establishes a grievance committee to mediate disputes involving agricultural operations.

The SJVAPCD also requested that project related health impacts be evaluated to determine if emissions of toxic air contaminants (TAC) will pose a significant health risk to nearby sensitive receptors. The District considers the following to be significant health risks: a potential risk for carcinogens that equals or exceeds 10 in a million for cancer and 1.0 for acute and chronic hazard indices. The operation has installed a larger milk tank so no increases of milk pick-ups are being proposed. The project does propose an increase of 16 loads of feed per month (semi-trucks), from a current count of 22 loads, to 38 loads of feed per month. The project is also proposing an increase of 9 loads per day of in-farm feeding of livestock to 16 loads per day; however, the in-farm feeding trips do not take place on County maintained roads. Employees are anticipated to increase from 14 current employees, to a maximum of 18 employees post-project. **A screening of the project’s Health Impacts was completed by the Air District as part of the operation’s Permit to Operate (PTO) application process and the project was found to be under the District’s threshold of significance for TACs.**

No new construction is proposed; however, any potential future construction may require an Authority to Construct (ATC) Permit and may be subject to the following District Rules: Regulation VIII, Rule 4102, Rule 4601, Rule 4641, Rule 4002, Rule 4102, Rule 4550, and Rule 4570. Staff will include a condition of approval on the project requiring that the applicant be in compliance with the District’s rules and regulations.

Mitigation: None.

References: Email dated January 6, 2016, from the San Joaquin Valley Air Pollution Control District; Referral Response from the San Joaquin Valley Air Pollution Control District dated June 10, 2014; Stanislaus County General Plan and Support Documentation¹

IV. BIOLOGICAL RESOURCES -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors,			X	

or impede the use of native wildlife nursery sites?				
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e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Discussion: The project is located within the Riverbank Quad of the California Natural Diversity Database. There are 15 plants and animals which are State or Federally listed, threatened, or identified as species of special concern within the Riverbank California Natural Diversity Database Quad. These species include the Swainson’s hawk, tricolored blackbird, burrowing owl, vernal pool fairy shrimp, vernal pool tadpole shrimp, hardhead, chum salmon, steelhead (Central Valley DPS), chinook salmon, obscure bumble bee, Cortch bumble bee, valley elderberry longhorn beetle, moestan blister beetle, and western ridged mussel.

The proposed increased herd will be located on the already developed site, which contains the current dairy operation and covers approximately 29 acres of the total 105 acre parcel. No additional structures are proposed. The remaining acreage will remain planted in row crops.

The project will not conflict with a Habitat Conservation Plan, a Natural Community Conservation Plan, or other locally approved conservation plans. Impacts to endangered species or habitats, locally designated species, or wildlife dispersal or mitigation corridors are considered to be less than significant.

An early consultation was referred to the California Department of Fish and Wildlife (formerly the Department of Fish and Game) and no response was received.

Mitigation: None.

References: California Department of Fish and Wildlife’s Natural Diversity Database Quad Species List, Stanislaus County General Plan and Support Documentation¹

V. CULTURAL RESOURCES -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?			X	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?			X	
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	
d) Disturb any human remains, including those interred outside of formal cemeteries?			X	

Discussion: It does not appear that this project will result in significant impacts to any archaeological or cultural resources. No new structures are proposed as part of this project.

Mitigation: None.

References: Stanislaus County General Plan and Support Documentation¹

VI. GEOLOGY AND SOILS -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				X
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii) Strong seismic ground shaking?				X
iii) Seismic-related ground failure, including liquefaction?				X
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil creating substantial risks to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?			X	

Discussion: The USDA Natural Resources Conservation Service's Eastern Stanislaus County Soil Survey indicates that the soils on the project site are made up of mostly of San Joaquin sandy loam soils (SaA). A small portion of the site is made up of Snelling sandy loam (SnA).

As contained in Chapter 5 of the General Plan Support Documentation, the areas of the County subject to significant geologic hazard are located in the Diablo Range, west of Interstate 5; however, as per the California Building Code, all of Stanislaus County is located within a geologic hazard zone (Seismic Design Category D, E, or F) and a soils test may be required at building permit application. Results from the soils test will determine if unstable or expansive soils are present. If such soils are present, special engineering of the structure will be required to compensate for the soil deficiency. Any structures resulting from this project will be designed and built according to building standards appropriate to withstand shaking for the area in which they are constructed. An early consultation referral response received from the Department of Public Works indicated that if the project will result in a larger building footprint, that a grading, drainage, and erosion/sediment control plan for the project will be required, subject to Public Works review and Standards and Specifications. Likewise, any addition of a septic tank or alternative waste water disposal system would require the approval of the Department of Environmental Resources (DER) through the building permit process, which also takes soil type into consideration within the specific design requirements. However, no additional structures or building site area are being requested as part of this application.

DER, Public Works, and the Building Permits Division review and approve any building or grading permit to ensure their standards are met. Conditions of approval regarding these standards will be applied to the project, but will be triggered only if a building permit is requested.

Mitigation: None.

References: Referral response from the Stanislaus County Department of Public Works dated June 16, 2014; Stanislaus County General Plan and Support Documentation¹

VII. GREENHOUSE GAS EMISSIONS -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				X

Discussion: The principal Greenhouse Gasses (GHGs) are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and water vapor (H₂O). CO₂ is the reference gas for climate change because it is the predominant greenhouse gas emitted. To account for the varying warming potential of different GHGs, GHG emissions are often quantified and reported as CO₂ equivalents (CO₂e). In 2006, California passed the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] No. 32), which requires the California Air Resources Board (ARB) design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020.

In response to this project referral, SJVAPCD provided a template spreadsheet to the applicant which allows an operation to calculate emissions from both new and modifying dairies. The spreadsheet was completed by the operator, which indicated a change in project GHG emissions of 8,354 metric tons of CO₂e per year with fugitive (non-lagoon emissions) and 5,579 metric tons of CO₂e without fugitive emissions. Additionally, the operation has installed a larger milk tank so no increases of milk pick-ups are being proposed. The project does propose an increase of 16 loads of feed per month (semi-trucks), from a current count of 22 loads, to 38 loads of feed per month. The project is also proposing an increase of 9 loads per day of in-farm feeding of livestock to 16 loads per day; however, the in-farm feeding trips do not take place on County maintained roads. Employees are anticipated to increase from 14 current employees, to a maximum of 18 employees post-project.

At this time there is no adopted methodology or Best Management Practices for reducing greenhouse gas emissions for a dairy operation either locally or through SJVAPCD. However, on September 22, 2009, the United States Environmental Protection Agency (EPA) administrator signed the Final Mandatory Reporting of Greenhouse Gas Rule to require large emitters and suppliers of GHGs to begin collecting data starting January 1, 2010, under a new reporting system. The minimum average annual animal population for dairies to emit 25,000 metric tons of GHG or more per year is 3,200 dairy cows. Operators of facilities with less than 3,200 dairy cows are under the threshold for required reporting under this rule. This project proposes a maximum of 2,150 cows, with an increase of 5,579 metric tons of CO₂e per year, which is under the EPA’s GHG reporting threshold of significance. Should Best Management Practices for the reduction of Greenhouse Gases from dairy operations be adopted either locally or by SJVAPCD, the KB Dairy will be required to meet those standards, as required by condition of approval for this project. With this condition of approval in place the project’s impact to greenhouse gas emissions is considered to be less than significant.

Mitigation: None.

References: United States Environmental Protection Agency (EPA) administrator signed the Final Mandatory Reporting of Greenhouse Gas Rule; Stanislaus County General Plan and Support Documentation¹

VIII. HAZARDS AND HAZARDOUS MATERIALS -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				X
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?			X	

Discussion: The project was referred to the DER Hazardous Materials (HazMat) Division and no response was received. No significant impacts associated with hazards or hazardous materials are anticipated to occur as a result of the proposed project.

Mitigation: None.

References: Stanislaus County General Plan and Support Documentation¹

IX. HYDROLOGY AND WATER QUALITY -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?			X	
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			X	

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?			X	
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?			X	
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			X	
f) Otherwise substantially degrade water quality?			X	
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?			X	
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?			X	
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?			X	
j) Inundation by seiche, tsunami, or mudflow?				X

Discussion: Areas subject to flooding have been identified in accordance with the Federal Emergency Management Act (FEMA). The project site is located in FEMA Flood Zone X, which includes areas determined to be outside the 0.2% annual chance floodplains. No structures are proposed as a part of this application. However, should a building permit be required in the future, flood zone requirements will be addressed by the Building Permits Division during the building permit process.

As mentioned previously, the Central Valley Regional Water Quality Control Board (RWQCB) is responsible for water quality issues related to the project. The project is being circulated for CEQA purposes as RWQCB has determined that Waste Discharge Requirements are required. The RWQCB provided an early consultation referral response requesting that the applicant coordinate with their agency to clarify information provided in the Waste Management Plan (WMP) and Nutrient Management Plan (NMP) included with the application. The applicant has since coordinated with the RWQCB, and has provided clarification on their WMP and NMP. An e-mail provided by RWQCB, on February 3, 2016, deemed the WMP and NMP provided by the applicant complete and acceptable. The applicant will be required to adhere to the accepted WMP and all RWQCB standards.

Mitigation: None.

References: Referral Response from Regional Water Quality Control Board received August 4, 2014; E-mail received from the Central Valley Regional Water Quality Control Board, dated February 3, 2016; Stanislaus County General Plan and Support Documentation¹

X. LAND USE AND PLANNING -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Physically divide an established community?				X

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			X	
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?			X	

Discussion: The project site is designated Agriculture and zoned A-2-40 (General Agriculture). The project will ultimately house 2,150 mature cows, which is permitted in the A-2-40 zoning district. However, RWQCB has determined that the proposed project is subject to CEQA and requires that the applicants obtain a Use Permit in accordance with §21.20.030(F) of the Stanislaus County Zoning Ordinance. CEQA is required in instances where a dairy will be required to obtain individual WDRs as part of an expansion. This project will not conflict with any applicable habitat conservation plan or natural community conservation plan and will not physically divide an established community.

Mitigation: None.

References: Zoning Ordinance and Stanislaus County General Plan and Support Documentation¹

XI. MINERAL RESOURCES -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

Discussion: The location of all commercially viable mineral resources in Stanislaus County has been mapped by the State Division of Mines and Geology in Special Report 173. There are no known significant resources on the site.

Mitigation: None.

References: Stanislaus County General Plan and Support Documentation¹

XII. NOISE -- Would the project result in:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?			X	

Discussion: Noise impacts associated with on-site activities and traffic are not anticipated to exceed the normally acceptable level of noise. The project will increase ambient noise levels. Permanent increases may result as the number of animal units is increased on site; however, noise associated with animals in the Agricultural zone is permissible.

Mitigation: None.

References: Stanislaus County General Plan and Support Documentation¹

XIII. POPULATION AND HOUSING -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

Discussion: The proposed use of the site will not create significant service extensions or new infrastructure which could be considered as growth inducing. No housing or persons will be displaced by this project. The increased animals will utilize existing corals and barns. The project site is adjacent to large scale agricultural operations and the nature of the use is considered consistent with the A-2 zoning district.

Mitigation: None.

References: Stanislaus County General Plan and Support Documentation¹

XIV. PUBLIC SERVICES --	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Would the project result in the substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?			X	
Police protection?			X	

Schools?				X
Parks?				X
Other public facilities?			X	

Discussion: The County has adopted Public Facilities Fees, as well as a Fire Facility Fee on behalf of the appropriate fire district, to address impacts to public services. Such fees are required to be paid at the time of building permit issuance. However, no buildings are proposed as a part of this application.

This project was circulated to all applicable school, fire, police, irrigation, and public works departments and districts during the early consultation referral period and no concerns were identified with regard to public services. The Oakdale Irrigation District (OID) did request that they review and approve any future improvements occurring near existing OID right-of-way. This comment will be reflected in the project’s conditions of approval.

Mitigation: None.

References: Referral Response from the Oakdale Irrigation District dated June 10, 2014; Stanislaus County General Plan and Support Documentation¹

XV. RECREATION --	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

Discussion: This project will not increase demands for recreational facilities, as such impacts typically are associated with residential development.

Mitigation: None.

References: Stanislaus County General Plan and Support Documentation¹

XVI. TRANSPORTATION/TRAFFIC -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?			X	
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?			X	

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?			X	
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
e) Result in inadequate emergency access?			X	
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?			X	

Discussion: An e-mail received from the Department of Public Works on June 10, 2014, requested additional information regarding the total existing vs. proposed truck trips for the project. The applicant provided clarification that the operation has installed a larger milk tank so no increases of milk pick-ups are being proposed. The project does propose an increase of 16 loads of feed per month (semi-trucks), from a current count of 22 loads, to 38 loads of feed per month. The project is also proposing an increase of 9 loads per day of in-farm feeding of livestock to 16 loads per day; however, the in-farm feeding trips do not take place on County maintained roads. Employees are anticipated to increase from 14 current employees, to a maximum of 18 employees post-project.

A follow-up referral response from the Department of Public Works, received on June 16, 2014, indicated that the project is subject to the following conditions of approval: an encroachment permit must be obtained for the driveway existing in the right-of-way (ROW) of Langworth Rd.; ROW shall be dedicated through an Irrevocable Offer of Dedication; no parking, loading, or unloading of vehicles may occur within County Road ROW; and a grading and drainage plan shall be submitted to the Department of Public Works for review and approval if the project leads to a larger building footprint. These comments will be applied to the project as conditions of approval.

Mitigation: None.

References: Email response from the Department of Public Works, dated June 10, 2014; Referral response from the Department of Public Works on June 16, 2014; Stanislaus County General Plan and Support Documentation¹

XVII. UTILITIES AND SERVICE SYSTEMS -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			X	
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?			X	
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X

f) Be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs?				X
g) Comply with federal, state, and local statutes and regulations related to solid waste?				X

Discussion: Limitations on providing services have not been identified. The site will be served by private well, septic system, and on-site drainage. A referral response from the Department of Public Works requires that they review and approve a grading and drainage plan prior to issuance of any building permit. Conditions of approval shall be added to the project to reflect this requirement. On-site septic and well infrastructure will be reviewed by DER for adequacy through the building permit process. However, no new wells or buildings are proposed as part of this project.

Mitigation: None.

References: Referral response from the Department of Public Works on June 16, 2014; Stanislaus County General Plan and Support Documentation¹

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE --	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?				X
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)				X
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?				X

Discussion: Review of this project has not indicated any features which might significantly impact the environmental quality of the site and/or the surrounding area.

¹Stanislaus County General Plan and Support Documentation adopted in October 1994, as amended. Optional and updated elements of the General Plan and Support Documentation: **Agricultural Element** adopted on December 18, 2007; **Housing Element** adopted on August 28, 2012; **Circulation Element** and **Noise Element** adopted on April 18, 2006.

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			700		700		
Dry Cows			150		150		
Support Stock (Heifers and Bulls)					0		
Large Heifers					0		
Medium Heifers			120		120		
Small Heifers					0		
Bulls					0		
	Calf Hutches				Calf Corrals		Total # of Calves
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped	
Calves							0

Total Herd Summary	
Total Milk Cows	700
Total Mature Cows	850
Support Stock (Heifers and Bulls)	120
Total Calves	0
Total Dairy Head	970

Pre-Project Silage Information			
Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn	1	20	135
Alfalfa			
Wheat	1	15	40

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			1,500		1,500		
Dry Cows			300		300		
Support Stock (Heifers and Bulls)					0		
Large Heifers			75		75		
Medium Heifers			220		220		
Small Heifers					0		
Bulls					0		
	Calf Hutches				Calf Corrals		Total # of Calves
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped	
Calves							0

Total Herd Summary	
Total Milk Cows	1,500
Total Mature Cows	1,800
Support Stock (Heifers and Bulls)	295
Total Calves	0
Total Dairy Head	2,095

Post-Project Silage Information			
Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn	2	20	135
Alfalfa			
Wheat	1	15	40

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

VOC Mitigation Measures and Control Efficiencies

Milking Parlor				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	VOC Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Enteric Emissions Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
Total Control Efficiency			10%	10%
Milking Parlor Floor Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Flush or hose milk parlor immediately prior to, immediately after, or during each milking. <i>Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.</i>	10%	0%
Total Control Efficiency			19%	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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Inspect water pipes and troughs and repair leaks at least once every seven days. <i>Note: If selected for dairies > 999 milk cows, CE is already included in EF.</i>	10%	0%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Clean manure from corrals at least four times per year with at least 60 days between cleaning, or clean corrals at least once between April and July and at least once between September and December. <i>Note: If selected for dairies > 999 milk cows, CE is already included in EF. Note: No additional control given for increased cleaning frequency (e.g. BACT requirement).</i>	10%	0%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Scrape, vacuum, or flush concrete lanes in corrals at least once every day for mature cows and every seven days for support stock, or clean concrete lanes such that the depth of manure does not exceed 12 inches at any point or time. <i>Note: No additional control given for increased cleaning frequency (e.g. BACT requirement).</i>	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Implement one of the following: 1) slope the surface of the corrals at least 3% where the available space for each animal is 400 sq ft or less and slope the surface of the corrals at least 1.5% where the available space for each animal is more than 400 sq ft; 2) maintain corrals to ensure proper drainage preventing water from standing more than 48 hrs; 3) harrow, rake, or scrape pens sufficiently to maintain a dry surface. <i>Note: If selected for dairies > 999 milk cows, CE already included in EF.</i>	10%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Install shade structures such that they are constructed with a light permeable roofing material. <i>Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.</i>		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Install all shade structures uphill of any slope in the corral. <i>Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.</i>	10%	5%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Clean manure from under corral shades at least once every 14 days, when weather permits access into corral. <i>Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.</i>		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Install shade structure so that the structure has a North/South orientation. <i>Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.</i>		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Manage corrals such that the manure depth in the corral does not exceed 12 inches at any time or point, except for in-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. <i>Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.</i>	10%	0%
<input checked="" type="checkbox"/>	<input checked="" 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.	10%	10%
<input type="checkbox"/>	<input checked="" 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%	10%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Apply thymol to the corral soil in accordance with the manufacturer's recommendation.	0%	10%
Total Control Efficiency			52.17%	43.90%
Bedding Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%

<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).	0%	10%
<input checked="" 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.	10%	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			19.00%	27.10%
Lanes Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Pave feedlanes, where present, for a width of at least 8 feet along the corral side of the feedlane fence for milk and dry cows and at least 6 feet along the corral side of the feedlane for heifers. <i>Note: No control efficiency at this time.</i>	0%	0%
<input checked="" 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.	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Have no animals in exercise pens or corrals at any time.	0%	0%
Total Control Efficiency			19.00%	19.00%

Liquid Manure Handling				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	VOC Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Lagoons/Storage Ponds Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Use phototropic lagoon	0%	0%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Use an anaerobic treatment lagoon designed according to NRCS Guideline No. 359	0%	40%
<input type="checkbox"/>	<input type="checkbox"/>	Remove solids from the waste system with a solid separator system, prior to the waste entering the lagoon. <i>Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.</i>	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Maintain lagoon pH between 6.5 and 7.5	0%	0%
Total Control Efficiency			10.00%	46.00%
Liquid Manure Land Application Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Only apply liquid manure that has been treated with an anaerobic or aerobic treatment lagoon, aerobic lagoon, or digester system	0%	40%
<input type="checkbox"/>	<input type="checkbox"/>	Allow liquid manure to stand in the fields for no more than 24 hours after irrigation. <i>Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.</i>	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			10.00%	46.00%

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 checked="" 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%	10%
Total Control Efficiency			0.00%	19.00%
Solid Manure Land Application Mitigations				
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Incorporate all solid manure within 72 hours of land application. <i>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)</i>	10%	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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Apply no solid manure with a moisture content of more than 50%	10%	10%
Total Control Efficiency			19.00%	19.00%

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

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>2. Cover the surface of silage piles, except for the area where feed is being removed from the pile, with a plastic tarp that is at least 5 mils thick (0.005 inches), multiple plastic tarps with a cumulative thickness of at least 5 mils (0.005 inches), or an oxygen barrier film covered with a UV resistant material within 72 hours of last delivery of material to the pile, and implement one of the following:</p> <p>a) build silage piles such that the average bulk density is at least 44 lb/cu-ft for corn silage and 40 lb/cu-ft for other silage types, as measured in accordance with Section 7.10 of Rule 4570,</p> <p>b) when creating a silage pile, adjust filling parameters to assure a calculated average bulk density of at least 44 lb/cu-ft for corn silage and at least 40 lb/cu-ft for other silage types, using a spreadsheet approved by the District,</p> <p>c) harvest silage crop at > or = 65% moisture for corn; and >= 60% moisture for alfalfa/grass and other silage crops; manage silage material delivery such that no more than 6 inches of materials are uncompacted on top of the pile; and incorporate the applicable Theoretical Length of Chop (TLC) and roller opening for the crop being harvested.</p> <p>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>	39%	39%
Total Control Efficiency*			39.00%	39.00%

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

		TMR Mitigations		
<input 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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Begin feeding total mixed rations within 2 hrs of grinding and mixing rations. <i>Note: If selected for dairies > 999 milk cows, control efficiency already included in EF.</i>	10%	0%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Feed steam-flaked, dry rolled, cracked or ground corn or other ground cereal grains.	0%	10%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Remove uneaten wet feed from feed bunks within 24 hrs after the end of a rain event.	0%	10%
<input checked="" type="checkbox"/>	<input checked="" 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.	10%	10%
Total Control Efficiency			19.00%	34.39%

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 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%	0%
Total Control Efficiency			0.0%	28.0%
Liquid Manure Land Application Mitigations				
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	28%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Only apply liquid manure that has been treated with an anaerobic treatment lagoon	0%	42%
Total Control Efficiency			0.00%	58.24%

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 checked="" 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%	42%
Total Control Efficiency			0.00%	58.24%

Pre-Project PM10 Control Efficiencies and Emission Factors for Freestalls

Housing Name(s) or #s)	Type of Housing	Type of cow	Total # of cows	Uncontrolled EF (lb/hd-yr)	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	Controlled EF (lb/hd-yr)
1	Freestall Barn #1	freestall	milk cows	97	1.370				80%					0.27
2	Freestall Barn #2	freestall	milk cows	74	1.370				80%					0.27
3	Freestall Barn #3	freestall	milk cows	67	1.370				80%					0.27
4	Freestall Barn #4	freestall	milk cows	56	1.370				80%					0.27
5	Freestall Barn #5	freestall	milk cows	56	1.370				80%					1.37
6	Freestall Barn #6	freestall	milk cows	80	1.370				80%					0.27
7	Freestall Barn #7	freestall	milk cows	80	1.370									1.37
8	Shaded Corrals #8	open corral	milk cows	124	5.460	16.7%								4.55
9	Shaded Corrals #10	open corral	milk cows	28	5.460	16.7%								4.55
10	Shaded Corrals #12	open corral	milk cows	35	5.460	16.7%								4.55
11	Shaded Corrals #13	open corral	milk cows	75	5.460	16.7%								4.55
12	Open Corral #14	open corral	milk cows	75	5.460	16.7%								4.55
13	Shaded Corrals #25	open corral	medium heifers	22	10.550	8.3%								9.67
14	Shaded Corrals #26	open corral	medium heifers	33	10.550	8.3%								9.67
15	Shaded Corrals #27	open corral	large heifers	33	10.550	8.3%								9.67
16	Shaded Corrals #28	open corral	large heifers	35	10.550	8.3%								9.67
17														
18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
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30														
31														
32														
33														
34														
35														
36														
37														
38														
39														
40														
Pre-Project Total # of Cows			970											

City

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	Freestall Barn #1	freestall	milk cows	166		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Freestall Barn #2	freestall	milk cows	123		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Freestall Barn #3	freestall	milk cows	121		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Freestall Barn #4	freestall	milk cows	125		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Freestall Barn #5	freestall	milk cows	125		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Freestall Barn #6	freestall	milk cows	149		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Freestall Barn #7	freestall	milk cows	149		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Shaded Corrals #8	open corral	milk cows	343	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"/>
9	Shaded Corrals #10	open corral	milk cows	147	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"/>
10	Shaded Corrals #12	open corral	milk cows	100	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"/>
11	Shaded Corrals #13	open corral	milk cows	75	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"/>
12	Open Corral #14	open corral	milk cows	75	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"/>
13	Shaded Corrals #25	open corral	medium heifers	38	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"/>
14	Shaded Corrals #26	open corral	medium heifers	37	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"/>
15	Shaded Corrals #27	open corral	large heifers	110	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"/>
16	Shaded Corrals #28	open corral	large heifers	110	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"/>
17						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Post-Project PM10 Mitigation Measures for New Housing Units at an Expanding Dairy													
Housing Name(s) 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					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Post-Project Total # of Cows			1,993		<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"/>

04

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 (2 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																											
		Milking Parlor Floor																											
		Total																											
NH3																													
Cow Housing	VOC	Enteric Emissions in Cow Housing																											
		Corrals/Pens																											
		Bedding																											
		Lanes																											
		Total																											
		NH3																											
	Liquid Manure Handling	VOC	Lagoons/Storage Ponds																										
			Liquid Manure Land Application																										
			Total																										
		NH3	Lagoons/Storage Ponds																										
			Liquid Manure Land Application																										
			Total																										
Solid Manure Handling	VOC	Solid Manure Storage																											
		Separated Solids Piles																											
		Solid Manure Land Application																											
	Total																												
	NH3	Solid Manure Storage																											
		Separated Solids Piles																											
Solid Manure Land Application																													
Total																													

Silage and TMR (Total Mixed Ration) Emissions (ug/m^2-min)					
		Silage Type	Uncontrolled	EF1	EF2
Feed Storage and Handling	VOC	Corn Silage	34,681	21,155	21,155
		Alfalfa Silage	17,458	10,649	10,649
		Wheat Silage	43,844	26,745	26,745
		TMR	13,056	10,575	6,566
		Total			

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

PM10 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 Corals	5.46	Based on a Summer 2003 study by Texas A&M ASAE at a West Texas Dairy
Heifers/Bulls in Open Corals	10.65	Based on a USDA/UC Davis report quantifying dairy and feedlot emissions in Tulare & Kern Counties (April '01)
Calves (under 3 mo.) open corals	1.37	SJVAPCCD
Calves on-ground hutches	0.343	SJVAPCCD
Calves above-ground flushed	0.069	SJVAPCCD
Calves above-ground scraped	0.206	SJVAPCCD

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

Dairy Emission Factors

lb/hd-yr Dairy Emissions Factors for Jersey Cows																														
Note: Jersey cows will be assumed to generate 71% of the amount of VOC and NH3 emissions as a Holstein cow.		Milk Cows				Dry Cows				Large Heifers (18 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	0.31	0.29	0.28	0.26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Milking Parlor Floor	0.03	0.02	0.02	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Total	0.34	0.31	0.30	0.28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cow Housing	VOC	Enteric Emissions in Cow Housing	2.76	2.62	2.76	2.36	1.68	1.58	1.66	1.43	1.29	1.22	1.29	1.09	0.87	0.83	0.87	0.75	0.49	0.46	0.49	0.41	0.23	0.22	0.23	0.20	0.78	0.74	0.78	0.66
		Corrals/Pens	7.10	4.60	3.40	2.63	3.83	2.55	1.83	1.43	2.98	1.95	1.43	1.10	2.02	1.33	0.97	0.75	1.14	0.74	0.54	0.42	0.53	0.36	0.25	0.20	1.81	1.19	0.87	0.67
		Total	11.20	8.68	7.34	6.96	6.21	4.83	4.08	3.39	4.83	3.71	3.17	2.60	3.28	2.63	2.16	1.77	1.64	1.48	1.21	0.99	0.68	0.67	0.67	0.47	3.83	2.34	1.92	1.67
Liquid Manure Handling	VOC	Lagoons/Storage Ponds	1.03	0.92	0.97	0.50	0.58	0.50	0.52	0.27	0.45	0.39	0.41	0.21	0.31	0.26	0.28	0.14	0.17	0.15	0.16	0.08	0.06	0.07	0.07	0.04	0.28	0.23	0.26	0.13
		Liquid Manure Land Application	1.16	0.99	1.05	0.54	0.83	0.54	0.57	0.29	0.49	0.42	0.44	0.22	0.33	0.28	0.30	0.15	0.17	0.15	0.16	0.08	0.09	0.06	0.06	0.04	0.30	0.25	0.27	0.13
		Total	2.24	1.92	2.02	1.04	1.21	1.04	1.09	0.56	0.94	0.80	0.85	0.43	0.64	0.65	0.58	0.28	0.36	0.30	0.32	0.16	0.17	0.16	0.18	0.08	0.58	0.48	0.52	0.26
Solid Manure Handling	VOC	Solid Manure Storage	0.11	0.11	0.11	0.06	0.06	0.06	0.06	0.05	0.04	0.05	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		Separated Solids Piles	0.04	0.04	0.04	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		Total	0.43	0.38	0.37	0.31	0.23	0.21	0.17	0.18	0.18	0.18	0.18	0.13	0.11	0.11	0.09	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Feed Storage and Handling	VOC	Silage Type	Uncontrolled	EF1	EF2																									
		Corn Silage	34,681	21,155	21,155																									
		Alfalfa Silage	17,458	10,648	10,648																									
Feed Storage and Handling	NH3	Liquid Manure Land Application	6.32	6.32	6.32	2.64	3.20	3.20	1.33	1.63	1.63	1.63	0.68	1.21	1.21	1.21	0.50	0.92	0.92	0.92	0.39	0.26	0.26	0.11	2.29	2.29	2.29	0.96		
		Total	12.14	12.14	12.14	6.82	6.18	6.18	3.48	3.20	3.20	3.20	1.81	2.27	2.27	2.27	1.27	1.78	1.78	1.78	1.00	0.61	0.61	0.61	0.29	4.42	4.42	4.42	2.49	
		Total	2.43	2.43	2.43	1.66	1.23	1.23	0.78	0.64	0.64	0.64	0.41	0.45	0.45	0.45	0.28	0.34	0.34	0.34	0.22	0.11	0.11	0.11	0.07	0.89	0.88	0.88	0.67	

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Silage and TMR (Total Mixed Ration) Emissions (µg/m ² -min)					
Feed Storage and Handling	VOC	Silage Type	Uncontrolled	EF1	EF2
		Corn Silage	34,681	21,155	21,155
Alfalfa Silage	17,458	10,648	10,648		
Wheat Silage	43,844	26,745	26,745		
TMR	13,056	10,575	8,986		

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

PM10 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)
Calves (under 3 mo.) open corrals	1.37	SJVAPCD
Calves on-ground hutches	0.343	SJVAPCD
Calves above-ground flushed	0.089	SJVAPCD
Calves 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 - 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	Freestall Barn #1	milk cows	97	10.2	53.3	0.27	2.7	989	14.2	5,170	0.1	27
2	Freestall Barn #2	milk cows	74	10.2	53.3	0.27	2.1	755	10.8	3,944	0.1	20
3	Freestall Barn #3	milk cows	67	10.2	53.3	0.27	1.9	683	9.8	3,571	0.0	18
4	Freestall Barn #4	milk cows	56	10.2	53.3	0.27	1.6	571	8.2	2,985	0.0	15
5	Freestall Barn #5	milk cows	56	10.2	53.3	1.37	1.6	571	8.2	2,985	0.2	77
6	Freestall Barn #6	milk cows	80	10.2	53.3	0.27	2.2	816	11.7	4,264	0.1	22
7	Freestall Barn #7	milk cows	80	10.2	53.3	1.37	2.2	816	11.7	4,264	0.3	110
8	Shaded Corrals #8	milk cows	124	10.2	53.3	4.55	3.5	1,265	18.1	6,609	1.5	564
9	Shaded Corrals #10	milk cows	28	10.2	53.3	4.55	0.8	286	4.1	1,492	0.3	127
10	Shaded Corrals #12	milk cows	35	10.2	53.3	4.55	1.0	357	5.1	1,866	0.4	159
11	Shaded Corrals #13	milk cows	75	10.2	53.3	4.55	2.1	765	11.0	3,998	0.9	341
12	Open Corral #14	milk cows	75	10.2	53.3	4.55	2.1	765	11.0	3,998	0.9	341
13	Shaded Corrals #25	medium heifers	22	3.03	10.1	9.67	0.2	67	0.6	222	0.6	213
14	Shaded Corrals #26	medium heifers	33	3.03	10.1	9.67	0.3	100	0.9	333	0.9	319
15	Shaded Corrals #27	large heifers	33	4.47	14	9.67	0.4	148	1.3	462	0.9	319
16	Shaded Corrals #28	large heifers	35	4.47	14	9.67	0.4	156	1.3	490	0.9	339
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39												
40												
Pre-Project Total # of Cows			970				25.1	9,110	128.0	46,653	8.1	3,011

Pre-Project Totals						
Total # of Cows	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
970	25.1	9,110	128.0	46,653	8.1	3,011

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

Post-Project Potential to Emit - Cow Housing

ALERT: The total post-project number of animals entered on the Dairy Info page does not match the total post-project number of animals entered on the PM10 Mitigation Measures page. Please check the entered values.

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	Freestall Barn #1	milk cows	166	8.4	21.128328	0.27	3.8	1,394	9.6	3,507	0.1	45
2	Freestall Barn #2	milk cows	123	8.4	21.128328	0.27	2.8	1,033	7.1	2,599	0.1	34
3	Freestall Barn #3	milk cows	121	8.4	21.128328	0.27	2.8	1,016	7.0	2,557	0.1	33
4	Freestall Barn #4	milk cows	125	8.4	21.128328	0.27	2.9	1,050	7.2	2,641	0.1	34
5	Freestall Barn #5	milk cows	125	8.4	21.128328	1.37	2.9	1,050	7.2	2,641	0.5	171
6	Freestall Barn #6	milk cows	149	8.4	21.128328	0.27	3.4	1,252	8.6	3,148	0.1	41
7	Freestall Barn #7	milk cows	149	8.4	21.128328	1.37	3.4	1,252	8.6	3,148	0.6	204
8	Shaded Corrals #8	milk cows	343	8.4	21.128328	4.55	7.9	2,881	19.9	7,247	4.3	1,560
9	Shaded Corrals #10	milk cows	147	8.4	21.128328	4.55	3.4	1,235	8.5	3,106	1.8	669
10	Shaded Corrals #12	milk cows	100	8.4	21.128328	4.55	2.3	840	5.8	2,113	1.2	455
11	Shaded Corrals #13	milk cows	75	8.4	21.128328	4.55	1.7	630	4.3	1,585	0.9	341
12	Open Corral #14	milk cows	75	8.4	21.128328	4.55	1.7	630	4.3	1,585	0.9	341
13	Shaded Corrals #25	medium heifers	38	2.5	4.015872	9.67	0.3	95	0.4	153	1.0	368
14	Shaded Corrals #26	medium heifers	37	2.5	4.015872	9.67	0.3	93	0.4	149	1.0	358
15	Shaded Corrals #27	large heifers	110	3.66	5.536152	9.67	1.1	403	1.7	609	2.9	1,064
16	Shaded Corrals #28	large heifers	110	3.66	5.536152	9.67	1.1	403	1.7	609	2.9	1,064
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35												
36												
37												
38												
39												
40												
Post-Project # of Cows (non-expansion)		1,993					41.8	15,257	102.3	37,397	18.5	6,782

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												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
Total # of Cows From Expansion		0					0.0	0	0.0	0	0.0	0

Post-Project Totals						
Total # of Cows	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1,993	41.8	15,257	102.3	37,397	18.5	6,782

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

Pre-Project Potential to Emit (PE1)

Pre-Project Herd Size					
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals
Milk Cows	0	0	700	0	700
Dry Cows	0	0	150	0	150
Support Stock (Heifers and Bulls)	0	0	0	0	0
Large Heifers	0	0	0	0	0
Medium Heifers	0	0	120	0	120
Small Heifers	0	0	0	0	0
Bulls	0	0	0	0	0
Calf Hutches					
	Aboveground		On-Ground		Total # of Calves
	Flushed	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 (ft ²)
Corn	1	20	135	1,954
Alfalfa	0	0	0	0
Wheat	1	15	40	493

Milking Parlor				
Cow	VOC		NH3	
	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	0.8	294	0.4	133

Cow Housing						
Cow	VOC		NH3		PM10	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
Total	25.1	9,110	128.0	46,653	8.1	3,011

Liquid Manure Handling						
Cow	VOC		NH3		H2S*	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	5.4	1,988	32.8	11,970	2.4	886
Dry Cows	0.6	231	3.6	1,305	0.2	91
Support Stock (Heifers and Bulls)	0.0	0	0.0	0	0	0
Large Heifers	0.0	0	0.0	0	0	12
Medium Heifers	0.3	97	1.1	384	0.1	24
Small Heifers	0.0	0	0.0	0	0	0
Calves	0.0	0	0.0	0	0	0
Bulls	0.0	0	0.0	0	0	0
Total	6.3	2,316	37.5	13,659	2.7	1,012

Solid Manure Handling				
Cow	VOC		NH3	
	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	1.0	378	6.6	2,394
Dry Cows	0.1	44	0.7	260
Support Stock (Heifers and Bulls)	0.0	0	0.0	0
Large Heifers	0.0	0	0.0	0
Medium Heifers	0.0	18	0.2	77
Small Heifers	0.0	0	0.0	0
Calves	0.0	0	0.0	0
Bulls	0.0	0	0.0	0
Total	1.1	440	7.5	2,730

Feed Handling and Storage		
	Daily PE (lb-VOC/day)	Annual PE (lb-VOC/yr)
Corn Emissions	12.2	4,440
Alfalfa Emissions	0.0	0
Wheat Emissions	3.9	1,416
TMR	21.4	7,805
Total	37.5	13,661

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	0.8	0.4	0.0
Cow Housing	0.0	0.0	8.1	0.0	25.1	128.0	0.0
Liquid Manure	0.0	0.0	0.0	0.0	6.3	37.5	2.7
Solid Manure	0.0	0.0	0.0	0.0	1.1	7.5	0.0
Feed Handling	0.0	0.0	0.0	0.0	37.5	0.0	0.0
Total	0.0	0.0	8.1	0.0	70.8	173.4	2.7

Total Annual Pre-Project Potential to Emit (lb/yr)							
Permit	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0	0	0	0	294	133	0
Cow Housing	0	0	3,011	0	9,110	46,653	0
Liquid Manure	0	0	0	0	2,316	13,659	1,012
Solid Manure	0	0	0	0	440	2,730	0
Feed Handling	0	0	0	0	13,661	0	0
Total	0	0	3,011	0	25,821	63,175	1,012

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 m²) x (525,600 min/yr) x (2.20E-9 lb/μg)

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

Odors 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
Milking Parlor	0	0	0	0	0
Cow Housing	0	0	0	0	0
Liquid Manure	0	0	0	0	1,115
Solid Manure	0	0	0	0	0
Feed Handling	0	0	0	0	0
Total	0	0	0	0	1,115

Post-Project Potential to Emit (PE2)

Post-Project Herd Size						
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals	
Milk Cows	0	0	1,500	0	1,500	
Dry Cows	0	0	300	0	300	
Support Stock (Heifers and Bulls)	0	0	0	0	0	
Large Heifers	0	0	75	0	75	
Medium Heifers	0	0	220	0	220	
Small Heifers	0	0	0	0	0	
Bulls	0	0	0	0	0	
Calf Hutches						
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped
Calves	0	0	0	0	0	0
Calf Corrals						
	Flushed	Scraped			Total # of Calves	
Calves	0	0			0	

Silage Information				
Feed Type	Maximum # Open Piles	Maximum Height (ft)	Maximum Width (ft)	Open Face Area (ft ²)
Corn	2	20	135	3,907
Alfalfa	0	0	0	
Wheat	1	15	40	493

Milking Parlor				
Cow	VOC		NH3	
	lb/day	lb/yr	lb/day	lb/yr
Milk Cows				
Total	1.6	600	0.5	205

Cow Housing					
	VOC		NH3		PM10
	lb/day	lb/yr	lb/day	lb/yr	lb/day
Total	41.8	15,257	102.3	37,397	18.5

Liquid Manure Handling						
Cow	VOC		NH3		H2S	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	6.0	2,190	39.5	14,430	2.4	886
Dry Cows	0.6	237	4.0	1,470	0.2	91
Support Stock (Heifers and Bulls)	0.0	0	0.0	0	0	0
Large Heifers	0.1	46	0.5	191	0	12
Medium Heifers	0.3	92	1.1	394	0.1	24
Small Heifers	0.0	0	0.0	0	0	0
Calves	0.0	0	0.0	0	0	0
Bulls	0.0	0	0.0	0	0	0
Total	7.0	2,565	45.1	16,484	2.7	1,012

Solid Manure Handling				
Cow	VOC		NH3	
	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	1.8	660	9.0	3,300
Dry Cows	0.2	72	0.9	333
Support Stock (Heifers and Bulls)	0.0	0	0.0	0
Large Heifers	0.0	14	0.1	44
Medium Heifers	0.1	26	0.2	90
Small Heifers	0.0	0	0.0	0
Calves	0.0	0	0.0	0
Bulls	0.0	0	0.0	0
Total	2.1	772	10.2	3,767

Feed Handling and Storage		
	Daily PE (lb-VOC/day)	Annual PE (lb-VOC/yr)
Corn Emissions	24.3	8,880
Alfalfa Emissions	0.0	0
Wheat Emissions	3.9	1,416
TMR	37.4	13,654
Total	65.6	23,950

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	1.6	0.6	0.0
Cow Housing	0.0	0.0	18.5	0.0	41.8	102.3	0.0
Liquid Manure	0.0	0.0	0.0	0.0	7.0	45.1	2.7
Solid Manure	0.0	0.0	0.0	0.0	2.1	10.2	0.0
Feed Handling	0.0	0.0	0.0	0.0	65.6	0.0	0.0
Total	0.0	0.0	18.5	0.0	118.1	158.2	2.7

Total Annual Post-Project Potential to Emit (lb/yr)							
Permit	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0	0	0	0	600	205	0
Cow Housing	0	0	6,782	0	15,257	37,397	0
Liquid Manure	0	0	0	0	2,565	16,484	1,012
Solid Manure	0	0	0	0	772	3,767	0
Feed Handling	0	0	0	0	23,950	0	0
Total	0	0	6,782	0	43,144	57,853	1,012

Calculations for milking parlor:

Annual PE = (# milk cows) x (EF2 lb-pollutant/hd-yr)

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

Calculations for cow housing:

See detailed calculations under Cow Housing Calculations worksheet.

Calculations for liquid manure and solid manure handling:

Annual PE = [(# milk cows) x (EF1 lb-pollutant/hd-yr)] + [(# dry cows) x (EF2 lb-pollutant/hd-yr)] + [(# large heifers) x (EF2 lb-pollutant/hd-yr)] + [(# medium heifers) x (EF2 lb-pollutant/hd-yr)] + [(# small heifers) x (EF2 lb-pollutant/hd-yr)] + [(# calves) x (EF2 lb-pollutant/hd-yr)] + [(# bulls) x (EF2 lb-pollutant/hd-yr)]

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

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

Calculations for silage emissions:

Annual PE = (EF2) x (area ft²) x (0.0929 m²/ft²) x (8,760 hr/yr) x (60 min/hr) x 2.20E-9 lb/μg

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

Calculation for TMR emissions:

Annual PE = (# cows) x (EF2) x (0.658 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	1,230
Solid Manure	0	0	0	0	0
Feed Handling	0	0	0	0	0
Total	0	0	0	0	1,230

BACT Applicability

Milking Parlor					
VOC Emissions					
	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)
Milk Cows	1.6	0.8	0.40	0.42	0.8
Total					0.8
NH3 Emissions					
	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)
Milk Cows	0.6	0.4	0.14	0.19	0.3
Total					0.3

Cow Housing
See detailed cow housing AIPE calculations on following pages.

Liquid Manure Handling					
VOC Emissions - Lagoon/Storage Pond(s)					
	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)
Milk Cows	2.9	2.6	0.70	1.37	1.6
Dry Cows	0.3	0.3	0.38	0.74	0.1
Support Stock (Heifers and Bulls)	0.0	0.0	0.29	0.57	0.0
Large Heifers	0.1	0.0	0.29	0.57	0.1
Medium Heifers	0.1	0.1	0.20	0.39	0.0
Small Heifers	0.0	0.0	0.11	0.22	0.0
Calves	0.0	0.0	0.05	0.10	0.0
Bulls	0.0	0.0	0.18	0.36	0.0
Total					1.8

VOC Emissions - Land Application					
	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)
Milk Cows	3.1	2.8	0.76	1.48	1.7
Dry Cows	0.3	0.3	0.41	0.80	0.1
Support Stock (Heifers and Bulls)	0.0	0.0	0.32	0.62	0.0
Large Heifers	0.1	0.0	0.32	0.62	0.1
Medium Heifers	0.1	0.1	0.22	0.42	0.0
Small Heifers	0.0	0.0	0.12	0.24	0.0
Calves	0.0	0.0	0.06	0.11	0.0
Bulls	0.0	0.0	0.19	0.38	0.0
Total					1.9

NH3 Emissions - Lagoon/Storage Pond(s)					
	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)
Milk Cows	24.3	15.7	5.90	8.20	13.0
Dry Cows	2.5	1.7	3.02	4.20	1.3
Support Stock (Heifers and Bulls)	0.0	0.0	1.58	2.20	0.0
Large Heifers	0.3	0.0	1.58	2.20	0.3
Medium Heifers	0.7	0.5	1.08	1.50	0.3
Small Heifers	0.0	0.0	0.86	1.20	0.0
Calves	0.0	0.0	0.25	0.35	0.0
Bulls	0.0	0.0	2.16	3.00	0.0
Total					14.9

NH3 Emissions - Land Application					
	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)
Milk Cows	15.3	17.1	3.72	8.90	8.2
Dry Cows	1.5	1.8	1.88	4.50	0.7
Support Stock (Heifers and Bulls)	0.0	0.0	0.96	2.30	0.0
Large Heifers	0.2	0.0	0.96	2.30	0.2
Medium Heifers	0.4	0.6	0.71	1.70	0.1
Small Heifers	0.0	0.0	0.54	1.30	0.0
Calves	0.0	0.0	0.15	0.37	0.0
Bulls	0.0	0.0	1.35	3.23	0.0
Total					9.2

H2S Emissions - Lagoon/Storage Pond(s)					
	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)
Milk Cows	2.4	2.4	0.59	0.82	0.7
Dry Cows	0.2	0.2	0.30	0.42	0.1
Support Stock (Heifers and Bulls)	0.0	0.0	0.16	0.22	0.0
Large Heifers	0.0	0.0	0.16	0.22	0.0
Medium Heifers	0.1	0.1	0.11	0.15	0.0
Small Heifers	0.0	0.0	0.09	0.12	0.0
Calves	0.0	0.0	0.03	0.04	0.0
Bulls	0.0	0.0	0.22	0.30	0.0
Total					0.8

Solid Manure Handling					
VOC Emissions - Solid Manure Storage/Separated Solids Piles					
	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)
Milk Cows	0.7	0.4	0.17	0.22	0.4
Dry Cows	0.1	0.0	0.09	0.12	0.1
Support Stock (Heifers and Bulls)	0.0	0.0	0.10	0.09	0.0
Large Heifers	0.0	0.0	0.07	0.09	0.0
Medium Heifers	0.0	0.0	0.05	0.06	0.0
Small Heifers	0.0	0.0	0.03	0.04	0.0
Calves	0.0	0.0	0.01	0.02	0.0
Bulls	0.0	0.0	0.05	0.06	0.0
Total					0.5

VOC Emissions - Land Application					
	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)
Milk Cows	1.1	0.6	0.27	0.32	0.6
Dry Cows	0.1	0.1	0.15	0.17	0.0
Support Stock (Heifers and Bulls)	0.0	0.0	0.11	0.13	0.0
Large Heifers	0.0	0.0	0.11	0.13	0.0
Medium Heifers	0.0	0.0	0.08	0.09	0.0
Small Heifers	0.0	0.0	0.04	0.05	0.0
Calves	0.0	0.0	0.02	0.02	0.0
Bulls	0.0	0.0	0.06	0.08	0.0
Total					0.8

NH3 Emissions - Solid Manure Storage/Separated Solids Piles					
	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)
Milk Cows	5.5	2.6	1.33	1.33	2.9
Dry Cows	0.6	0.3	0.67	0.67	0.3
Support Stock (Heifers and Bulls)	0.0	0.0	0.35	0.35	0.0
Large Heifers	0.1	0.0	0.35	0.35	0.1
Medium Heifers	0.2	0.1	0.25	0.25	0.1
Small Heifers	0.0	0.0	0.18	0.18	0.0
Calves	0.0	0.0	0.06	0.06	0.0
Bulls	0.0	0.0	0.49	0.49	0.0
Total					3.4

NH3 Emissions - Land Application					
	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)
Milk Cows	3.6	4.0	0.87	2.09	1.9
Dry Cows	0.4	0.4	0.44	1.06	0.2
Support Stock (Heifers and Bulls)	0.0	0.0	0.23	0.55	0.0
Large Heifers	0.0	0.0	0.23	0.55	0.0
Medium Heifers	0.1	0.1	0.16	0.39	0.1
Small Heifers	0.0	0.0	0.13	0.30	0.0
Calves	0.0	0.0	0.04	0.09	0.0
Bulls	0.0	0.0	0.32	0.76	0.0
Total					2.2

Feed Storage and Handling					
VOC Emissions - Silage					
	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)
Corn Silage	24.3	12.2	21,155	21,155	12.1
Alfalfa Silage	0.0	0.0	10,649	10,649	0.0
Wheat Silage	3.9	3.9	26,745	26,745	0.0
Total					12.1

VOC Emissions - TMR					
	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)
TMR	37.4	21.4	8,566	10,575	20.1
Total					20.1

Cow Housing - VOC Emissions							
	Housing Name(s) or #(s)	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)	BACT Triggered?
1	Freestall Barn #1	3.8	2.7	8.40	10.20	1.6	No
2	Freestall Barn #2	2.8	2.1	8.40	10.20	1.1	No
3	Freestall Barn #3	2.8	1.9	8.40	10.20	1.2	No
4	Freestall Barn #4	2.9	1.6	8.40	10.20	1.6	No
5	Freestall Barn #5	2.9	1.6	8.40	10.20	1.6	No
6	Freestall Barn #6	3.4	2.2	8.40	10.20	1.6	No
7	Freestall Barn #7	3.4	2.2	8.40	10.20	1.6	No
8	Shaded Corrals #8	7.9	3.5	8.40	10.20	5.0	Yes
9	Shaded Corrals #10	3.4	0.8	8.40	10.20	2.7	Yes
10	Shaded Corrals #12	2.3	1.0	8.40	10.20	1.5	No
11	Shaded Corrals #13	1.7	2.1	8.40	10.20	0.0	No
12	Open Corral #14	1.7	2.1	8.40	10.20	0.0	No
13	Shaded Corrals #25	0.3	0.2	2.50	3.03	0.1	No
14	Shaded Corrals #26	0.3	0.3	2.50	3.03	0.1	No
15	Shaded Corrals #27	1.1	0.4	3.66	4.47	0.8	No
16	Shaded Corrals #28	1.1	0.4	3.66	4.47	0.8	No
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
New Units from Expansion							
	Housing Name(s) or #(s)	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)	BACT Triggered?
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							

Cow Housing - NH3 Emissions							
	Housing Name(s) or #(s)	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)	BACT Triggered?
1	Freestall Barn #1	9.6	14.2	21.13	53.30	4.0	Yes
2	Freestall Barn #2	7.1	10.8	21.13	53.30	2.8	Yes
3	Freestall Barn #3	7.0	9.8	21.13	53.30	3.1	Yes
4	Freestall Barn #4	7.2	8.2	21.13	53.30	3.9	Yes
5	Freestall Barn #5	7.2	8.2	21.13	53.30	3.9	Yes
6	Freestall Barn #6	8.6	11.7	21.13	53.30	4.0	Yes
7	Freestall Barn #7	8.6	11.7	21.13	53.30	4.0	Yes
8	Shaded Corrals #8	19.9	18.1	21.13	53.30	12.7	Yes
9	Shaded Corrals #10	8.5	4.1	21.13	53.30	6.9	Yes
10	Shaded Corrals #12	5.8	5.1	21.13	53.30	3.8	Yes
11	Shaded Corrals #13	4.3	11.0	21.13	53.30	-0.1	No
12	Open Corral #14	4.3	11.0	21.13	53.30	-0.1	No
13	Shaded Corrals #25	0.4	0.6	4.02	10.10	0.2	No
14	Shaded Corrals #26	0.4	0.9	4.02	10.10	0.0	No
15	Shaded Corrals #27	1.7	1.3	5.54	14.00	1.2	No
16	Shaded Corrals #28	1.7	1.3	5.54	14.00	1.2	No
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
New Units from Expansion							
	Housing Name(s) or #(s)	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)	BACT Triggered?
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							

*Multiple emissions units (freestalls, corrals, calf hutch areas, etc.) are combined in these rows. BACT applicability has been calculated for EACH emissions unit in this row.

Cow Housing - PM10 Emissions							
Housing Name(s) or #(s)	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)	BACT Triggered?	
1	Freestall Barn #1	0.1	0.1	0.27	0.27	0.0	No
2	Freestall Barn #2	0.1	0.1	0.27	0.27	0.0	No
3	Freestall Barn #3	0.1	0.0	0.27	0.27	0.1	No
4	Freestall Barn #4	0.1	0.0	0.27	0.27	0.1	No
5	Freestall Barn #5	0.5	0.2	1.37	1.37	0.3	No
6	Freestall Barn #6	0.1	0.1	0.27	0.27	0.0	No
7	Freestall Barn #7	0.6	0.3	1.37	1.37	0.3	No
8	Shaded Corrals #8	4.3	1.5	4.55	4.55	2.8	Yes
9	Shaded Corrals #10	1.8	0.3	4.55	4.55	1.5	No
10	Shaded Corrals #12	1.2	0.4	4.55	4.55	0.8	No
11	Shaded Corrals #13	0.9	0.9	4.55	4.55	0.0	No
12	Open Corral #14	0.9	0.9	4.55	4.55	0.0	No
13	Shaded Corrals #25	1.0	0.6	9.67	9.67	0.4	No
14	Shaded Corrals #26	1.0	0.9	9.67	9.67	0.1	No
15	Shaded Corrals #27	2.9	0.9	9.67	9.67	2.0	No
16	Shaded Corrals #28	2.9	0.9	9.67	9.67	2.0	No
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
New Units from Expansion							
Housing Name(s) or #(s)	PE2 (lb/day)	PE1 (lb/day)	EF2	EF1	AIPE (lb/day)	BACT Triggered?	
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							

*Multiple emissions units (freestalls, corrals, calf hutch areas, etc.) are combined in these rows. BACT applicability has been calculated for EACH emissions unit in this row.

Increase in Emissions

SSIPE (lb/yr)							
	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0	0	0	0	306	72	0
Cow Housing	0	0	3,771	0	6,147	-9,256	0
Liquid Manure	0	0	0	0	249	2,825	0
Solid Manure	0	0	0	0	332	1,036	0
Feed Handling	0	0	0	0	10,289	0	0
Total	0	0	3,771	0	17,324	-5,322	0

Total Daily Change in Emissions (lb/day)							
	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0.0	0.0	0.0	0.0	0.8	0.2	0.0
Cow Housing	0.0	0.0	10.4	0.0	16.7	-25.7	0.0
Liquid Manure	0.0	0.0	0.0	0.0	0.7	7.6	0.0
Solid Manure	0.0	0.0	0.0	0.0	1.0	2.7	0.0
Feed Handling	0.0	0.0	0.0	0.0	28.1	0.0	0.0
Total	0.0	0.0	10.4	0.0	47.3	-15.2	0.0

Total Annual Change in Non-Fugitive Emissions (Major Source Emissions) (lb/yr)							
	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0	0	0	0	0	0	0
Cow Housing	0	0	0	0	0	0	0
Liquid Manure	0	0	0	0	115	0	0
Solid Manure	0	0	0	0	0	0	0
Feed Handling	0	0	0	0	0	0	0
Total	0	0	0	0	115	0	0

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 (lb/yr) ÷ 4 (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	600	205
Daily PE2 (lb/day)	0.0	0.0	0.0	0.0	1.6	0.6
Quarterly Net Emissions Change (lb/qtr)	1:	0.0	0.0	0.0	76.5	18.1
	2:	0.0	0.0	0.0	76.5	18.1
	3:	0.0	0.0	0.0	76.5	18.1
	4:	0.0	0.0	0.0	76.5	18.1

Cow Housing						
	NOx	SOx	PM10	CO	VOC	NH3
Annual PE2 (lb/yr)	0	0	6,782	0	15,257	37,397
Daily PE2 (lb/day)	0.0	0.0	18.5	0.0	41.8	102.3
Quarterly Net Emissions Change (lb/qtr)	1:	0.0	942.8	0.0	1,536.8	-2,314.0
	2:	0.0	942.8	0.0	1,536.8	-2,314.0
	3:	0.0	942.8	0.0	1,536.8	-2,314.0
	4:	0.0	942.8	0.0	1,536.8	-2,314.0

Liquid Manure Handling							
	NOx	SOx	PM10	CO	VOC	NH3	H2S
Annual PE2 (lb/yr)	0	0	0	0	2,565	16,484	1,012
Daily PE2 (lb/day)	0.0	0.0	0.0	0.0	7.0	45.1	2.7
Quarterly Net Emissions Change (lb/qtr)	1:	0.0	0.0	0.0	62.2	706.3	0.0
	2:	0.0	0.0	0.0	62.2	706.3	0.0
	3:	0.0	0.0	0.0	62.2	706.3	0.0
	4:	0.0	0.0	0.0	62.2	706.3	0.0

Solid Manure Handling						
	NOx	SOx	PM10	CO	VOC	NH3
Annual PE2 (lb/yr)	0	0	0	0	772	3,767
Daily PE2 (lb/day)	0.0	0.0	0.0	0.0	2.1	10.2
Quarterly Net Emissions Change (lb/qtr)	1:	0.0	0.0	0.0	83.1	259.1
	2:	0.0	0.0	0.0	83.1	259.1
	3:	0.0	0.0	0.0	83.1	259.1
	4:	0.0	0.0	0.0	83.1	259.1

Feed Storage and Handling						
	NOx	SOx	PM10	CO	VOC	NH3
Annual PE2 (lb/yr)	0	0	0	0	23,950	0
Daily PE2 (lb/day)	0.0	0.0	0.0	0.0	65.6	0.0
Quarterly Net Emissions Change (lb/qtr)	1:	0.0	0.0	0.0	2,572.3	0.0
	2:	0.0	0.0	0.0	2,572.3	0.0
	3:	0.0	0.0	0.0	2,572.3	0.0
	4:	0.0	0.0	0.0	2,572.3	0.0

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 (lb/yr) ÷ 4 (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	600	205
Daily PE2 (lb/day)	0.0	0.0	0.0	0.0	1.6	0.6
Quarterly Net Emissions Change (lb/qtr)	1:	0.0	0.0	0.0	76.5	18.1
	2:	0.0	0.0	0.0	76.5	18.1
	3:	0.0	0.0	0.0	76.5	18.1
	4:	0.0	0.0	0.0	76.5	18.1

Cow Housing						
	NOx	SOx	PM10	CO	VOC	NH3
Annual PE2 (lb/yr)	0	0	6,782	0	15,257	37,397
Daily PE2 (lb/day)	0.0	0.0	18.5	0.0	41.8	102.3
Quarterly Net Emissions Change (lb/qtr)	1:	0.0	942.8	0.0	1,536.8	-2,314.0
	2:	0.0	942.8	0.0	1,536.8	-2,314.0
	3:	0.0	942.8	0.0	1,536.8	-2,314.0
	4:	0.0	942.8	0.0	1,536.8	-2,314.0

Liquid Manure Handling							
	NOx	SOx	PM10	CO	VOC	NH3	H2S
Annual PE2 (lb/yr)	0	0	0	0	2,565	16,484	1,012
Daily PE2 (lb/day)	0.0	0.0	0.0	0.0	7.0	45.1	2.7
Quarterly Net Emissions Change (lb/qtr)	1:	0.0	0.0	0.0	62.2	706.3	0.0
	2:	0.0	0.0	0.0	62.2	706.3	0.0
	3:	0.0	0.0	0.0	62.2	706.3	0.0
	4:	0.0	0.0	0.0	62.2	706.3	0.0

Solid Manure Handling						
	NOx	SOx	PM10	CO	VOC	NH3
Annual PE2 (lb/yr)	0	0	0	0	772	3,767
Daily PE2 (lb/day)	0.0	0.0	0.0	0.0	2.1	10.2
Quarterly Net Emissions Change (lb/qtr)	1:	0.0	0.0	0.0	83.1	259.1
	2:	0.0	0.0	0.0	83.1	259.1
	3:	0.0	0.0	0.0	83.1	259.1
	4:	0.0	0.0	0.0	83.1	259.1

Feed Storage and Handling						
	NOx	SOx	PM10	CO	VOC	NH3
Annual PE2 (lb/yr)	0	0	0	0	23,950	0
Daily PE2 (lb/day)	0.0	0.0	0.0	0.0	65.6	0.0
Quarterly Net Emissions Change (lb/qtr)	1:	0.0	0.0	0.0	2,572.3	0.0
	2:	0.0	0.0	0.0	2,572.3	0.0
	3:	0.0	0.0	0.0	2,572.3	0.0
	4:	0.0	0.0	0.0	2,572.3	0.0

Uncontrolled GHG Emission Factors (lb/hd-yr)						
Animal Type	CH4 (Anaerobic Treatment Lagoon)	CH4 (Lagoon)	CH4 (Manure Spreading)	CH4 (Solid Manure Storage)	CH4 (Enteric)	CO2 Equivalent Multiplier for CH4
Milk Cows	513	307.8	3.5	27.7	271.5	21
Dry Cows	513	307.8	3.5	27.7	271.5	21
Support Stock*	110.4	110.4	1.8	—	151.6	21
Large Heifers	110.4	110.4	1.8	—	151.6	21
Medium Heifers	110.4	110.4	1.8	—	100.5	21
Small Heifers	110.4	110.4	1.8	—	100.5	21
Calves	—	—	—	—	—	—
Bulls*	110.4	110.4	1.8	—	151.6	21

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

*Emission factors for Support Stock and Bulls assumed to be the same as Large Heifers.
 1 Short ton = 2,000 metric tons
 CO2e from CH4 = [CH4 (anaerobic treatment) lagoon + CH4 manure spreading + CH4 solid manure storage + CH4 enteric] x 21 x 0.9072 metric tons/short ton x 365 days/yr
 CO2e from N2O = [N2O anaerobic treatment lagoon + N2O manure spreading + N2O solid manure storage + N2O enteric] x 310 x 0.9072 metric tons/short ton x 365 days/yr

Pre-Project CO2e Emissions

Pre-Project Lagoon CO2e Emissions from CH4 (metric tons/yr)				
Animal Type	Number of Cows	CH4 Lagoons (lb/hd-yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	700	513.0	21.0	3,421
Dry Cows	150	513.0	21.0	723
Support Stock	0	110.4	21.0	0
Large Heifers	0	110.4	21.0	0
Medium Heifers	120	110.4	21.0	126
Small Heifers	0	110.4	21.0	0
Calves	0	—	—	0
Bulls	0	110.4	21.0	0

Pre-Project Non-Lagoons CO2e Emissions from CH4 (metric tons/yr)						
Animal Type	Number of Cows	CH4 Manure Spreading (lb/hd-yr)	CH4 Solid Manure Storage (lb/hd-yr)	CH4 Enteric (lb/hd-yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	700	3.5	27.7	271.5	21.0	2,018
Dry Cows	150	3.5	27.7	271.5	21.0	433
Support Stock	0	1.8	—	151.6	21.0	0
Large Heifers	0	1.8	—	151.6	21.0	0
Medium Heifers	120	1.8	—	100.5	21.0	117
Small Heifers	0	1.8	—	100.5	21.0	0
Calves	0	—	—	—	—	0
Bulls	0	1.8	—	151.6	21.0	0

Pre-Project Lagoon CO2e Emissions from N2O (metric tons/yr)				
Animal Type	Number of Cows	N2O Lagoons (lb/hd-yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	700	1.5	310.0	148
Dry Cows	150	1.5	310.0	32
Support Stock	0	1.4	310.0	0
Large Heifers	0	1.4	310.0	0
Medium Heifers	120	1.4	310.0	24
Small Heifers	0	1.4	310.0	0
Calves	0	—	—	0
Bulls	0	1.4	310.0	0

Pre-Project Non-Lagoons CO2e Emissions from N2O (metric tons/yr)						
Animal Type	Number of Cows	N2O Manure Spreading (lb/hd-yr)	N2O Solid Manure Storage (lb/hd-yr)	N2O Enteric (lb/hd-yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	700	0.0	2.6	0.0	310.0	259
Dry Cows	150	0.0	2.6	0.0	310.0	58
Support Stock	0	0.0	—	0.0	310.0	0
Large Heifers	0	0.0	—	0.0	310.0	0
Medium Heifers	120	0.0	—	0.0	310.0	0
Small Heifers	0	0.0	—	0.0	310.0	0
Calves	0	0.0	—	0.0	—	0
Bulls	0	0.0	—	0.0	310.0	0

Total Pre-Project CO2e Emissions (metric tons/yr)			
Animal Type	CO2e from CH4	CO2e from N2O	Total
Milk Cows	5,439	404	5,843
Dry Cows	1,188	88	1,252
Support Stock	0	0	0
Large Heifers	0	0	0
Medium Heifers	243	24	267
Small Heifers	0	0	0
Calves	0	0	0
Bulls	0	0	0
		Total	7,381

Post-Project CO2e Emissions

Post-Project Lagoon CO2e Emissions from CH4 (metric tons/yr)				
Animal Type	Number of Cows	CH4 Lagoons (lb/hd-yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	1,500	513.0	21.0	7,350
Dry Cows	300	513.0	21.0	1,456
Support Stock	0	110.4	21.0	0
Large Heifers	75	110.4	21.0	79
Medium Heifers	220	110.4	21.0	231
Small Heifers	0	110.4	21.0	0
Calves	0	—	—	0
Bulls	0	110.4	21.0	0

Post-Project Non-Lagoons CO2e Emissions from CH4 (metric tons/yr)						
Animal Type	Number of Cows	CH4 Manure Spreading (lb/hd-yr)	CH4 Solid Manure Storage (lb/hd-yr)	CH4 Enteric (lb/hd-yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	1,500	3.5	27.7	271.5	21.0	4,325
Dry Cows	300	3.5	27.7	271.5	21.0	665
Support Stock	0	1.8	—	151.6	21.0	0
Large Heifers	75	1.8	—	151.6	21.0	109
Medium Heifers	220	1.8	—	100.5	21.0	214
Small Heifers	0	1.8	—	100.5	21.0	0
Calves	0	—	—	—	—	0
Bulls	0	1.8	—	151.6	21.0	0

Post-Project Lagoon CO2e Emissions from N2O (metric tons/yr)				
Animal Type	Number of Cows	N2O Lagoons (lb/hd-yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	1,500	1.5	310.0	318
Dry Cows	300	1.5	310.0	63
Support Stock	0	1.4	310.0	0
Large Heifers	75	1.4	310.0	15
Medium Heifers	220	1.4	310.0	43
Small Heifers	0	1.4	310.0	0
Calves	0	—	—	0
Bulls	0	1.4	310.0	0

Post-Project Non-Lagoons CO2e Emissions from N2O (metric tons/yr)						
Animal Type	Number of Cows	N2O Manure Spreading (lb/hd-yr)	N2O Solid Manure Storage (lb/hd-yr)	N2O Enteric (lb/hd-yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	1,500	0.0	2.6	0.0	310.0	548
Dry Cows	300	0.0	2.6	0.0	310.0	110
Support Stock	0	0.0	—	0.0	310.0	0
Large Heifers	75	0.0	—	0.0	310.0	0
Medium Heifers	220	0.0	—	0.0	310.0	0
Small Heifers	0	0.0	—	0.0	310.0	0
Calves	0	0.0	—	0.0	—	0
Bulls	0	0.0	—	0.0	310.0	0

Total Post-Project CO2e Emissions (metric tons/yr)			
Animal Type	CO2e from CH4	CO2e from N2O	Total
Milk Cows	11,655	865	12,520
Dry Cows	2,331	173	2,504
Support Stock	0	0	0
Large Heifers	188	15	203
Medium Heifers	445	43	469
Small Heifers	0	0	0
Calves	0	0	0
Bulls	0	0	0
		Total	15,716

Change in CO2e Emissions

Change in Project GHG Emissions			
Animal Type	Pre-Project CO2e (metric tons/yr)	Post-Project CO2e (metric tons/yr)	Change (metric tons/yr)
Milk Cows	5,843	12,520	6,677
Dry Cows	1,252	2,504	1,252
Support Stock	0	0	0
Large Heifers	0	203	203
Medium Heifers	267	469	222
Small Heifers	0	0	0
Calves	0	0	0
Bulls	0	0	0
		Total	8,364

Greenhouse Gas Emissions - PSD

Uncontrolled GHG Emission Factors (lb/hd-yr)						
Animal Type	CH4 (Anaerobic Treatment Lagoon)	CH4 (Lagoon)	CH4 (Manure Spreading)**	CH4 (Solid Manure Storage)**	CH4 (Enteric)**	CO2 Equivalent Multiplier for CH4
Milk Cows	513	307.8	0	0	0	21
Dry Cows	513	307.8	0	0	0	21
Support Stock*	110.4	110.4	0	0	0	21
Large Heifers	110.4	110.4	0	0	0	21
Medium Heifers	110.4	110.4	0	0	0	21
Small Heifers	110.4	110.4	0	0	0	21
Calves	0	0	0	0	0	0
Bulls*	110.4	110.4	0	0	0	21

Notes:

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

**Fugitive emissions from dairies (non-lagoon) shall be excluded in determining if a source is a major source for PSD purposes.

Calculations:

CO2e from Lagoons = # Cows (hd) x CH4/N2O Lagoon (lb/hd-yr) x Multiplier + 2000 lb/ton

CO2e from Non-Lagoons = # Cows (hd) x [CH4/N2O Manure Spreading (lb/hd-yr) + CH4/N2O Solid Manure Storage (lb/hd-yr) + CH4/N2O Enteric (lb/hd-yr)] x Multiplier + 2000 lb/ton

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

Pre-Project CO2e Emissions

Pre-Project Lagoon CO2e Emissions from CH4 (short tons/yr)				
Animal Type	Number of Cows with Manure Flushed to Lagoon	EF CH4 Anaerobic Treatment Lagoon (lb/hd-yr)	CO2e Multiplier	CO2e Lagoons (short tons/yr)
Milk Cows	700	513.0	21	3,771
Dry Cows	150	513.0	21	808
Support Stock	0	110.4	21	0
Large Heifers	0	110.4	21	0
Medium Heifers	120	110.4	21	139
Small Heifers	0	110.4	21	0
Calves	0	0	0	0
Bulls	0	110.4	21	0

Pre-Project Non-Lagoons CO2e Emissions from CH4 (short tons/yr)						
Animal Type	Number of Cows	EF CH4 Manure Spreading (lb/hd-yr)	EF CH4 Solid Manure Storage (lb/hd-yr)	EF CH4 Enteric (lb/hd-yr)	CO2e Multiplier	CO2e Non-Lagoons (short tons/yr)
Milk Cows	700	0.0	0.0	0.0	21	0
Dry Cows	150	0.0	0.0	0.0	21	0
Support Stock	0	0.0	0.0	0.0	21	0
Large Heifers	0	0.0	0.0	0.0	21	0
Medium Heifers	120	0.0	0.0	0.0	21	0
Small Heifers	0	0.0	0.0	0.0	21	0
Calves	0	0.0	0.0	0.0	0	0
Bulls	0	0.0	0.0	0.0	21	0

Pre-Project Lagoon CO2e Emissions from N2O (short tons/yr)				
Animal Type	Number of Cows	EF N2O Anaerobic Treatment Lagoon (lb/hd-yr)	CO2e Multiplier	CO2e Lagoons (short tons/yr)
Milk Cows	700	1.5	310	163
Dry Cows	150	1.5	310	39
Support Stock	0	1.4	310	0
Large Heifers	0	1.4	310	0
Medium Heifers	120	1.4	310	25
Small Heifers	0	1.4	310	0
Calves	0	0	0	0
Bulls	0	1.4	310	0

Pre-Project Non-Lagoons CO2e Emissions from N2O (short tons/yr)						
Animal Type	Number of Cows	EF N2O Manure Spreading (lb/hd-yr)	EF N2O Solid Manure Storage (lb/hd-yr)	EF N2O Enteric (lb/hd-yr)	CO2e Multiplier	CO2e Non-Lagoons (short tons/yr)
Milk Cows	700	0.0	0.0	0.0	310	0
Dry Cows	150	0.0	0.0	0.0	310	0
Support Stock	0	0.0	0.0	0.0	310	0
Large Heifers	0	0.0	0.0	0.0	310	0
Medium Heifers	120	0.0	0.0	0.0	310	0
Small Heifers	0	0.0	0.0	0.0	310	0
Calves	0	0.0	0.0	0.0	0	0
Bulls	0	0.0	0.0	0.0	310	0

Total Pre-Project CO2e Emissions (short tons/yr)			
Animal Type	CO2e from CH4	CO2e from N2O	Total
Milk Cows	3,771	163	3,933
Dry Cows	808	39	843
Support Stock	0	0	0
Large Heifers	0	0	0
Medium Heifers	139	25	165
Small Heifers	0	0	0
Calves	0	0	0
Bulls	0	0	0
		Total	4,841

Post-Project CO2e Emissions

Post-Project Lagoon CO2e Emissions from CH4 (short tons/yr)				
Animal Type	Number of Cows with Manure Flushed to Lagoon	EF CH4 Anaerobic Treatment Lagoon (lb/hd-yr)	CO2e Multiplier	CO2e Lagoons (short tons/yr)
Milk Cows	1500	513.0	21	8,080
Dry Cows	300	513.0	21	1,616
Support Stock	0	110.4	21	0
Large Heifers	75	110.4	21	87
Medium Heifers	220	110.4	21	255
Small Heifers	0	110.4	21	0
Calves	0	0	0	0
Bulls	0	110.4	21	0

Post-Project Non-Lagoons CO2e Emissions from CH4 (short tons/yr)						
Animal Type	Number of Cows	EF CH4 Manure Spreading (lb/hd-yr)	EF CH4 Solid Manure Storage (lb/hd-yr)	EF CH4 Enteric (lb/hd-yr)	CO2e Multiplier	CO2e Non-Lagoons (short tons/yr)
Milk Cows	1,500	0.0	0.0	0.0	21	0
Dry Cows	300	0.0	0.0	0.0	21	0
Support Stock	0	0.0	0.0	0.0	21	0
Large Heifers	75	0.0	0.0	0.0	21	0
Medium Heifers	220	0.0	0.0	0.0	21	0
Small Heifers	0	0.0	0.0	0.0	21	0
Calves	0	0.0	0.0	0.0	0	0
Bulls	0	0.0	0.0	0.0	21	0

Post-Project Lagoon CO2e Emissions from N2O (metric tons/yr)				
Animal Type	Number of Cows	EF N2O Anaerobic Treatment Lagoon (lb/hd-yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	1500	1.5	310	349
Dry Cows	300	1.5	310	70
Support Stock	0	1.4	310	0
Large Heifers	75	1.4	310	16
Medium Heifers	220	1.4	310	48
Small Heifers	0	1.4	310	0
Calves	0	0	0	0
Bulls	0	1.4	310	0

Post-Project Non-Lagoons CO2e Emissions from N2O (short tons/yr)						
Animal Type	Number of Cows	EF N2O Manure Spreading (lb/hd-yr)	EF N2O Solid Manure Storage (lb/hd-yr)	EF N2O Enteric (lb/hd-yr)	CO2e Multiplier	CO2e Non-Lagoons (short tons/yr)
Milk Cows	1,500	0.0	0.0	0.0	310	0
Dry Cows	300	0.0	0.0	0.0	310	0
Support Stock	0	0.0	0.0	0.0	310	0
Large Heifers	75	0.0	0.0	0.0	310	0
Medium Heifers	220	0.0	0.0	0.0	310	0
Small Heifers	0	0.0	0.0	0.0	310	0
Calves	0	0.0	0.0	0.0	0	0
Bulls	0	0.0	0.0	0.0	310	0

Total Post-Project CO2e Emissions (short tons/yr)			
Animal Type	CO2e from CH4	CO2e from N2O	Total
Milk Cows	8,080	349	8,429
Dry Cows	1,616	70	1,688
Support Stock	0	0	0
Large Heifers	87	16	103
Medium Heifers	255	48	303
Small Heifers	0	0	0
Calves	0	0	0
Bulls	0	0	0
		Total	10,620

Change in CO2e Emissions

Change in Project GHG Emissions			
Animal Type	Pre-Project CO2e (short tons/yr)	Post-Project CO2e (short tons/yr)	Change (short tons/yr)
Milk Cows	3,933	8,429	4,496
Dry Cows	843	1,688	843
Support Stock	0	0	0
Large Heifers	0	103	103
Medium Heifers	165	303	138
Small Heifers	0	0	0
Calves	0	0	0
Bulls	0	0	0
		Total	5,579

Animal Units at Facility

For which agency would you like to determine the number of animal units?

Tulare County

Pre-Project Dairy Animal Units					
Type of Cow	# of cows		Animal Units per Animal		Animal Units
Milk Cows	700	x	1.00	=	700
Dry Cows	150	x	0.75	=	113
Support Stock	0	x	0.70	=	0
Large Heifers	0	x	0.70	=	0
Medium Heifers	120	x	0.40	=	48
Small Heifers	0	x	0.40	=	0
Calves	0	x	0.17	=	0
Bulls	0	x	1.00	=	0
Total					861

Post-Project Dairy Animal Units					
Type of Cow	# of cows		Animal Units per Animal		Animal Units
Milk Cows	1,500	x	1.00	=	1,500
Dry Cows	300	x	0.75	=	225
Support Stock	0	x	0.70	=	0
Large Heifers	75	x	0.70	=	53
Medium Heifers	220	x	0.40	=	88
Small Heifers	0	x	0.40	=	0
Calves	0	x	0.17	=	0
Bulls	0	x	1.00	=	0
Total					1,866

Kristin Doud - KB Dairy Expansion

From: "Davis, Daniel@Waterboards" <Daniel.Davis@waterboards.ca.gov>
To: "Kristin Doud (doudk@stancounty.com)" <doudk@stancounty.com>
Date: 2/3/2016 11:50 AM
Subject: KB Dairy Expansion

February 3, 2016

Dear Kristin Doud –

Staff of the Regional Water Board have reviewed the WMP and NMP for the proposed KB Dairy expansion and questions regarding these documents were addressed by the consultant. At this time, the WMP and NMP appear to satisfy Regional Board requirements. Following completion of your Initial Study the Regional Board will work on preparing individual Waste Discharge Requirements for the dairy.

Please contact me if you have more questions.

Daniel J. Davis, R.G.
Engineering Geologist
Confined Animal Facility Regulatory Unit
916.464.4739

Waste Management Plan Report
 General Order No. R5-2007-0035, Attachment B
 July 1, 2010 deadline

DAIRY FACILITY INFORMATION

A. NAME OF DAIRY OR BUSINESS OPERATING THE DAIRY: KB Dairy

Physical address of dairy:

3701 Langworth RD Modesto Stanislaus 95357
 Number and Street City County Zip Code

Street and nearest cross street (if no address): _____

TRS Data and Coordinates:

3S 10E 8 Mt. Diablo 37° 41' 34.00" N 120° 53' 41.00" W
 Township (T_) Range (R_) Section (S_) Baseline meridian Latitude (N) Longitude (W)

Date facility was originally placed in operation: 01/01/1942

Regional Water Quality Control Board Basin Plan designation: Sacramento River Basin

County Assessor Parcel Number(s) for dairy facility:

0014-0015-0002-0000

B. OPERATOR NAME: 1999 FLP, Pacheco Telephone no.: (209) 524-0128

Landline Cellular

2020 Victoria PARK Modesto CA 95355
 Mailing Address Number and Street City State Zip Code

Operator should receive Regional Board correspondence (check): Yes No

OPERATOR NAME: Mike Barry, Paul Konzen & Telephone no.: (209) 838-8461

Landline Cellular

P.O. Box 368 Escalon CA 95320
 Mailing Address Number and Street City State Zip Code

Operator should receive Regional Board correspondence (check): Yes No

C. LEGAL OWNER NAME: 1999 FLP, Pacheco Telephone no.: (209) 524-0128

Landline Cellular

2020 Victoria PARK Modesto CA 95355
 Mailing Address Number and Street City State Zip Code

Owner should receive Regional Board correspondence (check): Yes No

D. CONTACT NAME: Dairy Monitoring Co., Jim Avila Telephone no.: (209) 599-4955

Landline Cellular

Title: Service Provider

P.O. Box 1440 Ripon CA 95322
 Mailing Address Number and Street City State Zip Code

CONTACT NAME: O'Dell, Randall Telephone no.: (209) 571-1765

Landline Cellular

Title: Civil Engineer

1165 Scenic Drive Ste. B Modesto CA 95350
 Mailing Address Number and Street City State Zip Code

KB Dairy | 3701 Langworth RD | Modesto, CA 95357 | Stanislaus County | Sacramento River Basin

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HERD AND MILKING EQUIPMENT

A. HERD AND MILKING

The existing milk cow dairy is currently regulated under the General Order.

Total number of milk and dry cows combined as a baseline value in response to the Report of Waste Discharge (ROWD) request of October, 2005:

1,565 milk and dry cows combined (regulatory review is required for expansions of 15% above baseline values)

1,800 milk and dry cows combined + 15% (pre-expansion limit)

Type of Animal	Present Count	Maximum Count	Daily Flush Hours	Avg Live Weight (lbs)
Milk Cows	1,500	1,500	3	1,300
Dry Cows	300	300	0	1,400
Bred Heifers (15-24 mo.)	75	75	3	1,200
Heifers (7-14 mo.)	0	0	0	0
Calves (4-6 mo.)	220	220	0	
Calves (0-3 mo.)	55	55	0	

Predominant milk cow breed:

Holstein

Average milk production:

60 pounds per cow per day

Average number of milk cows per string sent to the milkbarn:

150 milk cows per string

Number of milkings per day:

2.0 milkings per day

Number of times milk tank is emptied/filled each day:

2.0 per day

Number of hours spent milking each day:

20.0 hours per day

B. MILKBARN EQUIPMENT AND FLOOR WASH

Bulk tank wash and sanitizing:

3.0 run cycles/wash

Bulk tank wash vat volume:

25 gallons/cycle

Bulk tank wash wastewater:

150.0 gallons/day

Pipeline wash and sanitizing:

3.0 run cycles/wash

Pipeline wash vat volume:

100 gallons/cycle

Pipeline wash wastewater:

600.0 gallons/day

Reused / recycled water is the source of parlor floor wash water:

Yes [] No

Milkbarn / parlor floor wash volume:

1,300 gallons/day

Plate coolers type:

Well Water Cooled (Water Reused/Recycled)

Plate coolers volume:

6,000 gallons/day

Vacuum pumps / air compressors / chillers type:

Mechanically/Air Cooled

Vacuum pumps / air compressors / chillers volume:

0 gallons/day

Milkbarn and equipment wastewater volume generated daily:

41,350 gallons/day

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C. OTHER WATER USES

Reused/recycled water is the source of herd drinking water: Yes No

	Milk Cows	Dry Cows	Bred Heifers (15-24 mo.)	Bred Heifers (7-14 mo.)	Calves (4-6 mo.)	Calves (0-3 mo.)
Number of cows drinking from reusable water:	0	0	0	0	0	0
	of 1,500	of 300	of 75	of 0	of 220	of 55
Gallons per head per day:	0	0	0	0	0	0

Total reusable water consumed by herd: 0 gallons/day

Reused/recycled water is the source of sprinkler pen water: Yes No

Number of sprinklers in the holding pen: 80 sprinklers

Duration of each sprinkler cycle: 2.0 minutes

Number of sprinkler pen runs/milking: 4 cycles/milking

Flow rate for each sprinkler head: 3.0 gallons/minute

Total sprinkler pen wastewater volume: 38,400 gallons/day

Total fresh water used in manure flush lane system(s): 0 gallons/day

D. MISCELLANEOUS EQUIPMENT

Description	Source	Throughput (gallons per day)	Discharge Destination
Drop hoses	Fresh Water	900	Sent to pond

E. MILKBARN AND EQUIPMENT SUMMARY

Number of days in storage period: 120 days

Water available for reuse/recycle: 6,000 gallons/day

Recycled water reused: 39,700 gallons/day

Recycled water leaving system: 0 gallons/day

Reusable water balance: 0 gallons/day

Volume of milkbarn and equipment wastewater generated for storage period: 4,962,000 gallons/storage period

MANURE AND BEDDING SOLIDS

A. IMPORTED AND FACILITY GENERATED BEDDING

Bedding Type	Imported or Generated (tons)	Density (lbs/cu. ft.)	Applied Separation Efficiency (default)	Solids to Pond (cu. ft./period)
Facility generated bedding	0	40.0	0%	0
Total:				0

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B. SOLIDS SEPARATION PROCESS

Combined manure solids separation efficiency (weight basis): _____ 0 %

Description of all solids separation equipment used in flushed lane manure management systems:

C. MANURE AND BEDDING SOLIDS SUMMARY

	cubic feet		gallons	
	day	storage period	day	storage period
Manure generated by the herd (pre-separation):	3,746.13	449,536	28,022.99	3,362,759
Manure generated by the herd sent to pond(s):	411.54	49,385	3,078.52	369,423
Manure generated by the herd sent to dry lot(s):	3,334.59	400,151	24,944.47	2,993,336
Manure solids (herd) removed by separation:	0.00	0	0.00	0
Liquid component in separated solids not sent to pond(s):	0.00	0	0.00	0
Imported and facility generated bedding sent to pond(s):	0.00	0	0.00	0
Total manure and bedding sent to pond(s):	411.54	49,385	3,078.52	369,423
Residual manure solids and bedding sent to pond(s) w/factor:	32.54	3,905	243.41	29,209
	cubic feet per year		gallons per year	
Residual manure solids and bedding sent to pond(s) w/factor:	11,877		88,844	

RAINFALL AND RUNOFF

A. RAINFALL ESTIMATES

Rainfall station nearest the facility: Modesto

25 year/24 hour storm event (default NOAA Atlas 2, 1973): 2.50 inches/storage period

25 year/24 hour storm event (user-override): _____ inches/storage period

Storage period rainfall (default DWR climate data): 7.91 inches/storage period

Storage period rainfall (user-override): _____ inches/storage period

Flood zone: Zone X

B. IMPERVIOUS AREAS

Name	Surface Area (sq. ft.)	Quantity	25yr/24hr Storm Runoff Coefficient	Storage Period Runoff Coefficient	Runoff Destination
Concrete Production Area	11,260	1	0.95	0.95	Drains into pond(s).
Concrete Production Area - IA1	47,720	1	0.95	0.95	Drains into pond(s).
Concrete Production Area - IA4	1,620	1	0.95	0.95	Drains into pond(s).
Concrete Production Area - IA5	1,830	1	0.95	0.95	Drains into pond(s).
Feed Storage Area - IA3	45,925	1	0.95	0.95	Drains into pond(s).

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Surface area that does not run off into pond(s): 0 sq. ft.
 Surface area that runs off into pond(s): 108,355 sq. ft.
 Total surface area: 108,355 sq. ft.
 Runoff from normal storage period rainfall: 507,574 gallons/storage period
 Runoff from normal storage period rainfall with 1.5 factor: 761,361 gallons/storage period
 25 year/24 hour storm event runoff: 160,422 gallons/storage period
 Total surface area runoff: 667,996 gallons/storage period
 Total surface area runoff with 1.5 factor: 921,783 gallons/storage period

C. ROOF AREAS

Name	Surface Area (sq. ft.)	Quantity	Runoff Destination
Animal Shelter - AS1	4,950	1	Wastewater pond
Animal Shelter - AS10	28,000	1	Wastewater pond
Animal Shelter - AS11	9,512	1	Wastewater pond
Animal Shelter - AS12	3,570	1	Wastewater pond
Animal Shelter - AS2	19,950	1	Wastewater pond
Animal Shelter - AS3	1,350	1	Wastewater pond
Animal Shelter - AS4	9,900	1	Wastewater pond
Animal Shelter - AS5	13,300	1	Wastewater pond
Animal Shelter - AS6	14,800	1	Wastewater pond
Animal Shelter - AS7	18,500	1	Wastewater pond
Animal Shelter - AS8	2,800	1	Wastewater pond
Animal Shelter - AS9	5,250	1	Wastewater pond
Food Storage	10,000	1	Wastewater pond
House	1,400	1	Wastewater pond
Milk Parlor	5,700	1	Wastewater pond

Surface area that does not run off into pond(s): 0 sq. ft.
 Surface area that runs off into pond(s): 148,982 sq. ft.
 Total surface area: 148,982 sq. ft.
 Runoff from normal storage period rainfall: 734,617 gallons/storage period
 Runoff from normal storage period rainfall with 1.5 factor: 1,101,925 gallons/storage period
 25 year/24 hour storm event runoff: 232,180 gallons/storage period
 Total surface area runoff: 966,796 gallons/storage period
 Total surface area runoff with 1.5 factor: 1,334,105 gallons/storage period

D. EARTHEN AREAS

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Name	Surface Area (sq. ft.)	Quantity	25yr/24 Storm Coefficient	Storage Period Coefficient	Runoff Destination
Earthen Production Area - EA1	167,310	1	0.35	0.35	Drains into pond(s).
Earthen Production Area - EA2	17,594	1	0.35	0.35	Drains into pond(s).
Earthen Production Area - EA3	94,668	1	0.35	0.35	Drains into pond(s).
Earthen Production Area - EA4	139,800	1	0.35	0.35	Drains into pond(s).

Surface area that does not run off into pond(s):	<u>0</u> sq. ft.
Surface area that runs off into pond(s):	<u>419,372</u> sq. ft.
Total surface area:	<u>419,372</u> sq. ft.
Runoff from normal storage period rainfall:	<u>723,760</u> gallons/storage period
Runoff from normal storage period rainfall with 1.5 factor:	<u>1,085,640</u> gallons/storage period
25 year/24 hour storm event runoff:	<u>228,748</u> gallons/storage period
Total surface area runoff:	<u>952,508</u> gallons/storage period
Total surface area runoff with 1.5 factor:	<u>1,314,388</u> gallons/storage period

E. TAILWATER MANAGEMENT

No fields with tailwater entered.

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LIQUID STORAGE

A. POND OR BASIN DESCRIPTION: SB

Pond is rectangular in shape: [] Yes [X] No

Dimensions					
Earthen Length (EL):	_____	ft.	Earthen Depth (ED):	_____	ft.
Earthen Width (EW):	_____	ft.	Side Slope (S):	_____	ft. (h:1v)
Free Board (FB):	_____	2 ft.	Dead Storage Loss (DS):	_____	ft.
Calculations					
Liquid Length (LL):	_____	ft.	Storage Volume Adjusted for Dead Storage Loss:	_____	502,147 cu. ft.
Liquid Width (LW):	_____	ft.	Pond Marker Elevation:	_____	13.0 ft.
Pond Surface Area:	_____	71,462 sq. ft.	Evaporation Volume:	_____	334,948 gals/period
Storage Volume:	_____	510,817 cu. ft.	Adjusted Surface Area:	_____	sq. ft.

POND OR BASIN DESCRIPTION: WW1

Pond is rectangular in shape: [] Yes [X] No

Dimensions					
Earthen Length (EL):	_____	ft.	Earthen Depth (ED):	_____	ft.
Earthen Width (EW):	_____	ft.	Side Slope (S):	_____	ft. (h:1v)
Free Board (FB):	_____	2 ft.	Dead Storage Loss (DS):	_____	ft.
Calculations					
Liquid Length (LL):	_____	ft.	Storage Volume Adjusted for Dead Storage Loss:	_____	659,648 cu. ft.
Liquid Width (LW):	_____	ft.	Pond Marker Elevation:	_____	12.0 ft.
Pond Surface Area:	_____	83,863 sq. ft.	Evaporation Volume:	_____	409,984 gals/period
Storage Volume:	_____	701,383 cu. ft.	Adjusted Surface Area:	_____	sq. ft.

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POND OR BASIN DESCRIPTION: WW2

Pond is rectangular in shape: [] Yes [X] No

Dimensions					
Earthen Length (EL):	_____	ft.	Earthen Depth (ED):	_____	ft.
Earthen Width (EW):	_____	ft.	Side Slope (S):	_____	ft. (h:1v)
Free Board (FB):	_____	2 ft.	Dead Storage Loss (DS):	_____	ft.
Calculations					
Liquid Length (LL):	_____	ft.	Storage Volume Adjusted for Dead Storage Loss:	_____	1,427,448 cu. ft.
Liquid Width (LW):	_____	ft.	Pond Marker Elevation:	_____	17.0 ft.
Pond Surface Area:	_____	118,310 sq. ft.	Evaporation Volume:	_____	594,870 gals/period
Storage Volume:	_____	1,489,676 cu. ft.	Adjusted Surface Area:	_____	sq. ft.

POND OR BASIN DESCRIPTION: WW3

Pond is rectangular in shape: [] Yes [X] No

Dimensions					
Earthen Length (EL):	_____	ft.	Earthen Depth (ED):	_____	ft.
Earthen Width (EW):	_____	ft.	Side Slope (S):	_____	ft. (h:1v)
Free Board (FB):	_____	2 ft.	Dead Storage Loss (DS):	_____	ft.
Calculations					
Liquid Length (LL):	_____	ft.	Storage Volume Adjusted for Dead Storage Loss:	_____	939,309 cu. ft.
Liquid Width (LW):	_____	ft.	Pond Marker Elevation:	_____	11.0 ft.
Pond Surface Area:	_____	115,471 sq. ft.	Evaporation Volume:	_____	573,610 gals/period
Storage Volume:	_____	1,009,926 cu. ft.	Adjusted Surface Area:	_____	sq. ft.

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POND OR BASIN DESCRIPTION: WW4

Pond is rectangular in shape: [] Yes [X] No

Dimensions					
Earthen Length (EL):	_____	ft.	Earthen Depth (ED):	_____	ft.
Earthen Width (EW):	_____	ft.	Side Slope (S):	_____	ft. (h:1v)
Free Board (FB):	_____	1 ft.	Dead Storage Loss (DS):	_____	ft.

Calculations					
Liquid Length (LL):	_____	ft.	Storage Volume Adjusted for Dead Storage Loss:	_____	20,416 cu. ft.
Liquid Width (LW):	_____	ft.	Pond Marker Elevation:	_____	2.0 ft.
Pond Surface Area:	_____	29,022 sq. ft.	Evaporation Volume:	_____	124,028 gals/period
Storage Volume:	_____	40,832 cu. ft.	Adjusted Surface Area:	_____	sq. ft.

Potential storage losses (due to dead storage): 203,666.0 cubic feet - or - 1,523,527.5 gallons

Liquid storage surface area: 0 sq. ft.

Rainfall onto retention pond(s): 2,061,751 gallons/storage period

Rainfall runoff into retention pond(s): 1,965,951 gallons/storage period

Normal rainfall onto retention pond(s) with 1.5 factor: 3,092,627 gallons/storage period

Normal rainfall runoff into retention pond(s) with 1.5 factor: 2,948,926 gallons/storage period

Storage period evaporation (default): 11.50 inches/storage period

Storage period evaporation (user-override): _____ inches/storage period

Storage period evaporation volume: 2,037,440 gallons/storage period

Manure and bedding sent to pond(s): 369,423 gallons/storage period

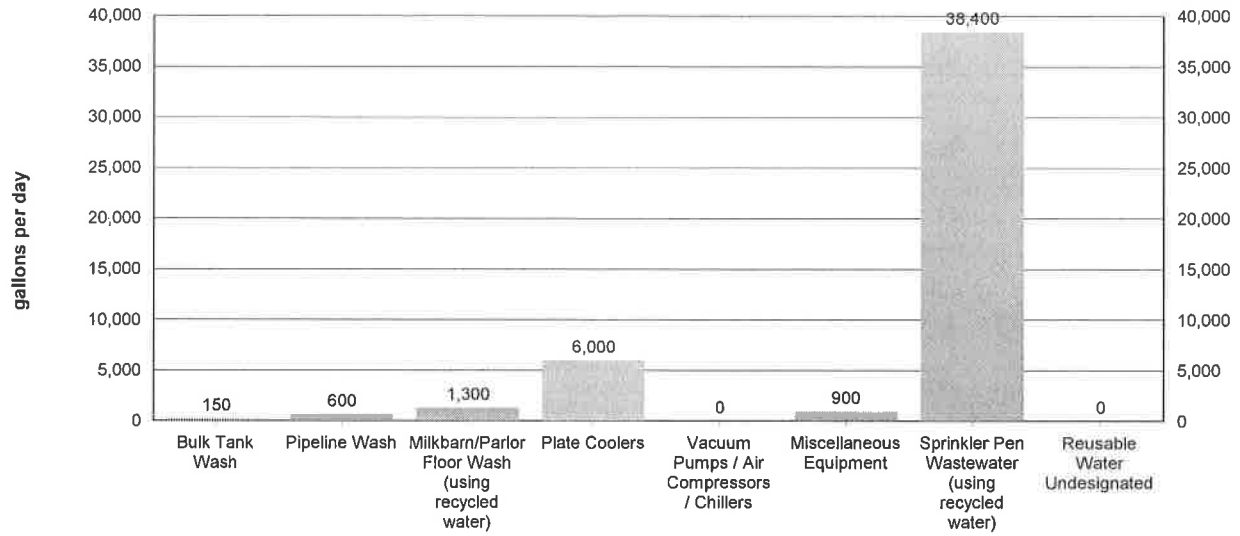
Milkbarn water sent to pond(s): 4,962,000 gallons/storage period

Fresh flush water for storage period: 0 gallons/storage period

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CHARTS

A. MILKBARN WASTEWATER SENT TO POND(S)

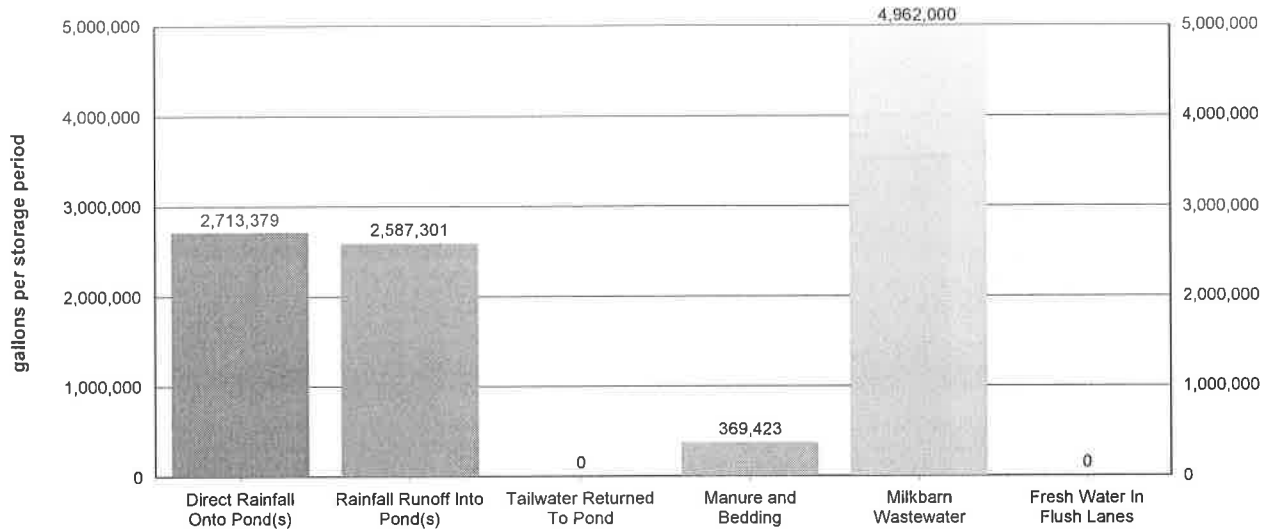


Values shown in chart are approximate values per day.

Total milkbarn wastewater generated daily: 41,350 gallons/day
 Total milkbarn wastewater generated per period: 4,962,000 gallons/storage period

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B. PROCESS WASTEWATER (NORMAL PRECIPITATION)



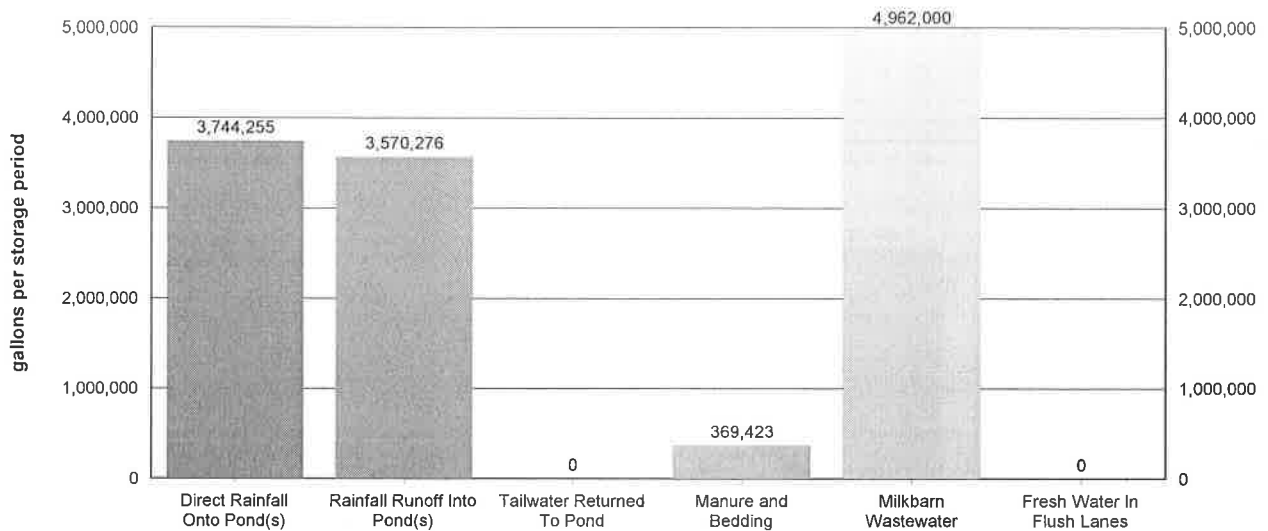
Values shown in chart are approximate values for storage period.

Storage period:	<u>120</u> days
Total process wastewater generated daily:	<u>88,601</u> gallons/day
Total process wastewater generated per period:	<u>10,632,103</u> gallons/storage period
Total process wastewater removed due to evaporation:	<u>2,037,440</u> gallons/storage period
Total storage capacity required:	<u>8,594,663</u> gallons
	<u>1,148,939</u> cu. ft.
Existing storage capacity (adjusted for dead storage loss):	<u>26,548,124</u> gallons
	<u>3,548,968</u> cu. ft.

Considering normal precipitation, existing capacity meets estimated storage needs: Yes No

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C. PROCESS WASTEWATER (NORMAL PRECIPITATION WITH 1.5 FACTOR)



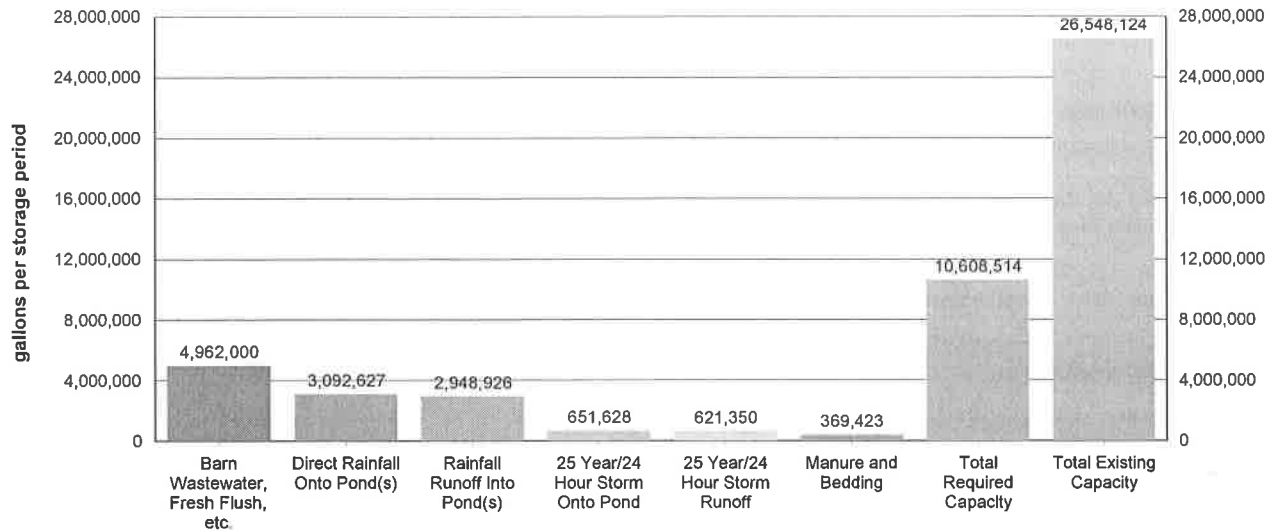
Values shown in chart are approximate values for storage period.

Storage period:	<u>120</u> days
Total process wastewater generated daily:	<u>105,383</u> gallons/day
Total process wastewater generated per period:	<u>12,645,954</u> gallons/storage period
Total process wastewater removed due to evaporation:	<u>2,037,440</u> gallons/storage period
Total storage capacity required:	<u>10,608,514</u> gallons
	<u>1,418,152</u> cu. ft.
Existing storage capacity (adjusted for dead storage loss):	<u>26,548,124</u> gallons
	<u>3,548,968</u> cu. ft.

Considering factored precipitation, existing capacity meets estimated storage needs: Yes No

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D. STORAGE VOLUME ASSESSMENT (NORMAL PRECIPITATION WITH 1.5 FACTOR)



Values shown in chart are approximate values for storage period.

Storage period:	<u>120 days</u>
Barn wastewater, fresh flush water, and tailwater:	<u>4,962,000</u> gallons/storage period
Manure and bedding sent to pond:	<u>369,423</u> gallons/storage period
Precipitation onto pond:	<u>3,092,627</u> gallons/storage period
Precipitation runoff:	<u>2,948,926</u> gallons/storage period
25 year/24 hour storm onto pond:	<u>651,628</u> gallons/storage period
25 year/24 hour storm runoff:	<u>621,350</u> gallons/storage period
Residual solids after liquids have been removed (liquid equivalent):	<u>29,209</u> gallons/storage period
Total process wastewater removed due to evaporation:	<u>2,037,440</u> gallons/storage period
Total required capacity:	<u>10,608,514</u> gallons/storage period
Total existing capacity:	<u>26,548,124</u> gallons/storage period
Existing capacity meets estimated storage needs:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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OPERATION AND MAINTENANCE PLAN

The goal of the Operation and Maintenance Plan is to eliminate discharges of waste or storm water to surface waters from the production area and the protection of underlying soils and ground water.

A. POND MAINTENANCE

i. FREEBOARD MONITORING

1. Freeboard will be monitored monthly from June 1 through September 1 (dry season) and weekly from October 1 through May 31 (wet season). The results will be recorded on a Dairy Production Area Visual Inspection Form.
2. Freeboard will be monitored during and after each significant storm event and the results recorded on a Production Area Significant Storm Event Inspection Form.
3. Ponds will be photographed on the first day of each month. Pond photos will be labeled and maintained with the dairy's monitoring records.

ii. PREPARATION FOR MAINTAINING WINTER STORAGE CAPACITY

1. The retention pond(s) will begin to be lowered to the minimum operating level on or before a designated date each year.
2. The minimum operating level will include the necessary storage volume as identified in Section II.A in Attachment B of the General Order.

iii. OTHER POND MONITORING

1. At the time of each monitoring for freeboard, the pond(s) will be inspected for evidence of excessive odors, mosquito breeding, algae, or equipment damage; and issues with berm integrity, including cracking, slumping, erosion, excess vegetation, animal burrows, and seepage. Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Other Pond Monitoring.
2. At the time of each monitoring during and after each significant storm event, the ponds will be inspected for evidence of any discharge and issues with berm integrity, including cracking, slumping, erosion, excess vegetation, animal burrows, and seepage. Any issues identified and corrective actions performed will be recorded on a Production Area Significant Storm Event Inspection Form.

iv. SOLIDS REMOVAL PROCEDURES

1. The average thickness of the solids accumulated on the bottom of the pond(s) will be measured on the designated interval using the owner, operator, and/or designer specified procedure.
2. Once solids/sludge on the bottom of the pond(s) reach the owner, operator, and/or designer specified critical thickness, solids/sludge will be removed so that adequate capacity is maintained.
3. When necessary, solids/sludge will be removed using the owner, operator, and/or designer specified methods for protecting any pond liner.

OPERATIONS AND MAINTENANCE PLAN FOR POND: WW1

Dry season freeboard monitoring will occur on the 1st of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 1.0 feet above the pond invert beginning in October of each year.

Sludge accumulation will be measured annually.

The following method will be used to measure solids/sludge accumulation:

Sludge thickness will be measured at pond draw down.

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When solids/sludge accumulate to a thickness of 2.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Sludge accumulation will be agitated and pumped on an annual basis.

OPERATIONS AND MAINTENANCE PLAN FOR POND: SB

Dry season freeboard monitoring will occur on the 1st of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 1.0 feet above the pond invert beginning in October of each year.

Sludge accumulation will be measured annually.

The following method will be used to measure solids/sludge accumulation:

Sludge thickness will be measured at pond draw down.

When solids/sludge accumulate to a thickness of 2.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Sludge accumulation will be agitated and pumped on annual basis.

OPERATIONS AND MAINTENANCE PLAN FOR POND: WW2

Dry season freeboard monitoring will occur on the 1st of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 1.0 feet above the pond invert beginning in October of each year.

Sludge accumulation will be measured annually.

The following method will be used to measure solids/sludge accumulation:

Sludge thickness will be measured at pond draw down.

When solids/sludge accumulate to a thickness of 2.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Sludge accumulation will be agitated and pumped on annual basis.

OPERATIONS AND MAINTENANCE PLAN FOR POND: WW3

Dry season freeboard monitoring will occur on the 1st of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 1.0 feet above the pond invert beginning in October of each year.

Sludge accumulation will be measured annually.

The following method will be used to measure solids/sludge accumulation:

Sludge thickness will be measured at pond draw down.

When solids/sludge accumulate to a thickness of 2.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Sludge accumulation will be agitated and pumped on annual basis.

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OPERATIONS AND MAINTENANCE PLAN FOR POND: WW4

Dry season freeboard monitoring will occur on the 1st of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 1.0 feet above the pond invert beginning in October of each year.

Sludge accumulation will be measured annually.

The following method will be used to measure solids/sludge accumulation:

Sludge Thickness will be measured at pond draw down.

When solids/sludge accumulate to a thickness of 2.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Sludge accumulation will be agitated and pumped on annual basis.

B. RAINFALL COLLECTION SYSTEM MAINTENANCE

i. Annually, rainfall collection systems will be assessed to ensure:

1. Conveyances are free of debris and operating within designer/manufacturer specifications.
2. Components are properly fastened according to designer/manufacturer specifications.
3. All downspouts and related infrastructure are connected to conveyances that divert water away from manured areas.
4. Water from the rainfall collection system(s) is diverted to an appropriate destination.

<i>Buildings with rooftop rainfall collection systems</i>	Quantity	Surface Area (sq. ft.)
Animal Shelter - AS1	1	4,950
Animal Shelter - AS10	1	28,000
Animal Shelter - AS11	1	9,512
Animal Shelter - AS12	1	3,570
Animal Shelter - AS2	1	19,950
Animal Shelter - AS3	1	1,350
Animal Shelter - AS4	1	9,900
Animal Shelter - AS5	1	13,300
Animal Shelter - AS6	1	14,800
Animal Shelter - AS7	1	18,500
Animal Shelter - AS8	1	2,800
Animal Shelter - AS9	1	5,250
Food Storage	1	10,000
House	1	1,400
Milk Parlor	1	5,700

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Assessment for buildings with rooftop rainfall collection systems will occur on or before: 1st of October

Assessment for other rainfall collections systems will occur on or before: 1st of October

Description of how rainfall collection systems will be assessed:

Gutters, downspouts, and all other collection and conveyance systems are to be inspected, cleaned, and/or repaired as required.

C. CORRAL MAINTENANCE

- i. Monthly from June 1st through September 30th (dry season) and weekly from October 1st through May 31st (wet season), the perimeter of the corrals and pens will be assessed to ensure that runoff and runoff controls such as berms are functioning correctly, and that all water that contacts waste is collected and diverted into the wastewater retention pond (s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Corrals.
- ii. The corrals will be assessed by the designated date to determine:
 - 1. Whether manure needs to be removed from the corrals based on the owner, operator, and/or designer specified conditions.
 - 2. Whether there are depressions within the corrals that should be filled/groomed to prevent ponding.
- iii. Removal of manure and/or regrading, when necessary, will be completed on or before the designated month/day of each year.

Day of the month dry season assessment will occur: 1st of each month

Day of the week wet season assessment will occur: Monday

Solid manure removal and regrading assessment will occur on or before: 1st of October

Conditions requiring manure removal and/or regrading:

Excess solid manure in corrals is to be removed and applied to land application areas in fall after harvest and in spring before planting, or as required by the operator.

Solid manure removal and/or regrading will occur on or before: 1st of November

D. FEED STORAGE AREA MAINTENANCE

- i. During the dry season and prior to the wet season, the perimeter of storage areas will be assessed to ensure all runoff and runoff controls such as berms are functioning correctly and runoff and leachate from the areas are collected and diverted into the wastewater pond(s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Manure and Feed Storage Areas.
- ii. During the wet season, feed storage area(s) will be assessed to determine if there are depressions within any feed storage area that should be filled or repaired to prevent ponding.
- iii. Any necessary regrading/resurfacing and berm/conveyance maintenance will be completed on an annual basis.

Day of the month dry season assessment will occur: 1st of each month

Day of the week wet season assessment will occur: Monday

Regrading/resurfacing and berm maintenance assessment will occur on or before: 1st of October

Regrading/resurfacing and berm maintenance completion will occur on or before: 1st of November

E. SOLID MANURE STORAGE AREA MAINTENANCE

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- i. During the dry season and prior to the wet season, the perimeter of manure storage areas will be assessed to ensure all runoff and runoff controls such as berms are functioning correctly and runoff and leachate from the areas are collected and diverted into the wastewater pond(s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Manure and Feed Storage Areas.
- ii. During the wet season, manure storage area(s) will be assessed to determine if there are depressions within any manure storage area that should be filled to prevent ponding.
- iii. Any necessary regrading/resurfacing and berm/conveyance maintenance will be completed on an annual basis.

Day of the month dry season assessment will occur: 1st of each month

Day of the month wet season assessment will occur: Monday

Regrading/resurfacing and berm maintenance assessment will occur on or before: 1st of October

Regrading/resurfacing and berm maintenance completion will occur on or before: 1st of November

F. ANIMAL HOUSING AND FLUSH WATER CONVEYANCE SYSTEM MAINTENANCE

- i. A map will be attached that identifies critical points for monitoring the animal housing and flush water conveyance system to verify that water is being managed as identified in this Waste Management Plan. These points will be maintained at owner, operator, and/or designer specified intervals.

Animal housing area assessment will occur on or before: 1st of October

Animal housing drainage system maintenance will occur on or before: 1st of October

Animal housing area drainage system assessment and maintenance methods:

Flush and/or wastewater conveyance lanes are to be inspected and cleared of debris and/or other obstructions as required. Defects in said conveyance systems, such as failed concrete and/or pipes, shall be repaired as needed.

G. MORTALITY MANAGEMENT

- i. Dead animals will be stored, removed, and disposed of properly.

Rendering company or landfill name: Sisk Tallow

Rendering company or landfill telephone number: (209) 667-1451

H. ANIMALS AND SURFACE WATER MANAGEMENT

- i. A system will be in place, monitored, and maintained to prevent animals from entering any surface waters when a stream or other surface water crosses or adjoins the corral(s).

Does a stream or any other surface water cross or adjoin the corrals? Yes No

Measures in place to prevent animals from entering surface water:

The Oakdale Irrigation Lateral adjoins some of the facility's corrals. Animals are prevented from entering the Lateral waterway by corral fencing.

Assessment interval: Annually

I. MONITORING SALT IN ANIMAL RATIONS

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- i. The combined quantity of minerals as salt in animal drinking water and feed rations will be reviewed by a qualified nutritionist on a routine basis to verify that minerals are limited to the amount required to maintain animal health and optimum production. As feed rations change, mineral content may change.

Assessment interval: Annually

J. CHEMICAL MANAGEMENT

- i. Chemicals and other contaminants handled at the facility will not be disposed of in any manure or process wastewater, storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.

No chemicals entered.

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REQUIRED ATTACHMENTS

The following list, based upon user selections and data entries, describes the minimum required attachments that must be submitted with the Waste Management Plan for the reporting schedule of 'July 1, 2010'.

A. SITE MAP(S)

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of the production area including the following in sufficient detail: structures used for animal housing, milk parlor, and other buildings; corrals and ponds; solids separation facilities (settling basins or mechanical separators); other areas where animal wastes are deposited or stored; feed storage areas; drainage flow directions and nearby surface waters; all water supply wells (domestic, irrigation, and barn wells) and groundwater monitoring wells.

Production area map reference number: Sheet 2

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of all land application areas (land under the Discharger's control, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient recycling) including the following in sufficient detail: a field identification system (Assessor's Parcel Number; field by name or number; total acreage of each field; crops grown; indication if each field is owned, leased, or used pursuant to a formal agreement); indication of what type of waste is applied (solid manure only, wastewater only, or both solid manure and wastewater); drainage flow direction in each field, nearby surface waters, and storm water discharge points; tailwater and storm water drainage controls; subsurface (tile) drainage systems (including discharge points and lateral extent); irrigation supply wells and groundwater monitoring wells; sampling locations for discharges of storm water and tailwater to surface water from the field.

Application area map reference number: Sheet 2

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of all cropland (land that is part of the dairy but not used for dairy waste application) including the following in sufficient detail: Assessor's Parcel Number, total acreage, crops grown, and information on who owns or leases the field. The Waste Management Plan shall indicate if such cropland is covered under the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Order No. R5-2006-0053 for Coalition Group or Order No. R5-2006-0054 for Individual Discharger, or updates thereto).

Non-application area map reference number: n/a

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of all off-property domestic wells within 600 feet of the production area or land application area(s) associated with the dairy and the location of all municipal supply wells within 1,500 feet of the production area or land application area(s) associated with the dairy.

Well area map reference number: Sheet 2

Provide a site map (or maps) of appropriate scale to show property boundaries and a vicinity map, north arrow and the date the map was prepared. The map shall be drawn on a published base map (e.g., a topographic map or aerial photo) using an appropriate scale that shows sufficient details of all facilities.

Vicinity map reference number: Sheet 1

B. PROCESS WASTEWATER MAP(S)

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of the production area including the following in sufficient detail: process wastewater conveyance structures, discharge points, and discharge /mixing points with irrigation water supplies; pumping facilities and flow meter locations; upstream diversion structures, drainage ditches and canals, culverts, drainage controls (berms/levees, etc.), and drainage easements; and any additional components of the waste handling and storage system.

Production infrastructure system area map reference number: Sheet 2

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Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of all land application areas (land under the Discharger's control, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient recycling) including the following in sufficient detail: process wastewater conveyance structures, discharge points and discharge mixing points with irrigation water supplies; pumping facilities; flow meter locations; drainage ditches and canals, culverts, drainage controls (berms, levees, etc.), and drainage easements.

Land application infrastructure system area map reference number: Sheet 2

C. EXCESS PRECIPITATION CONTINGENCY REPORT

There were no attachment references entered or required for this attachment section.

D. OPERATION AND MAINTENANCE PLAN

Attach a map that identifies critical points for monitoring the system to verify that water is being managed as identified in this Waste Management Plan (see Attachment B, Pg B-7 V.F, V.G, and V.H for additional requirements).

Animal housing assessment map reference number: Sheet 3

E. FLOOD PROTECTION / INUNDATION REPORT

Provide an engineering report showing that the facility has adequate flood protection.

Flood zone map and/or document reference number: Sheet 4

F. BACKFLOW PROTECTION

Attach documentation from a trained professional (i.e. a person certified by the American Backflow Prevention Association, an inspector from a state or local governmental agency who has experience and/or training in backflow prevention, or a consultant with such experience and/or training), as specified in Required Reports and Notices H.1 of Waste Discharge Requirements General Order No. R5-2007-0035, that there are no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the Site Map.

Backflow documentation reference number: WMP Prohibition A.14

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CERTIFICATION

A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: KB Dairy

Physical address of dairy:
3701 Langworth RD Modesto Stanislaus 95357
Number and Street City County Zip Code

Street and nearest cross street (if no address): _____

B. DOCUMENTATION OF QUALIFICATIONS AND PLAN DEVELOPMENT

I have reviewed the portion of the waste management plan that is related to storage capacity facility and design specifications in accordance with Item II, Attachment B of the Waste Discharge Requirements General Order for Existing Milk Cow Dairies - Order No. R5-2007-0035 and certify that this plan was prepared by, or under the responsible charge of, and certified by a civil engineer who is registered pursuant to California law or other person as may be permitted under the provisions of the California Business and Professions Code to assume responsible charge of such work.

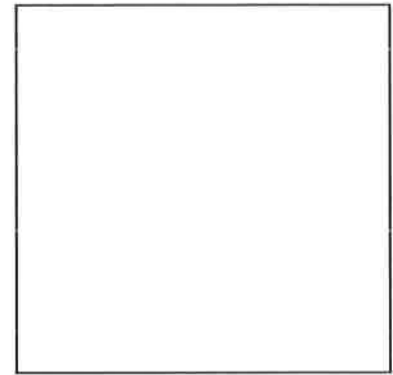
Storage capacity is:

Insufficient

- Retrofitting Plan/Schedule/Design Criteria attached in accordance with Attachment B, II.B. 1-5 and Attachment B, II. C.

Sufficient

- Certification 1 - Certified in accordance with Attachment B, II. A. 1-8. (no contingency plan)
- Certification 2 - Certified in accordance with Attachment B, II. A. 1-8, II. C. (with contingency plan attached)



CIVIL ENGINEER'S WET STAMP

SIGNATURE OF CIVIL ENGINEER

DATE

Randall O'Dell
PRINT OR TYPE NAME

1165 Scenic Drive Ste. B; Modesto, CA 95350
MAILING ADDRESS

(209) 571-1765
PHONE NUMBER

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C. OWNER AND/OR OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE OF OWNER

SIGNATURE OF OPERATOR

Pacheco 1999 FLP

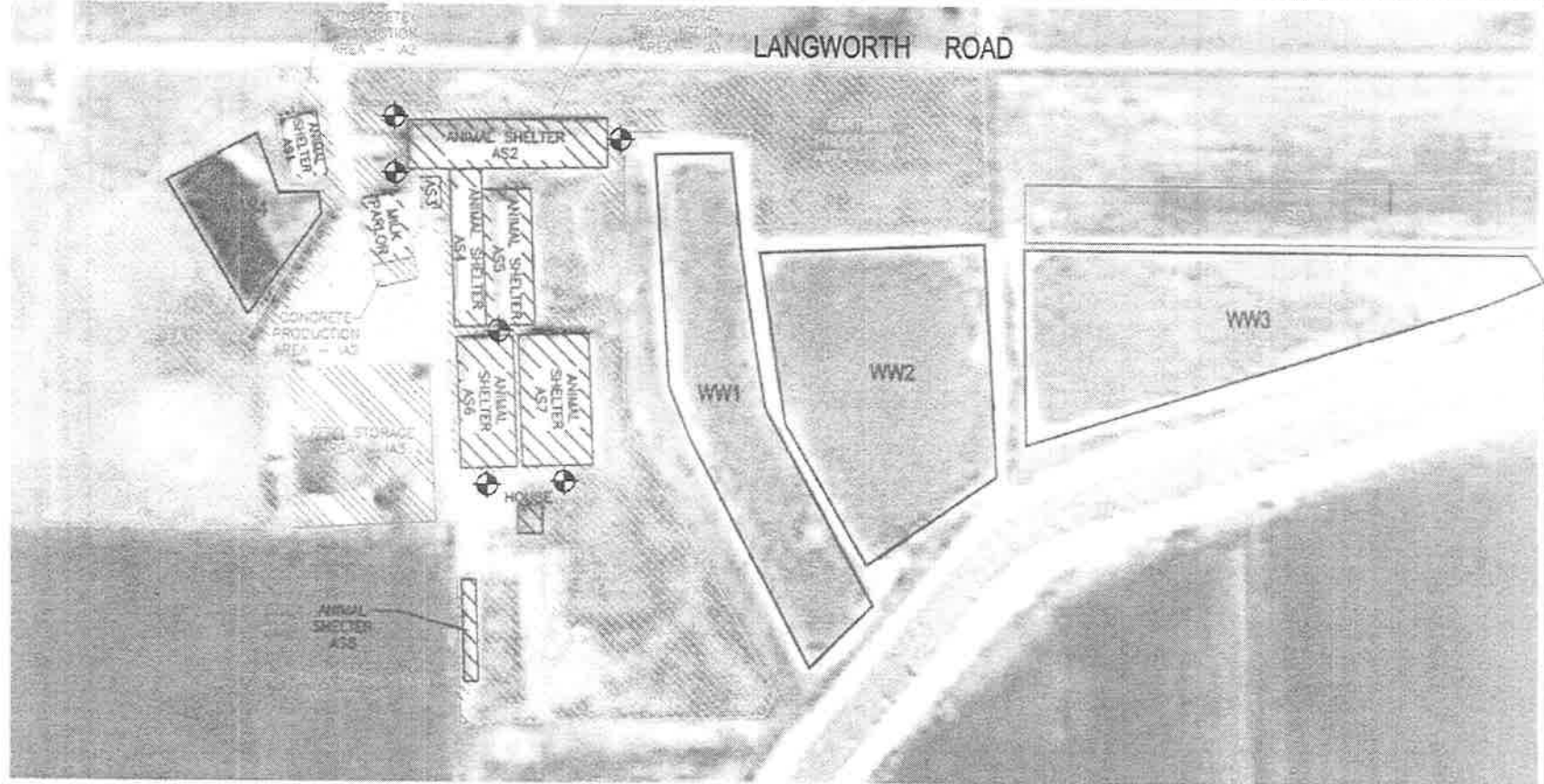
Paul Konzen & Mike Barry

PRINT OR TYPE NAME

PRINT OR TYPE NAME

DATE

DATE



LEGEND



ROOF AREA

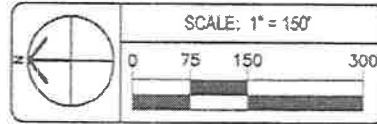


IMPERVIOUS AREA

EARTHEN AREA



INSPECTION POINT FOR MONITORING ANIMAL HOUSING AND FLUSH WATER CONVEYANCE SYSTEM



SHEET 5

SOUSA
ENGINEERING
CIVIL - SURVEY - PLANNING

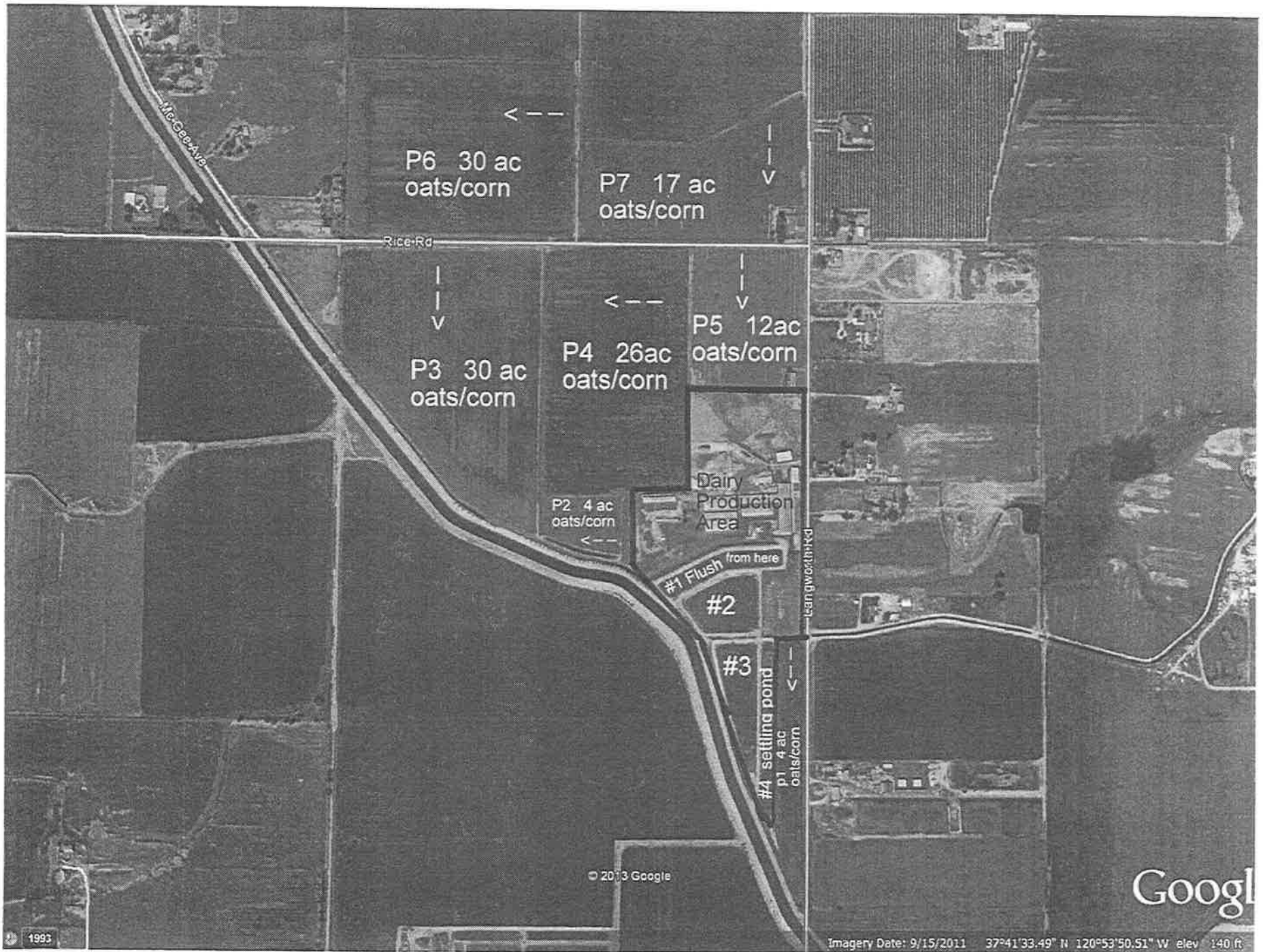
1000 N. BIRCH ST.
MERCED, CA 95364

PH: (209) 385-3166
FAX: (209) 385-3194

SITE MAP - PRODUCTION AREA
K8
PAGE 1 OF 2 - DAIRY

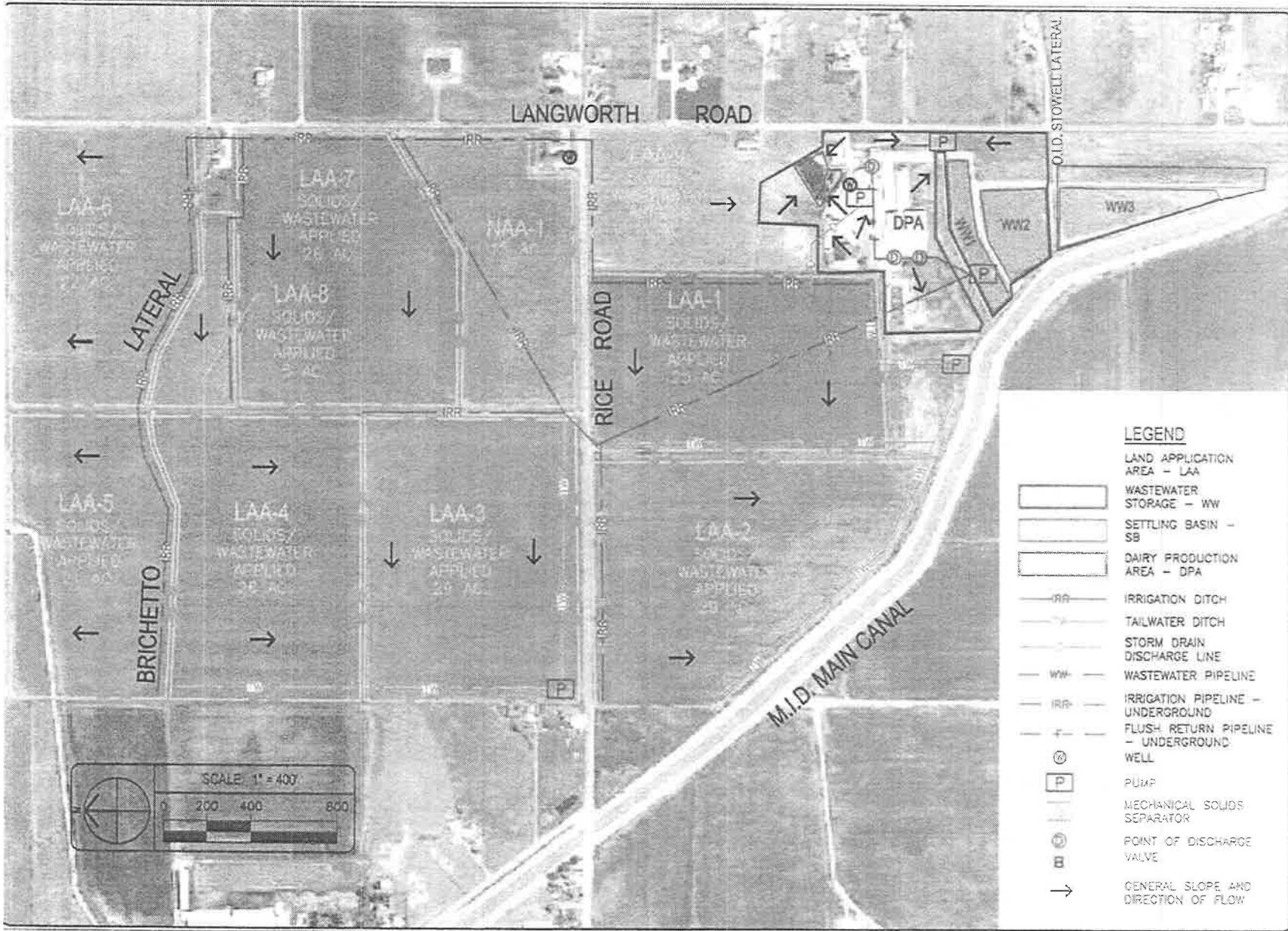
STANISLAUS COUNTY, CA

DATE: 07/17/2010	APP: _____
TIME: 10:30 AM	APP: _____
JOB NO: 2010-000001	APP: _____
PROJECT: _____	APP: _____
DRAWN: _____	APP: _____



KB Dairy 3701 Langworth Rd. Modesto, CA 95357

Land Application Area



- LEGEND**
- LAND APPLICATION AREA - LAA
 - WASTEWATER STORAGE - WW
 - SETTLING BASIN - SB
 - DAIRY PRODUCTION AREA - DPA
 - IRRIGATION DITCH
 - TAILWATER DITCH
 - STORM DRAIN DISCHARGE LINE
 - WASTEWATER PIPELINE
 - IRRIGATION PIPELINE - UNDERGROUND
 - FLUSH RETURN PIPELINE - UNDERGROUND
 - WELL
 - PUMP
 - MECHANICAL SOLIDS SEPARATOR
 - POINT OF DISCHARGE VALVE
 - GENERAL SLOPE AND DIRECTION OF FLOW

SHEET **2** OF 5

SOUSA
ENGINEERING
CIVIL - SURVEY - PLANNING
214 202-28-3111
FAX 202-28-3116
1000 EUBANK
MAYFIELD, CA 95749

SITE MAP
K.B.
KACHIGGS-DAIRY

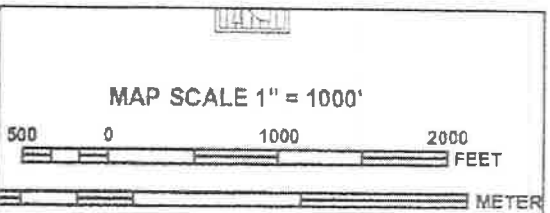
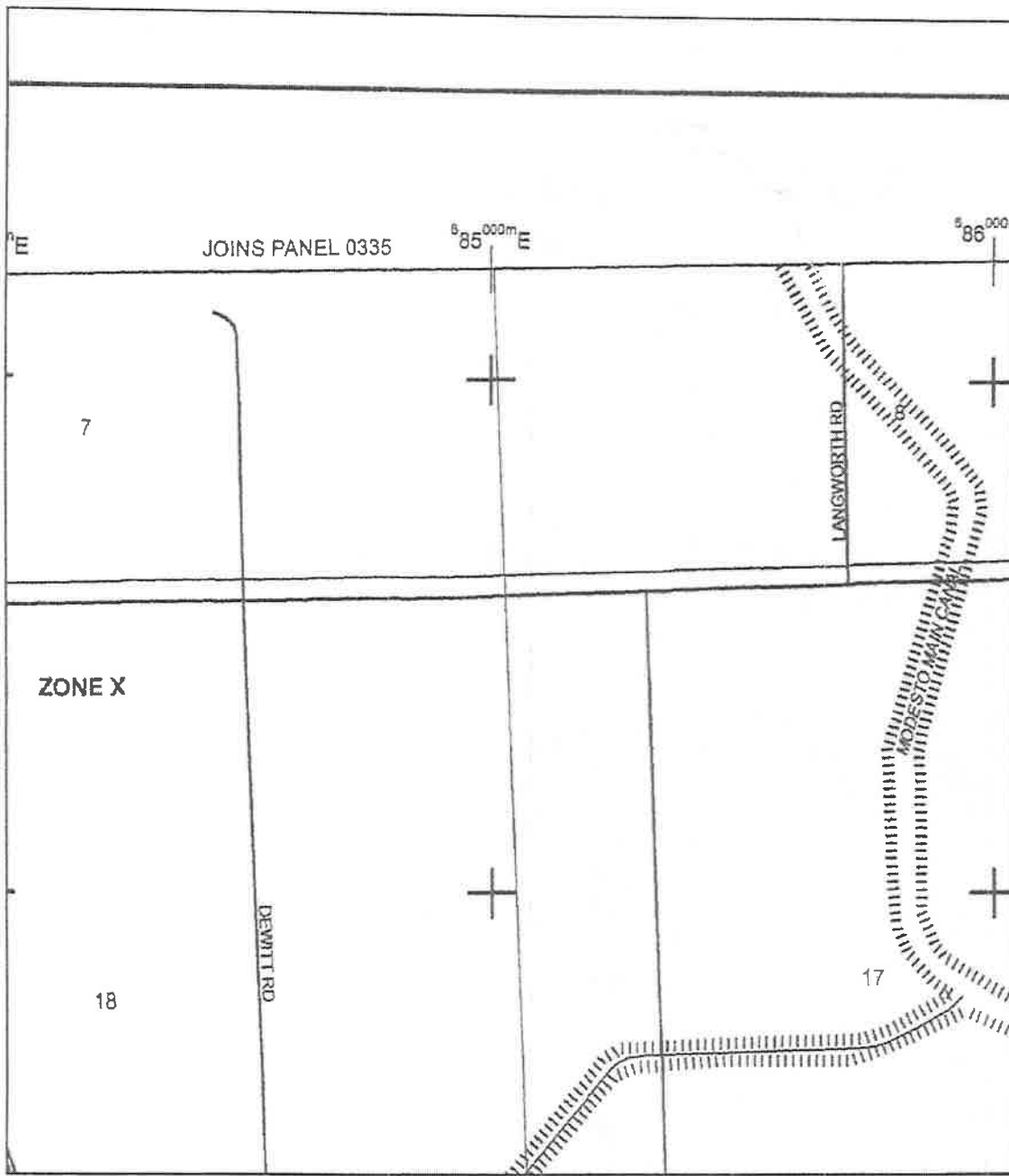
STATE OF CALIFORNIA

NO.	DATE	REVISION	DESCRIPTION



KB Dairy

Vicinity Map



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood) also known as the base flood is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood hazard include Zones A, AE, AH, AO, AR, AV, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of sheet flow, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently dismantled. Zone AR indicates that the former flood control system is being removed to provide protection from the 1% annual chance or greater flood.
- ZONE AV** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance floods.

OTHER AREAS

- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

— Floodplain boundary
 — Floodway boundary

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Nutrient Management Plan Report
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DAIRY FACILITY INFORMATION

A. NAME OF DAIRY OR BUSINESS OPERATING THE DAIRY: KB Dairy

Physical address of dairy:

<u>3701 Langworth RD</u>	<u>Modesto</u>	<u>Stanislaus</u>	<u>95357</u>
Number and Street	City	County	Zip Code

Street and nearest cross street (if no address): _____

Date facility was originally placed in operation: 01/01/1942

Regional Water Quality Control Board Basin Plan designation: Sacramento River Basin

County Assessor Parcel Number(s) for dairy facility:

0014-0015-0002-0000

B. OPERATOR NAME: 1999 FLP, Pacheco Telephone no.: (209) 524-0128

Landline Cellular

<u>2020 Victoria PARK</u>	<u>Modesto</u>	<u>CA</u>	<u>95355</u>
Mailing Address Number and Street	City	State	Zip Code

Operator should receive Regional Board correspondence (check): Yes No

OPERATOR NAME: Mike Barry, Paul Konzen & Telephone no.: (209) 838-8461

Landline Cellular

<u>P.O. Box 368</u>	<u>Escalon</u>	<u>CA</u>	<u>95320</u>
Mailing Address Number and Street	City	State	Zip Code

Operator should receive Regional Board correspondence (check): Yes No

C. LEGAL OWNER NAME: 1999 FLP, Pacheco Telephone no.: (209) 524-0128

Landline Cellular

<u>2020 Victoria PARK</u>	<u>Modesto</u>	<u>CA</u>	<u>95355</u>
Mailing Address Number and Street	City	State	Zip Code

Owner should receive Regional Board correspondence (check): Yes No

D. CONTACT NAME: Dairy Monitoring Co., Jim Avila Telephone no.: (209) 599-4955

Landline Cellular

Title: Service Provider

<u>P.O. Box 1440</u>	<u>Ripon</u>	<u>CA</u>	<u>95366</u>
Mailing Address Number and Street	City	State	Zip Code

CONTACT NAME: Kashefi, Kion Telephone no.: (209) 988-1724

Landline Cellular

Title: Dairy Specialist/CCA (MM)

<u>624 Service RD</u>	<u>Modesto</u>	<u>CA</u>	<u>95358</u>
Mailing Address Number and Street	City	State	Zip Code

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AVAILABLE NUTRIENTS

A. HERD INFORMATION

The existing milk cow dairy is currently regulated under the General Order.

Total number of milk and dry cows combined as a baseline value in response to the Report of Waste Discharge (ROWD) request of October, 2005:

1,565 milk and dry cows combined (regulatory review is required for expansions of 15% above baseline values)

1,800 milk and dry cows combined + 15% (pre-expansion limit)

	Milk Cows	Dry Cows	Bred Heifers (15-24 mo.)	Heifers (7-14 mo. to breeding)	Calves (4-6 mo.)	Calves (0-3 mo.)
Present count	1,500	300	75	0	220	55
Maximum count	1,500	300	75	0	220	55
Avg live weight (lbs)	1,300	1,400	1,200	0		
Daily hours on flush	3	0	3	0	0	0

Predominant milk cow breed: Holstein

Average milk production: 60 pounds per cow per day

B. IRRIGATION SOURCES

Irrigation Source Name	Type	Nitrogen (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Discharge Rate
Deep Well	Groundwater (well)	5.35	0.00	0.00	800 gpm
OID	Surface water (canal, river)	0.10	0.00	0.00	4 cfs

C. NUTRIENT IMPORTS

Nutrient Type/Name	Quantity	Moisture	Nitrogen	Phosphorus (as P2O5)	Potassium (as K2O)
30.3-0-0-2.2	2,700.00 gal	0.0%	30.300%	0.000%	0.000%
5-2-8-2	3,150.00 gal	0.0%	5.000%	2.000%	8.000%

Total nitrogen imported: 8,141.38 lbs

Total phosphorus imported: 229.75 lbs

Total potassium imported: 1,745.44 lbs

D. NUTRIENT EXPORTS

Nutrient Type/Name	Quantity	Moisture	Nitrogen	Phosphorus (as P2O5)	Potassium (as K2O)
Corral Solids	6,000.00 ton	53.9%	2.670%	0.530%	2.960%
Corral Solids	6,000.00 ton	53.9%	2.670%	0.530%	2.960%
Corral Solids	1,200.00 ton	53.9%	2.670%	0.530%	2.960%

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Total nitrogen exported: 324,949.68 lbs
Total phosphorus exported: 28,187.86 lbs
Total potassium exported: 299,002.39 lbs

E. STORAGE PERIOD

Storage period is the maximum period of time anticipated between land application of process wastewater (from storage ponds/lagoons) to croplands. A qualified agronomist and civil engineer should collaborate and collectively consider predominant soil types, soil infiltration rates, maximum depth, available water, field capacity, permanent wilting point, allowable depletion, crop water use, evapotranspiration, precipitation, irrigation system capacity, water delivery constraints, crop nutrient requirements, soil nutrient adsorption/desorption, rooting depth, nutrient accumulation/availability for current and future crop needs, facility wide process wastewater storage capacity and other factors as deemed necessary across all croplands where process wastewater is applied in selecting a storage period. In many cases conflicts will arise between crop water demands, crop nutrient demands and insufficient process wastewater storage capacity. Process wastewater may not be the best choice as a source of either water and/or nutrients to meet crop demands throughout the year. Groundwater and surface water vulnerability has been considered.

The storage period selected in this Nutrient Management Plan is consistent with the storage period selected in the Waste Management Plan.

Storage period: 120 days

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APPLICATION AREA

A. ASSESSOR PARCEL NUMBER: 0014-0004-0002-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0014-0015-0002-0000

Legal owner of parcel: Owned by Dairy

Nutrient Management Plan Report
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B. FIELD NAME: P1

Cropable acres: 7

Predominant soil type: Sandy loam

Do irrigation system head-to-head flow conditions exist on the field? Yes No

Can fresh water for irrigation purposes be delivered to the field year round? Yes No

Can process wastewater be delivered to the field at agronomic rates and times? Yes No

Tailwater management method: Returned to top of field

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Middle October	Middle April	7
Corn, silage	Early June	Late September	7

FIELD NAME: P2

Cropable acres: 4

Predominant soil type: Sandy loam

Do irrigation system head-to-head flow conditions exist on the field? Yes No

Can fresh water for irrigation purposes be delivered to the field year round? Yes No

Can process wastewater be delivered to the field at agronomic rates and times? Yes No

Tailwater management method: Returned to top of field

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Middle October	Middle April	4
Corn, silage	Early June	Late September	4

FIELD NAME: P3

Cropable acres: 32

Predominant soil type: Sandy loam

Do irrigation system head-to-head flow conditions exist on the field? Yes No

Can fresh water for irrigation purposes be delivered to the field year round? Yes No

Can process wastewater be delivered to the field at agronomic rates and times? Yes No

Tailwater management method: Returned to top of field

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Middle October	Early April	32
Corn, silage	Early June	Late September	32

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FIELD NAME: P4

Cropable acres: 25

Predominant soil type: Sandy loam

Do irrigation system head-to-head flow conditions exist on the field? Yes No

Can fresh water for irrigation purposes be delivered to the field year round? Yes No

Can process wastewater be delivered to the field at agronomic rates and times? Yes No

Tailwater management method: Returned to top of field

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Middle October	Middle April	25
Corn, silage	Early June	Late September	25

FIELD NAME: P5

Cropable acres: 12

Predominant soil type: Sandy loam

Do irrigation system head-to-head flow conditions exist on the field? Yes No

Can fresh water for irrigation purposes be delivered to the field year round? Yes No

Can process wastewater be delivered to the field at agronomic rates and times? Yes No

Tailwater management method: Returned to top of field

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Middle October	Middle April	12
Corn, silage	Early June	Late September	12

FIELD NAME: P6

Cropable acres: 30

Predominant soil type: Sandy loam

Do irrigation system head-to-head flow conditions exist on the field? Yes No

Can fresh water for irrigation purposes be delivered to the field year round? Yes No

Can process wastewater be delivered to the field at agronomic rates and times? Yes No

Tailwater management method: Returned to top of field

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Middle October	Middle April	30
Corn, silage	Early June	Late September	30

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FIELD NAME: P7

Cropable acres: 17

Predominant soil type: Sandy loam

Do irrigation system head-to-head flow conditions exist on the field? Yes No

Can fresh water for irrigation purposes be delivered to the field year round? Yes No

Can process wastewater be delivered to the field at agronomic rates and times? Yes No

Tailwater management method: Returned to top of field

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Middle October	Middle April	17
Corn, silage	Early June	Late September	17

C. LAND APPLICATION AREA FIELDS AND PARCELS

Field name	Cropable acres	Total harvests	Parcel number
P1	7	2	0014-0015-00020000
P2	4	2	0014-0015-00020000
P3	32	2	0014-0015-00020000
P4	25	2	0014-0015-00020000
P5	12	2	0014-0004-00020000
P6	30	2	0014-0004-00020000
P7	17	2	0014-0004-00020000
Land application area totals	127	14	

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NUTRIENT BUDGET

A. NUTRIENT BUDGET FOR CROP: P1 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Existing soil nutrient content <i>Nutrient source:</i> Soil <i>Application method:</i> Lab results	1	0.0 90%	103.3 30%	0.0 50%	0.0
Dry manure <i>Nutrient source:</i> From dairy <i>Application method:</i> Broadcast/incorporate	1	290.0 25%	56.0 20%	310.0 50%	290.0
In season irrigation (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	1	0.0 0%	0.0 0%	0.0 0%	0.1

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID	0.1	0.0	0.0	5.0
	0.1	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.1	0.0	0.0
Existing soil nutrient content	0.0	103.3	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	290.0	56.0	310.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	297.1	159.3	310.0
Potential crop nutrient removal	217.6	36.8	294.4
Nutrient balance	79.5	122.5	15.6
Applied to removal ratio	1.37	4.33	1.05

Fresh water applied: 0.24 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: P1 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Existing soil nutrient content <i>Nutrient source:</i> Soil <i>Application method:</i> Lab results	1	0.0 90%	103.3 30%	0.0 50%	0.0
Dry manure <i>Nutrient source:</i> From dairy <i>Application method:</i> Broadcast/incorporate	1	120.0 25%	24.0 20%	133.0 50%	120.0

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NUTRIENT BUDGET FOR CROP (CONTINUED): P1 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Starter fertilizer at planting <i>Nutrient source:</i> Commercial fertilizer <i>Application method:</i> Shank	1	17.0 5%	7.0 2%	28.0 8%	17.0
In season fertilizer sidedress 1 <i>Nutrient source:</i> Commercial fertilizer <i>Application method:</i> Sidedress	1	100.0 30%	0.0 0%	0.0 0%	100.0
Pre-irrigation prior to planting (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	1	0.0 0%	0.0 0%	0.0 0%	0.1
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	11.5
		0.1	0.0	0.0	
In season irrigation (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	8	0.0 0%	0.0 0%	0.0 0%	0.7
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	6.5
		0.1	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.8	0.0	0.0
Existing soil nutrient content	0.0	103.3	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	117.0	7.0	28.0
Dry manure	120.0	24.0	133.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	244.8	134.3	161.0
Potential crop nutrient removal	177.0	54.0	378.0
Nutrient balance	67.8	80.3	-217.0
Applied to removal ratio	1.38	2.49	0.43

Fresh water applied: 3.00 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: P2 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
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NUTRIENT BUDGET FOR CROP (CONTINUED): P2 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Existing soil nutrient content <i>Nutrient source:</i> Soil <i>Application method:</i> Estimated	1	0.0 90%	110.4 30%	0.0 50%	0.0
Dry manure <i>Nutrient source:</i> From dairy <i>Application method:</i> Broadcast/incorporate	1	55.0 25%	11.0 20%	61.0 50%	55.0
In season irrigation (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	1	0.0 0%	0.0 0%	0.0 0%	0.1
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	3.0
		0.1	0.0	0.0	
In season irrigation (with fertilizer) <i>Nutrient source:</i> Retention pond (lagoon) <i>Application method:</i> Pipeline	4	60.0 33%	4.0 50%	173.0 80%	240.0

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.1	0.0	0.0
Existing soil nutrient content	0.0	110.4	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	55.0	11.0	61.0
Liquid manure	240.0	16.0	692.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	302.1	137.4	753.0
Potential crop nutrient removal	217.6	36.8	294.4
Nutrient balance	84.5	100.6	458.6
Applied to removal ratio	1.39	3.73	2.56

Fresh water applied: 0.25 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: P2 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Existing soil nutrient content <i>Nutrient source:</i> Soil <i>Application method:</i> Estimated	1	0.0 90%	110.4 30%	0.0 50%	0.0
Dry manure <i>Nutrient source:</i> From dairy <i>Application method:</i> Broadcast/incorporate	1	30.0 25%	6.0 20%	33.0 50%	30.0

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NUTRIENT BUDGET FOR CROP (CONTINUED): P2 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Starter fertilizer at planting <i>Nutrient source:</i> Commercial fertilizer <i>Application method:</i> Shank	1	17.0 5%	7.0 2%	28.0 8%	17.0
In season fertilizer sidedress 1 <i>Nutrient source:</i> Commercial fertilizer <i>Application method:</i> Sidedress	1	100.0 30%	0.0 0%	0.0 0%	100.0
Pre-irrigation prior to planting (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	1	0.0 0%	0.0 0%	0.0 0%	0.1
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	4.5
		0.1	0.0	0.0	
In season irrigation (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	8	0.0 0%	0.0 0%	0.0 0%	0.7
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	4.0
		0.1	0.0	0.0	
In season irrigation (with fertilizer) <i>Nutrient source:</i> Retention pond (lagoon) <i>Application method:</i> Pipeline	3	30.0 33%	2.0 50%	86.0 80%	90.0

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.8	0.0	0.0
Existing soil nutrient content	0.0	110.4	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	117.0	7.0	28.0
Dry manure	30.0	6.0	33.0
Liquid manure	90.0	6.0	258.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	244.8	129.4	319.0
Potential crop nutrient removal	177.0	54.0	378.0
Nutrient balance	67.8	75.4	-59.0
Applied to removal ratio	1.38	2.40	0.84

Fresh water applied: 3.02 feet Total harvests: 1

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NUTRIENT BUDGET FOR CROP: P3 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Existing soil nutrient content <i>Nutrient source:</i> Soil <i>Application method:</i> Lab results	1	0.0 90%	97.2 30%	0.0 50%	0.0
Dry manure <i>Nutrient source:</i> From dairy <i>Application method:</i> Broadcast/incorporate	1	70.0 25%	14.0 20%	78.0 50%	70.0
In season irrigation (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	1	0.0 0%	0.0 0%	0.0 0%	0.1
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	24.0
		0.1	0.0	0.0	
In season irrigation (with fertilizer) <i>Nutrient source:</i> Retention pond (lagoon) <i>Application method:</i> Pipeline	4	70.0 33%	7.0 50%	216.0 80%	280.0

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.1	0.0	0.0
Existing soil nutrient content	0.0	97.2	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	70.0	14.0	78.0
Liquid manure	280.0	28.0	864.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	357.1	139.2	942.0
Potential crop nutrient removal	259.2	35.2	233.6
Nutrient balance	97.9	104.0	708.4
Applied to removal ratio	1.38	3.95	4.03

Fresh water applied: 0.25 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: P3 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Existing soil nutrient content <i>Nutrient source:</i> Soil <i>Application method:</i> Lab results	1	0.0 90%	97.2 30%	0.0 50%	0.0
Dry manure <i>Nutrient source:</i> From dairy <i>Application method:</i> Broadcast/incorporate	1	35.0 25%	7.0 20%	39.0 50%	35.0

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NUTRIENT BUDGET FOR CROP (CONTINUED): P3 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Starter fertilizer at planting <i>Nutrient source:</i> Commercial fertilizer <i>Application method:</i> Shank	1	17.0 5%	7.0 2%	28.0 8%	17.0
In season fertilizer sidedress 1 <i>Nutrient source:</i> Commercial fertilizer <i>Application method:</i> Sidedress	1	100.0 30%	0.0 0%	0.0 0%	100.0
Pre-irrigation prior to planting (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	1	0.0 0%	0.0 0%	0.0 0%	0.1
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	33.0
		0.1	0.0	0.0	
In season irrigation (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	8	0.0 0%	0.0 0%	0.0 0%	0.7
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	32.0
		0.1	0.0	0.0	
In season irrigation (with fertilizer) <i>Nutrient source:</i> Retention pond (lagoon) <i>Application method:</i> Pipeline	3	55.0 33%	4.0 50%	158.0 80%	165.0

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.8	0.0	0.0
Existing soil nutrient content	0.0	97.2	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	117.0	7.0	28.0
Dry manure	35.0	7.0	39.0
Liquid manure	165.0	12.0	474.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	324.8	123.2	541.0
Potential crop nutrient removal	234.0	54.0	342.0
Nutrient balance	90.8	69.2	199.0
Applied to removal ratio	1.39	2.28	1.58

Fresh water applied: 2.99 feet Total harvests: 1

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NUTRIENT BUDGET FOR CROP: P4 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Existing soil nutrient content <i>Nutrient source:</i> Soil <i>Application method:</i> Lab results	1	0.0 90%	93.9 30%	0.0 50%	0.0
Dry manure <i>Nutrient source:</i> From dairy <i>Application method:</i> Broadcast/incorporate	1	40.0 25%	8.0 20%	44.0 50%	40.0
In season irrigation (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	1	0.0 0%	0.0 0%	0.0 0%	0.1
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	20.0
		0.1	0.0	0.0	
In season irrigation (with fertilizer) <i>Nutrient source:</i> Retention pond (lagoon) <i>Application method:</i> Pipeline	4	35.0 33%	2.0 50%	101.0 80%	140.0

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.1	0.0	0.0
Existing soil nutrient content	0.0	93.9	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	40.0	8.0	44.0
Liquid manure	140.0	8.0	404.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	187.1	109.9	448.0
Potential crop nutrient removal	134.4	35.2	275.2
Nutrient balance	52.7	74.7	172.8
Applied to removal ratio	1.39	3.12	1.63

Fresh water applied: 0.26 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: P4 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Existing soil nutrient content <i>Nutrient source:</i> Soil <i>Application method:</i> Lab results	1	0.0 90%	93.9 30%	0.0 50%	0.0
Dry manure <i>Nutrient source:</i> From dairy <i>Application method:</i> Broadcast/incorporate	1	50.0 25%	10.0 20%	55.0 50%	50.0

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NUTRIENT BUDGET FOR CROP (CONTINUED): P4 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Starter fertilizer at planting <i>Nutrient source:</i> Commercial fertilizer <i>Application method:</i> Shank	1	17.0 5%	7.0 2%	28.0 8%	17.0
In season fertilizer sidedress 1 <i>Nutrient source:</i> Commercial fertilizer <i>Application method:</i> Sidedress	1	100.0 30%	0.0 0%	0.0 0%	100.0
Pre-irrigation prior to planting (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	1	0.0 0%	0.0 0%	0.0 0%	0.1
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	25.0
		0.1	0.0	0.0	
In season irrigation (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	8	0.0 0%	0.0 0%	0.0 0%	0.7
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	25.0
		0.1	0.0	0.0	
In season irrigation (with fertilizer) <i>Nutrient source:</i> Retention pond (lagoon) <i>Application method:</i> Pipeline	3	55.0 33%	4.0 50%	158.0 80%	165.0

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.8	0.0	0.0
Existing soil nutrient content	0.0	93.9	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	117.0	7.0	28.0
Dry manure	50.0	10.0	55.0
Liquid manure	165.0	12.0	474.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	339.8	122.9	557.0
Potential crop nutrient removal	246.0	54.0	318.0
Nutrient balance	93.8	68.9	239.0
Applied to removal ratio	1.38	2.28	1.75

Fresh water applied: 2.98 feet Total harvests: 1

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NUTRIENT BUDGET FOR CROP: P5 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Existing soil nutrient content <i>Nutrient source:</i> Soil <i>Application method:</i> Estimated	1	0.0 90%	110.4 30%	0.0 50%	0.0
Dry manure <i>Nutrient source:</i> From dairy <i>Application method:</i> Broadcast/incorporate	1	55.0 25%	11.0 20%	61.0 50%	55.0
In season irrigation (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	1	0.0 0%	0.0 0%	0.0 0%	0.1
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	9.0
		0.1	0.0	0.0	
In season irrigation (with fertilizer) <i>Nutrient source:</i> Retention pond (lagoon) <i>Application method:</i> Pipeline	4	60.0 33%	4.0 50%	173.0 80%	240.0

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.1	0.0	0.0
Existing soil nutrient content	0.0	110.4	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	55.0	11.0	61.0
Liquid manure	240.0	16.0	692.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	302.1	137.4	753.0
Potential crop nutrient removal	217.6	36.8	294.4
Nutrient balance	84.5	100.6	458.6
Applied to removal ratio	1.39	3.73	2.56

Fresh water applied: 0.25 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: P5 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Existing soil nutrient content <i>Nutrient source:</i> Soil <i>Application method:</i> Estimated	1	0.0 90%	110.4 30%	0.0 50%	0.0
Dry manure <i>Nutrient source:</i> From dairy <i>Application method:</i> Broadcast/incorporate	1	30.0 25%	6.0 20%	33.0 50%	30.0

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NUTRIENT BUDGET FOR CROP (CONTINUED): P5 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Starter fertilizer at planting <i>Nutrient source:</i> Commercial fertilizer <i>Application method:</i> Shank	1	17.0 5%	7.0 2%	28.0 8%	17.0
In season fertilizer sidedress 1 <i>Nutrient source:</i> Commercial fertilizer <i>Application method:</i> Sidedress	1	100.0 30%	0.0 0%	0.0 0%	100.0
Pre-irrigation prior to planting (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	1	0.0 0%	0.0 0%	0.0 0%	0.1
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	14.0
		0.1	0.0	0.0	
In season irrigation (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	8	0.0 0%	0.0 0%	0.0 0%	0.7
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	12.0
		0.1	0.0	0.0	
In season irrigation (with fertilizer) <i>Nutrient source:</i> Retention pond (lagoon) <i>Application method:</i> Pipeline	3	30.0 33%	2.0 50%	86.0 80%	90.0

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.8	0.0	0.0
Existing soil nutrient content	0.0	110.4	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	117.0	7.0	28.0
Dry manure	30.0	6.0	33.0
Liquid manure	90.0	6.0	258.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	244.8	129.4	319.0
Potential crop nutrient removal	177.0	54.0	378.0
Nutrient balance	67.8	75.4	-59.0
Applied to removal ratio	1.38	2.40	0.84

Fresh water applied: 3.03 feet Total harvests: 1

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NUTRIENT BUDGET FOR CROP: P6 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Existing soil nutrient content <i>Nutrient source:</i> Soil <i>Application method:</i> Lab results	1	0.0 90%	147.2 30%	0.0 50%	0.0
Dry manure <i>Nutrient source:</i> From dairy <i>Application method:</i> Broadcast/incorporate	1	65.0 25%	13.0 20%	72.0 50%	65.0
In season irrigation (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	1	0.0 0%	0.0 0%	0.0 0%	0.1
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	23.0
		0.1	0.0	0.0	
In season irrigation (with fertilizer) <i>Nutrient source:</i> Retention pond (lagoon) <i>Application method:</i> Pipeline	4	65.0 33%	4.0 50%	187.0 80%	260.0

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.1	0.0	0.0
Existing soil nutrient content	0.0	147.2	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	65.0	13.0	72.0
Liquid manure	260.0	16.0	748.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	332.1	176.2	820.0
Potential crop nutrient removal	240.0	38.4	291.2
Nutrient balance	92.1	137.8	528.8
Applied to removal ratio	1.38	4.59	2.82

Fresh water applied: 0.25 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: P6 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Existing soil nutrient content <i>Nutrient source:</i> Soil <i>Application method:</i> Lab results	1	0.0 90%	147.2 30%	0.0 50%	0.0
Dry manure <i>Nutrient source:</i> From dairy <i>Application method:</i> Broadcast/incorporate	1	75.0 25%	15.0 20%	83.0 50%	75.0

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NUTRIENT BUDGET FOR CROP (CONTINUED): P6 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Starter fertilizer at planting <i>Nutrient source:</i> Commercial fertilizer <i>Application method:</i> Shank	1	17.0 5%	7.0 2%	28.0 8%	17.0
In season fertilizer sidedress 1 <i>Nutrient source:</i> Commercial fertilizer <i>Application method:</i> Sidedress	1	100.0 30%	0.0 0%	0.0 0%	100.0
Pre-irrigation prior to planting (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	1	0.0 0%	0.0 0%	0.0 0%	0.1
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	32.0
		0.1	0.0	0.0	
In season irrigation (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	8	0.0 0%	0.0 0%	0.0 0%	0.7
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	30.0
		0.1	0.0	0.0	
In season irrigation (with fertilizer) <i>Nutrient source:</i> Retention pond (lagoon) <i>Application method:</i> Pipeline	3	36.0 33%	2.0 50%	104.0 80%	108.0

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.8	0.0	0.0
Existing soil nutrient content	0.0	147.2	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	117.0	7.0	28.0
Dry manure	75.0	15.0	83.0
Liquid manure	108.0	6.0	312.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	307.8	175.2	423.0
Potential crop nutrient removal	222.0	54.0	396.0
Nutrient balance	85.8	121.2	27.0
Applied to removal ratio	1.39	3.24	1.07

Fresh water applied: 3.00 feet Total harvests: 1

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NUTRIENT BUDGET FOR CROP: P7 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Existing soil nutrient content <i>Nutrient source:</i> Soil <i>Application method:</i> Estimated	1	0.0 90%	110.4 30%	0.0 50%	0.0
Dry manure <i>Nutrient source:</i> From dairy <i>Application method:</i> Broadcast/incorporate	1	55.0 25%	11.0 20%	61.0 50%	55.0
In season irrigation (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	1	0.0 0%	0.0 0%	0.0 0%	0.1
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	13.0
		0.1	0.0	0.0	
In season irrigation (with fertilizer) <i>Nutrient source:</i> Retention pond (lagoon) <i>Application method:</i> Pipeline	4	60.0 33%	4.0 50%	173.0 80%	240.0

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.1	0.0	0.0
Existing soil nutrient content	0.0	110.4	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	55.0	11.0	61.0
Liquid manure	240.0	16.0	692.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	302.1	137.4	753.0
Potential crop nutrient removal	217.6	36.8	294.4
Nutrient balance	84.5	100.6	458.6
Applied to removal ratio	1.39	3.73	2.56

Fresh water applied: 0.25 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: P7 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Existing soil nutrient content <i>Nutrient source:</i> Soil <i>Application method:</i> Estimated	1	0.0 90%	110.4 30%	0.0 50%	0.0
Dry manure <i>Nutrient source:</i> From dairy <i>Application method:</i> Broadcast/incorporate	1	30.0 25%	6.0 20%	33.0 50%	30.0

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NUTRIENT BUDGET FOR CROP (CONTINUED): P7 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Starter fertilizer at planting <i>Nutrient source:</i> Commercial fertilizer <i>Application method:</i> Shank	1	17.0 5%	7.0 2%	28.0 8%	17.0
In season fertilizer sidedress 1 <i>Nutrient source:</i> Commercial fertilizer <i>Application method:</i> Sidedress	1	100.0 30%	0.0 0%	0.0 0%	100.0
Pre-irrigation prior to planting (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	1	0.0 0%	0.0 0%	0.0 0%	0.1
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	19.0
		0.1	0.0	0.0	
In season irrigation (no fertilizer) <i>Nutrient source:</i> Water only <i>Application method:</i> Surface	8	0.0 0%	0.0 0%	0.0 0%	0.7
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
OID		0.1	0.0	0.0	17.0
		0.1	0.0	0.0	
In season irrigation (with fertilizer) <i>Nutrient source:</i> Retention pond (lagoon) <i>Application method:</i> Pipeline	3	30.0 33%	2.0 50%	8.3 80%	90.0

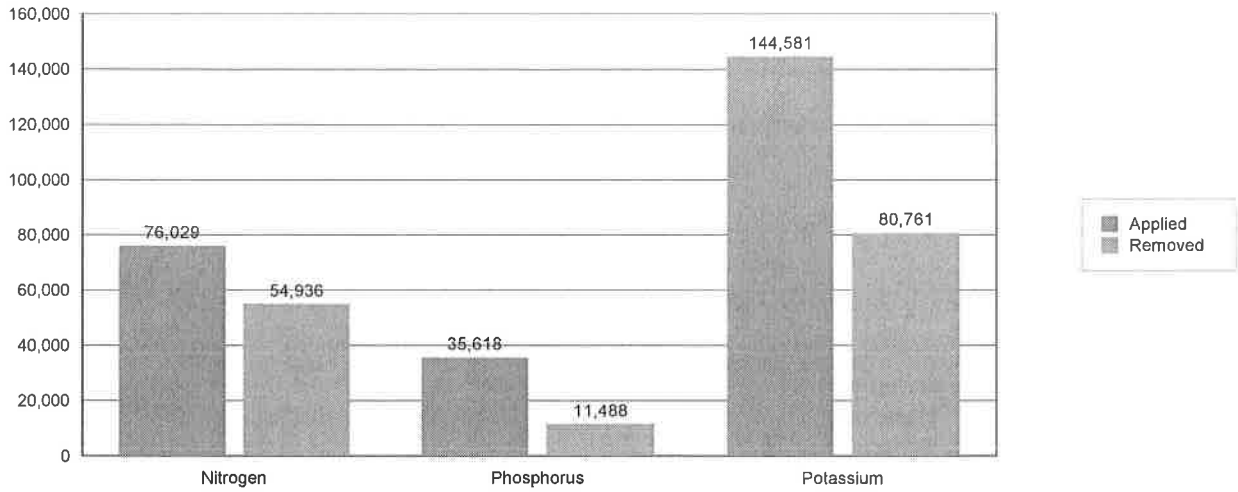
	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.8	0.0	0.0
Existing soil nutrient content	0.0	110.4	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	117.0	7.0	28.0
Dry manure	30.0	6.0	33.0
Liquid manure	90.0	6.0	24.9
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	244.8	129.4	85.9
Potential crop nutrient removal	177.0	54.0	378.0
Nutrient balance	67.8	75.4	-292.1
Applied to removal ratio	1.38	2.40	0.23

Fresh water applied: 3.01 feet Total harvests: 1

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NUTRIENT APPLICATIONS, POTENTIAL REMOVAL, AND BALANCE

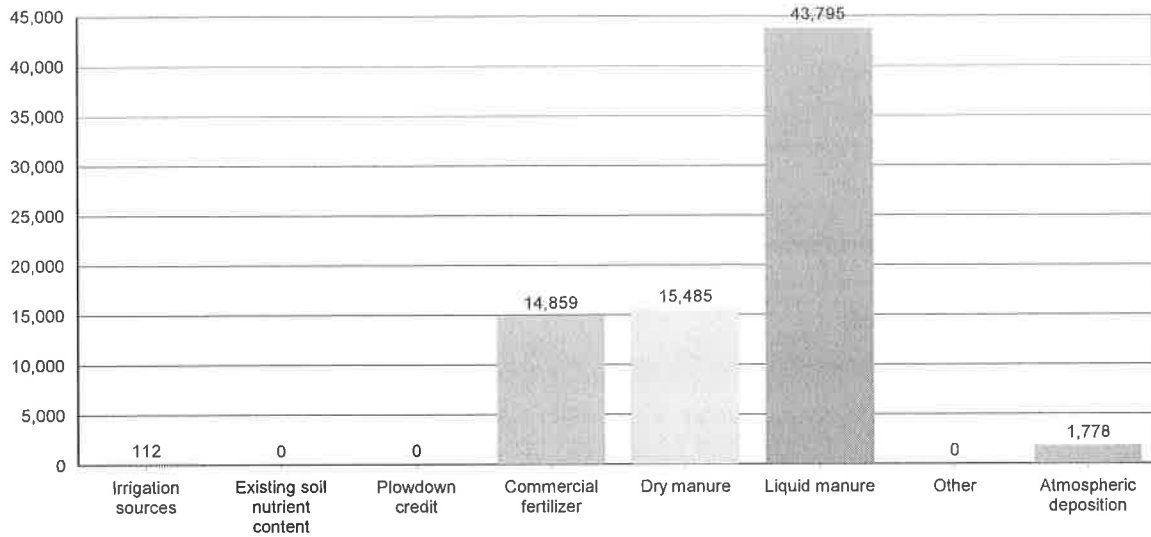
A. POUNDS OF NUTRIENT APPLIED VS. CROP REMOVAL POTENTIAL



	Total N (lbs)	Total P (lbs)	Total K (lbs)
Irrigation sources	112.2	0.0	0.0
Existing soil nutrient content	0.0	28,480.4	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	14,859.0	889.0	3,556.0
Dry manure	15,485.0	3,083.0	17,072.0
Liquid manure	43,795.0	3,166.0	123,953.3
Other	0.0	0.0	0.0
Atmospheric deposition	1,778.0		
Nutrients applied to all crops	76,029.2	35,618.4	144,581.3
Potential crop nutrient removal	54,936.4	11,488.4	80,761.2
Nutrient balance	21,092.8	24,130.0	63,820.1
Applied to removal ratio	1.38	3.10	1.79

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B. POUNDS OF NITROGEN APPLIED BY NUTRIENT SOURCE



	Total N (lbs)	Total P (lbs)	Total K (lbs)
Irrigation sources	112.2	0.0	0.0
Existing soil nutrient content	0.0	28,480.4	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	14,859.0	889.0	3,556.0
Dry manure	15,485.0	3,083.0	17,072.0
Liquid manure	43,795.0	3,166.0	123,953.3
Other	0.0	0.0	0.0
Atmospheric deposition	1,778.0		
Nutrients applied to all crops	76,029.2	35,618.4	144,581.3
Potential crop nutrient removal	54,936.4	11,488.4	80,761.2
Nutrient balance	21,092.8	24,130.0	63,820.1
Applied to removal ratio	1.38	3.10	1.79

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NUTRIENT BALANCE

A. WHOLE FARM BALANCE

	Total N (lbs)	Total P (lbs)	Total K (lbs)
Nutrients in storage from herd*			
Daily gross	1,523.2	247.6	760.0
Annual gross	555,973.2	90,359.8	277,408.8
Net to pond storage after ammonia losses (30% loss applied)	42,627.4	10,267.4	34,676.1
Net to drylot storage after ammonia losses (30% loss applied)	346,553.8	80,092.4	265,317.1
Net in storage (30% loss applied)	389,181.3	90,359.8	299,993.2
Irrigation sources	112.2	0.0	0.0
Atmospheric deposition	1,778.0		
Imports	8,141.4	229.7	1,745.4
Exports	324,949.7	28,187.9	299,002.4
Potential crop nutrient removal	54,936.4	11,488.4	80,761.2
Nutrient balance	19,326.8	50,913.3	-78,024.9
Nutrient balance ratio	1.35	5.43	0.03

* Potassium excretion from milk cows and dry cows only.

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SAMPLING AND ANALYSIS PLAN

A. MANURE SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Each application to each land application area	For each applied manure source, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. For each applied manure source, a scaled weight by truckload will be recorded.	Corral solids Settling basin solids Freestall scrapings	Total weight (tons) applied	Percent moisture
Once every two years (biennially)	For each manure source, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Corral solids Settling basin solids Freestall scrapings	-	General minerals: calcium, magnesium, sodium, sulfur, chloride, and fixed solids (ash).
Twice per year	For each manure source, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Corral solids Settling basin solids Freestall scrapings	-	Total nitrogen, total phosphorus, total potassium, and percent moisture

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A. MANURE SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Each offsite export of manure	<p>For each manure source exported, a composite sample "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.</p> <p>For each manure source exported, a scaled weight by truckload will be recorded.</p>	<p>Corral solids Settling basin solids Freestall scrapings</p>	Total weight (tons) exported	Percent moisture

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A. MANURE SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Annually	<p>Annual estimation for total manure dry weight applied to each field will be quantified using the following:</p> <p>Dry weight applied from a source to a crop per application event = weight applied * (1 - (percent moisture / 100))</p> <p>Dry weight applied to crop per application event = sum of dry weights applied from each source</p> <p>Dry weight applied to a crop = sum of dry weights applied during each application</p> <p>Dry weight applied to a field = sum of dry weights applied to each crop</p> <p>Annual estimation for total manure dry weight exported will be quantified using the following:</p> <p>Dry weight exported from a source per event = weight exported * (1 - (percent moisture / 100))</p> <p>Dry weight exported per event = sum of dry weights exported from each source</p> <p>Dry weight exported to any offsite destination = sum of dry weights exported per event</p>	<p>Corral solids Settling basin solids Freestall scrapings</p>	<p>Total dry weight (tons) manure applied annually to each land application area, and total dry weight (tons) manure exported offsite annually</p>	-

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B. PROCESS WASTEWATER SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Each application	For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	SB WW1 WW2 WW3 WW4	Date applied, definition of land application area and volume (gallons or acre-inches) applied	None
Quarterly during one application event	For field measurement: For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. For laboratory analyses: For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	SB WW1 WW2 WW3 WW4	Electrical conductivity (may be done in laboratory)	Nitrate-nitrogen (only when pond is aerated), ammonium-nitrogen, total Kjeldahl nitrogen, total phosphorus, total potassium and total dissolved solids
Once every two years (biennially)	For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	SB WW1 WW2 WW3 WW4	None	General minerals: calcium, magnesium, sodium, bicarbonate, carbonate, sulfate, and chloride

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B. PROCESS WASTEWATER SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Annually	A composite or grab sample prior to blending with irrigation water per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	SB WW1 WW2 WW3 WW4	-	pH (if requested), total dissolved solids, electrical conductivity, nitrate-nitrogen (only when pond is aerated), total Kjeldahl nitrogen, total phosphorus, and total potassium

C. SOIL SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Once every five years for each land application area (may be distributed over a 5-year period by sampling 20% of the land application areas annually)	For each field, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Field P1 - 4 acres Field P2 - 4 acres Field P3 - 30 acres Field P4 - 26 acres Field P5 - 12 acres Field P6 - 30 acres Field P7 - 17 acres	None	Soluble phosphorus (Olsen test)
Spring pre-plant for each crop	For each field, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Field P1 - 4 acres Field P2 - 4 acres Field P3 - 30 acres Field P4 - 26 acres Field P5 - 12 acres Field P6 - 30 acres Field P7 - 17 acres	-	0 to 1 foot: Nitrate-nitrogen and organic matter 1 to 2 foot: Nitrate-nitrogen
Fall pre-plant for each crop	For each field, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Field P1 - 4 acres Field P2 - 4 acres Field P3 - 30 acres Field P4 - 26 acres Field P5 - 12 acres Field P6 - 30 acres Field P7 - 17 acres	None	0 to 1 foot: Electrical conductivity, nitrate-nitrogen, soluble phosphorus, potassium, and organic matter 1 to 2 feet: Nitrate-nitrogen

D. PLANT TISSUE SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes

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D. PLANT TISSUE SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Each crop harvest from each land application area	For each field and crop, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. For each field and crop, a scaled weight by truckload will be recorded.	Field P1 - corn/oat silage Field P2 - corn/oat silage Field P3 - corn/oat silage Field P4 - corn/oat silage Field P5 - corn/oat silage Field P6 - corn/oat silage Field P7 - corn/oat silage	Total weight (tons) of harvested material removed from each land application area	Total nitrogen, total phosphorus, total potassium (expressed on a dry weight basis), fixed solids (ash) and percent moisture
Mid-season, as necessary to assess need for additional nitrogen fertilizer during the growing season (only required if Discharger wants to add fertilizer in excess of 1.4 times the nitrogen expected to be removed by the harvested portion of the crop)	For each field and crop, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Field P1 - corn/oat silage Field P2 - corn/oat silage Field P3 - corn/oat silage Field P4 - corn/oat silage Field P5 - corn/oat silage Field P6 - corn/oat silage Field P7 - corn/oat silage	-	Total nitrogen, expressed on a dry weight basis

E. IRRIGATION WATER SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Each fresh water irrigation event for each land application area	Deep Well - flow rate multiplied by runtime OID Canal - flow rate multiplied by runtime	Deep Well OID Canal	Date applied, source of water, volume (gallons or acre-inches) ¹ applied	-

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E. IRRIGATION WATER SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
One irrigation event during each irrigation season during actual irrigation events – for each irrigation water source (well and canal)	For each irrigation source, a grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. In lieu of sampling the irrigation water, the Discharger may provide equivalent data from the local irrigation district.	Deep Well OID Canal	-	Electrical conductivity, total-nitrogen ² , total dissolved solids Data collected to satisfy the groundwater monitoring requirements will satisfy this requirement for irrigation wells

F. GROUNDWATER MONITORING SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Annually for each domestic and agricultural supply well present in the production and land application areas	For each domestic and agricultural supply well, a grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Domestic well #1 by Milk Barn Domestic well #2	Electric conductivity (may be done in laboratory), ammonium nitrogen ³	Nitrate- nitrogen, ammonium nitrogen if field test presence ³
Every five years (may be distributed over a 5-year period by sampling 20% of the wells annually)	For each domestic and agricultural supply well, a grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Domestic well #1 by Milk Barn Domestic well #2	-	Calcium, magnesium, sodium, bicarbonate, carbonate, sulfate, chloride, and total dissolved solids Total dissolved solids

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F. GROUNDWATER MONITORING SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Annually thereafter for each tile drain present in the production and land application areas	For each subsurface (tile) drainage system discharge point, a grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	No Tile Drain	Electric conductivity (may be done in laboratory) and ammonium nitrogen (see footnote 3)	Nitrate-nitrogen and total phosphorus, ammonium nitrogen if field test indicates presence ³

G. OTHER SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Daily during each discharge	A Composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	DISCHARGES (INCLUDING OFF-PROPERTY DISCHARGES) OF MANURE OR PROCESS WASTEWATER, from the production area or land application area	Electric conductivity (may be done in laboratory), temperature and pH. Record: date, time, approximate volume (gallons) or weight (tons), duration, location, source, and ultimate destination of discharge ⁴	Nitrate-nitrogen, total ammonia-nitrogen, un-ionized ammonia-nitrogen, total Kjeldahl nitrogen, total phosphorus, potassium, total dissolved solids, BOD5, total suspended solids, and total and fecal coliform
Daily during each discharge to surface water – for surface water both upstream and downstream of the discharge	A Composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	DISCHARGES (INCLUDING OFF-PROPERTY DISCHARGES) OF MANURE OR PROCESS WASTEWATER, from the production area or land application area	Electric conductivity, dissolved oxygen, temperature and pH	Nitrate-nitrogen, total ammonia-nitrogen, un-ionized ammonia-nitrogen, total Kjeldahl nitrogen, total phosphorus, potassium, total dissolved solids, total suspended solids, and total and fecal coliform

Nutrient Management Plan Report

General Order No. R5-2007-0035, Attachment C

July 1, 2009 deadline

G. OTHER SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Daily during each discharge to surface water – for the discharge and for surface water both upstream and downstream of the discharge	A Composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	STORM WATER DISCHARGES TO SURFACE WATER FROM THE PRODUCTION AREA	Electric conductivity, dissolved oxygen, temperature, pH, total ammonia-nitrogen and un-ionized ammonia-nitrogen Record: date, time, approximate volume (gallons), duration, location, source, and ultimate destination of discharge ⁴	Nitrate-nitrogen, turbidity, total phosphorus, total and fecal coliform
First storm event of the wet season and during the peak storm season (typically February) each year from one third of the land application areas (sample areas within the land application area to be rotated each year)	A Composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	STORM WATER DISCHARGES TO SURFACE WATER FROM THE LAND APPLICATION AREA	Electric conductivity, temperature, pH, total ammonia-nitrogen and un-ionized ammonia-nitrogen Record: date, time, approximate volume, duration, location, and ultimate destination of discharge	Nitrate- nitrogen, total phosphorus, turbidity, total and fecal coliform
Each discharge from each land application area where irrigation has occurred <60 days after application of manure and/or process wastewater (liquid manure)	A Composite sample per the "Approved sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	TAIL WATER DISCHARGES TO SURFACE WATER FROM THE LAND APPLICATION AREA	Electric conductivity, temperature, pH, total ammonia-nitrogen and un-ionized ammonia-nitrogen Record: date, time, approximate volume (gallons), duration, location, and ultimate destination of discharge	NONE
First discharge of the year where irrigation has occurred < 60 days after application of manure and/or process wastewater (liquid manure)	A Composite sample per the "Approved sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	TAIL WATER DISCHARGES TO SURFACE WATER FROM THE LAND APPLICATION AREA	Electric conductivity, temperature, pH, total ammonia-nitrogen and un-ionized ammonia-nitrogen Record: date, time, approximate volume (gallons), duration, location, and ultimate destination of discharge	Nitrate-nitrogen, total phosphorus, total and fecal coliform

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT MANAGEMENT PLAN REVIEW

A. NUTRIENT MANAGEMENT PLAN REVIEW

Person who created the NMP: Dairy Monitoring Co., Jim Avila *See above for contact information.*
Date the NMP was drafted: 10/03/2013
Person who approved the final NMP: Kashefi, Kion *See above for contact information.*
Date of NMP implementation: 10/03/2013

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

ATTACHED MAP AND DOCUMENTATION REFERENCES

The following list, based upon user selections and data entries, describes the minimum required attachments that must be submitted with the Nutrient Management Plan for the reporting schedule of 'July 1, 2009'.

A. PRELIMINARY DAIRY FACILITY ASSESSMENT

The NMP will include the initial Preliminary Dairy Facility Assessment (Attachment A) and the annual updates as required by Monitoring and Reporting Program No. R5-2007-0035. Copies of these assessments shall be maintained for 10 years.

B. LAND AREA MAP(S)

Identify each land application area (under the Discharger's control, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient recycling) on a single published base map

1. A field identification system (Assessor's Parcel Number; land application area; crops grown); indication if each land application is owned, rented, or leased by the Discharger; indication of what type of waste is applied (solid manure only, wastewater only, or both solid manure and wastewater); drainage flow direction in each field, nearby surface waters, and storm water discharge points; tailwater and storm water drainage controls; subsurface (tile) drainage systems (including discharge points and lateral extent); irrigation supply wells and groundwater monitoring wells; sampling locations for discharges of storm water and tailwater to surface water from the field.
2. Process wastewater conveyance structures, discharge points and discharge mixing points with irrigation water supplies; pumping facilities; flow meter locations; drainage ditches and canals, culverts, draining controls (berms, levees, etc.), and drainage easements.

Application area map reference number: 1

Identify each field under control of the Discharger and within five miles of the dairy where neither process wastewater nor manure is applied. Each field shall be identified on a single published base map at an appropriate scale by the following:

1. Assessor's Parcel Number.
2. Total acreage.
3. Information on who owns or leases the field

Non-application area map reference number: not applicable

Setbacks, Buffers, and Other Alternatives to Protect Surface Water (see Technical Standard VII):

1. Identify all potential surface waters or conduits to surface water that are within 100 feet of any land application area.
2. For each land application area that is within 100 feet of a surface water or a conduit to surface water, identify the setback, vegetated buffer, or other alternative practice that will be implemented to protect surface water (Technical Standard VII).

Setbacks and buffers map reference number: 3

C. PROCESS WASTEWATER WRITTEN AGREEMENTS

Provide copies of written agreements with third parties that receive process wastewater for their own use from the Discharger's dairy (Technical Standards V.A.1 and V.A.3).

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

SAMPLING AND ANALYSIS PLAN CERTIFICATION

A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: KB Dairy

Physical address of dairy:

3701 Langworth RD

Modesto

Stanislaus

95357

Physical Address Number and Street

City

County

Zip Code

Street and nearest cross street (if no address): _____

B. DOCUMENTATION OF QUALIFICATIONS AND PLAN DEVELOPMENT

I certify that I meet the requirements as a certified specialist in developing nutrient management plans as described in Attachment C of Waste Discharge Requirements General Order No. R5-2007-0035 and that I prepared the Sampling and Analysis plan.

Dairy Specialist/CCA (MM)

TITLE/QUALIFICATIONS OF CERTIFIED NUTRIENT MANAGEMENT SPECIALIST

10/9/13

SIGNATURE OF TRAINED PROFESSIONAL

DATE

Kion Kashefi

PRINT OR TYPE NAME

624 Service RD; Modesto, CA 95358

MAILING ADDRESS

(209) 988-1724

PHONE NUMBER

C. OWNER AND/OR OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

David Pacheco

SIGNATURE OF OWNER OF FACILITY

Paul Konzen & Mike Barry

SIGNATURE OF OPERATOR OF FACILITY

Pacheco 1999 FLP

PRINT OR TYPE NAME

Paul Konzen & Mike Barry

PRINT OR TYPE NAME

10/24/13

DATE

10/24/13

DATE

Nutrient Management Plan Report
 General Order No. R5-2007-0035, Attachment C
 July 1, 2009 deadline

NUTRIENT BUDGET CERTIFICATION

A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: KB Dairy

Physical address of dairy:

<u>3701 Langworth RD</u>	<u>Modesto</u>	<u>Stanislaus</u>	<u>95357</u>
Number and Street	City	County	Zip Code

Street and nearest cross street (if no address): _____

B. DOCUMENTATION OF QUALIFICATIONS AND PLAN DEVELOPMENT

I certify that I meet the requirements as a certified specialist in developing nutrient management plans as described in Attachment C of Waste Discharge Requirements General Order No. R5-2007-0035 and that I prepared the Nutrient Budget plan.

Dairy Specialist/CCA (MM)

TITLE/QUALIFICATIONS OF CERTIFIED NUTRIENT MANAGEMENT SPECIALIST	<u>10/9/13</u>
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SIGNATURE OF TRAINED PROFESSIONAL	DATE
-----------------------------------	------

Kion Kashefi

PRINT OR TYPE NAME

624 Service RD; Modesto, CA 95358

MAILING ADDRESS

(209) 988-1724

PHONE NUMBER

C. OWNER AND/OR OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



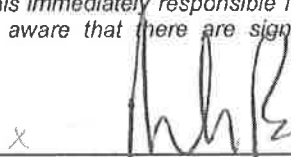
SIGNATURE OF OWNER OF FACILITY

Pacheco 1999 FLP

PRINT OR TYPE NAME

DATE

✓ 10/24/13



SIGNATURE OF OPERATOR OF FACILITY

Paul Konzen & Mike Barry

PRINT OR TYPE NAME

DATE

✓ 10/24/13

Nutrient Management Plan Report

General Order No. R5-2007-0035, Attachment C

July 1, 2009 deadline

STATEMENTS OF COMPLETION

Waste Discharge Requirements General Order No. R5-2007-0035 for Existing Milk Cow Dairies (General Order) requires owners and operators of existing milk cow dairies (Dischargers) to develop and implement a Nutrient Management Plan for their land application areas (land under control of the Discharger, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient cycling). The Discharger is required to maintain the NMP at the dairy, make the NMP available to Central Valley Water Board staff during their inspections, and submit the NMP to the Executive Officer upon request.

The General Order requires the Discharger to submit two Statements of Completion during development of the NMP. The Discharger may use this form to comply with the General Order requirement to submit one or both of these Statements of Completion. Parts A and E must be completed for each Statement of Completion. Parts B, C and D are to be completed for the Statements of Completion due by 1 July 2008, 31 December 2008 and 1 July 2009, respectively. Both the owner and the operator of the dairy must sign this form in Part E below.

A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: KB Dairy

<u>3701 Langworth RD</u>	<u>Modesto</u>	<u>Stanislaus</u>	<u>95357</u>
Number and Street	City	County	Zip Code

Street and nearest cross street (if no address): _____

Operator name: Mike Barry, Paul Konzen &

Telephone no.: (209) 838-8461

Landline Cellular

<u>P.O. Box 368</u>	<u>Escalon</u>	<u>CA</u>	<u>95320</u>
Mailing Address Number and Street	City	State	Zip Code

Legal owner name: 1999 FLP, Pacheco

Telephone no.: (209) 524-0128

Landline Cellular

<u>2020 Victoria PARK</u>	<u>Modesto</u>	<u>CA</u>	<u>95355</u>
Mailing Address Number and Street	City	State	Zip Code

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

B. STATEMENT OF COMPLETION DUE 1 JULY 2008

I have completed the following items of the Nutrient Management Plan (check the boxes of completed sections), which are due 1 July 2008:

- Item I.A.1 Land Application Information**
Identification of land used for manure application and needed information on a facility map.
- Item I.B Land Application Information**
Information list for information provided on map above.
- Item I.C Land Application Information**
Copies of written third-party process wastewater agreements.
- Item I.D Land Application Information**
Identification of fields under control of the discharger within five miles of the dairy where neither process wastewater nor manure is applied.
- Item II Sampling and Analysis Plan**
- Item IV Setbacks, Buffers, and Other Alternatives to Protect Surface Water**
Identification of all potential surface waters or conduits to surface waters within 100 feet of land application areas and appropriate protection.
- Item VI Record-Keeping Requirements**
Identification of monitoring records that will be maintained as required in the production and land application areas.

Has Item II (Sampling and Analysis Plan) of the Nutrient Management Plan been certified by a Certified Nutrient Management Specialist as required in the General Order?

Yes No

C. STATEMENT OF COMPLETION DUE 31 DECEMBER 2008

I have completed the following items of the Nutrient Management Plan (check the boxes of completed sections), which are due 31 December 2008:

- Item V Field Risk Assessment**
Evaluation of the effectiveness of management practices used to control the discharge of waste constituents from land application areas by assessing the water quality monitoring results of discharges of manure, process wastewater, tailwater, subsurface (tile) drainage, or storm water from the land application areas.

D. STATEMENT OF COMPLETION DUE 1 JULY 2009

I have completed the following items of the Nutrient Management Plan (check the boxes of completed sections), which are due 1 July 2009:

- Item I.A.2 Land Application Area Information**
Identification of process wastewater conveyance, mixing and drainage information for each land application area on a facility map.
- Item III Nutrient Budget**
Established planned rates of nutrient applications by crop based on nutrient monitoring results for each land application area.

Has Item III (Nutrient Budget) of the Nutrient Management Plan been certified by a Certified Nutrient Management Specialist as required in the General Order?

Yes No

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

E. CERTIFICATION STATEMENT

I certify under penalty of law that I have completed the items of the Nutrient Management Plan that are checked in Parts B, C and/or D above for the dairy identified in Part A above and that the appropriate certified nutrient management specialist has certified the items requiring such certification as noted in part B and/or D above and that I have personally examined and am familiar with the information submitted in Parts A, B, C and D of this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

David Pacheco

SIGNATURE OF OWNER OF FACILITY

Pacheco 1999 FLP

PRINT OR TYPE NAME

10/24/13

DATE

Paul Konzen & Mike Barry

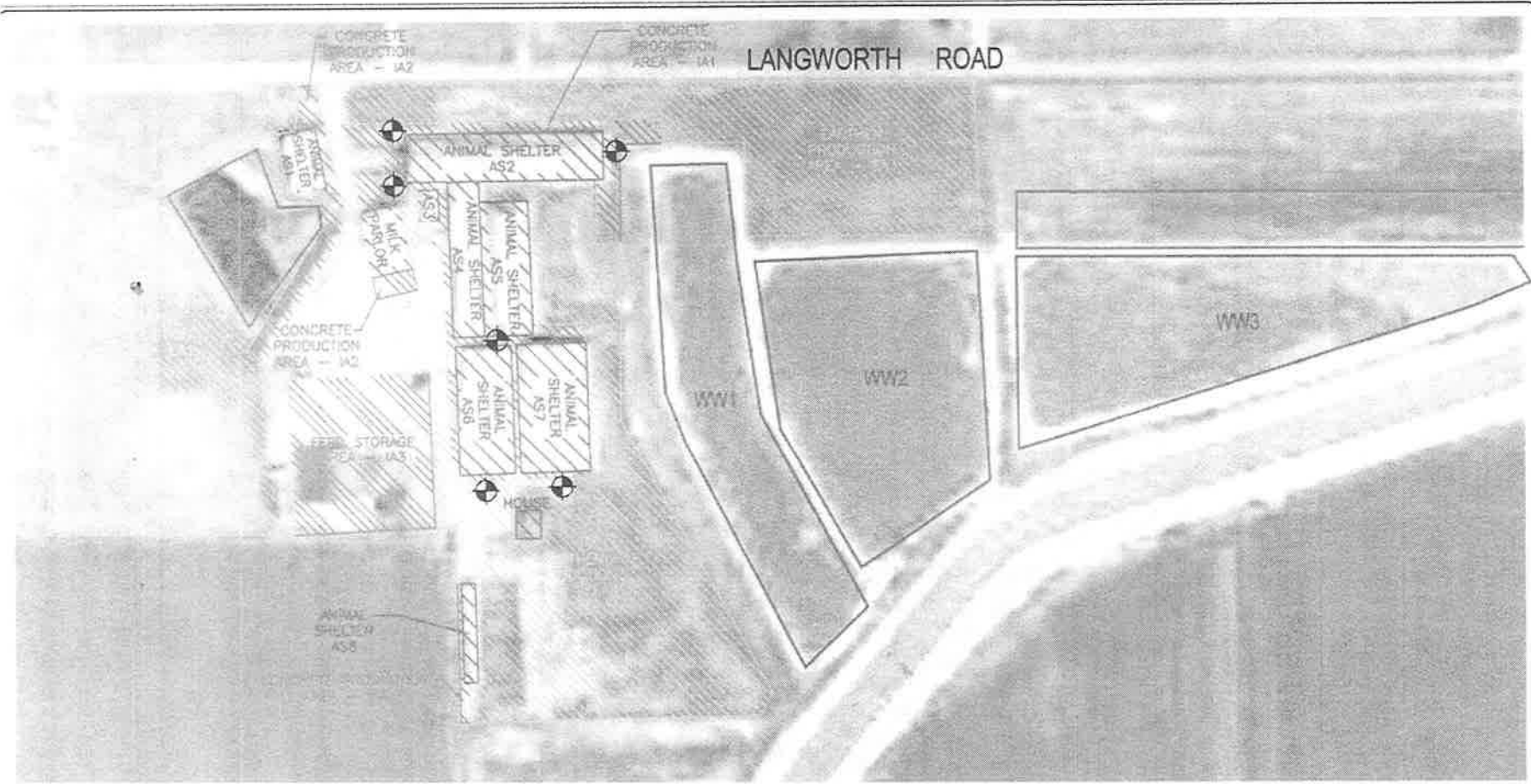
SIGNATURE OF OPERATOR OF FACILITY

Paul Konzen & Mike Barry

PRINT OR TYPE NAME





10/24/13

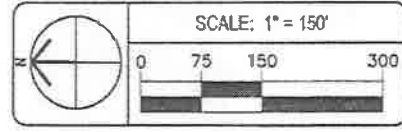
DATE



LANGWORTH ROAD

LEGEND

-  ROOF AREA
-  IMPERVIOUS AREA
-  EARTHEN AREA
-  INSPECTION POINT FOR MONITORING ANIMAL HOUSING AND FLUSH WATER CONVEYANCE SYSTEM



SOUSSA
ENGINEERING
CIVIL - SURVEY - PLANNING

PK: 00728-3151
PR: 00728-3158

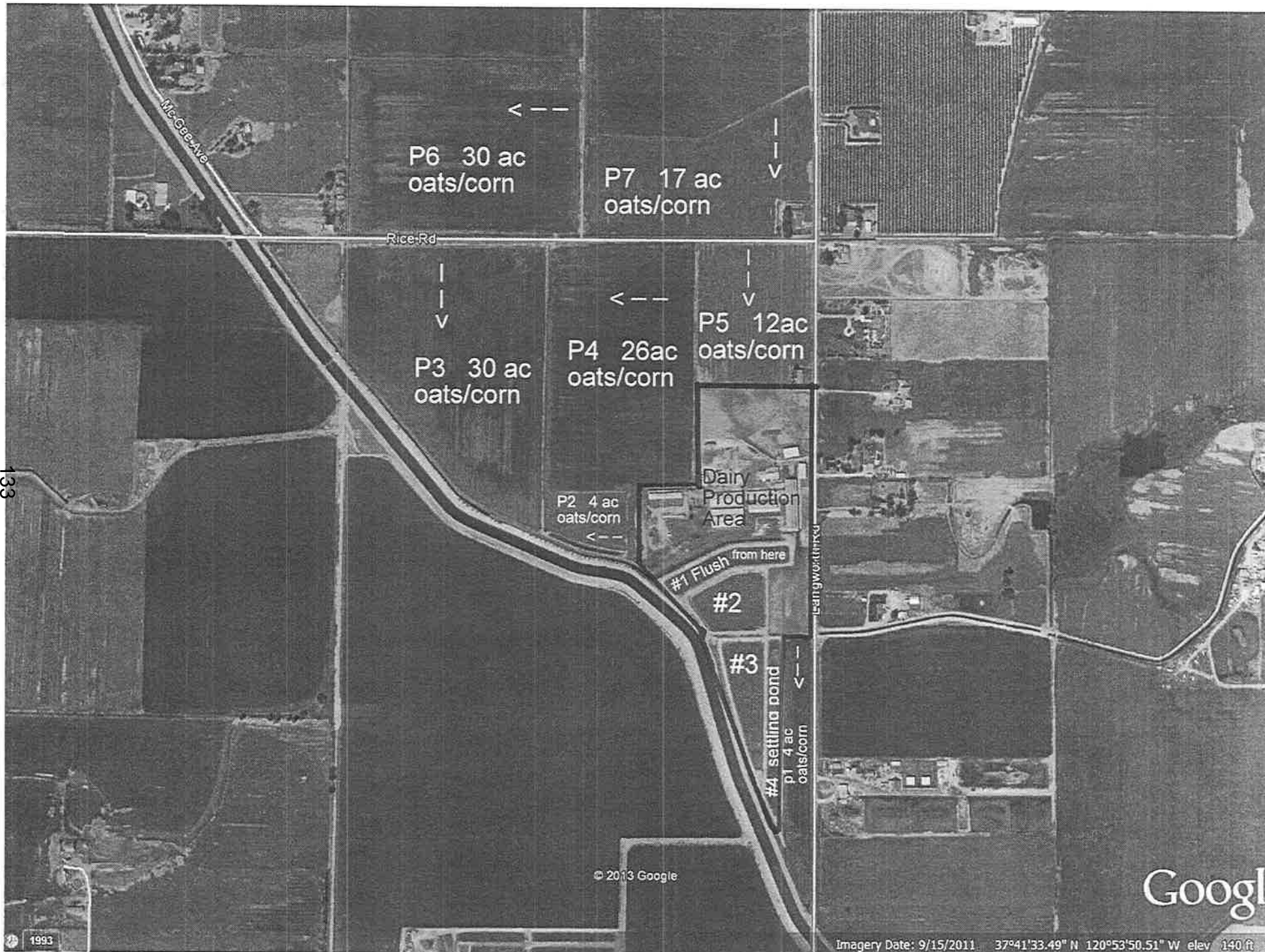


100 6TH STREET
MODESTO, CA 95354



SITE MAP - PRODUCTION AREA
K3
KATHLEEN DAIRY
STANISLAUS COUNTY, CA

DATE: 10/7/2010	APPD
FILE: 05 - 000 - 000 - 000.dwg	
JOB NO: 2010 - WWP001	
SYMBOL	DESCRIPTION



KB Dairy 3701 Langworth Rd. Modesto, CA 95357

Land Application Area

March 30, 2016

Kristin Doud
County of Stanislaus
Department of Planning & Community Development
1010 10th Street, Suite 3400
Modesto, CA 95354

Project: Initial Study and Negative Declaration – Use Permit Application No. PLN2014-0044 for KB Dairy

District CEQA Reference No: 20160116

Dear Ms. Doud:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the project referenced above. Per the Initial Study, the proposed project consists of the expansion an existing dairy facility from the currently permitted 851 milk cows to 2,150 cows consisting of: 1,500 milk cows, 300 dry cows, 75 bred heifers (15-24 months), 220 calves (4-6 months), and 55 calves (0-3 months). No structural improvements are proposed as part of this application. All new animals will be housed in the existing on-site facilities. The Waste Water Management Plan (WMP) and Nutrition Management Plan (NMP) provide details on managing the expanded dairy cows within the current 20 acre dairy production area and 9 acres of waste water storage ponds. The existing dairy facility is located at 3701 Langworth Road, Modesto, CA. in rural Stanislaus County. (APN: 014-015-002). The District previously commented on this project June 10, 2014 (CEQA reference # 20140371).

The District offers the following comments:

- 1) Based on information provided to the District, project specific emissions of criteria pollutants are not expected to exceed District significance thresholds of 10 tons/year NO_x, 10 tons/year ROG, and 15 tons/year PM₁₀. Therefore, the District concludes that project specific criteria pollutant emissions would have no significant adverse impact on air quality.
- 2) **Health Impacts:** As noted in the District's comment letter dated June 10, 2014, project related health impacts should be evaluated to determine if emissions of toxic air contaminants (TACs) will pose a significant health risk to nearby sensitive

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061
www.valleyair.org

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585

receptors, i.e. residents/worksites. TACs are defined as air pollutants that may cause or contribute to an increase in risk exposure to the surrounding public. A common source of TACs can be attributed to diesel exhaust that is emitted from both stationary and mobile sources. Emission factors for dairy operations can be obtained from the District's website. A health impact assessment may require a screening or even a refined health risk assessment (HRA).

Prior to conducting an HRA, an applicant may perform a prioritization on all sources of emissions to determine if it is necessary to conduct a refined assessment. A prioritization is a screening assessment used to identify projects that may have a potential to significantly impact the public. If the project has a prioritization score of 10 or more, the project would exceed the District's significance threshold and a refined HRA should be performed.

If a refined HRA is to be performed, it is recommended that the project proponent contact the District to review the proposed modeling approach. The project would be considered to have a significant health risk if the HRA demonstrates that project related health impacts assessment would exceed the District's significance threshold of 20 in a million for cancer and 1.0 for acute and chronic hazard indices.

The District recommends that the modeling outputs be provided to the District as well as an electronic copy of all the files used to develop the modeling outputs.

More information on TACs, prioritizations and HRAs can be obtained by:

- E-mailing inquiries to: hramodeler@valleyair.org; or
- Visiting the District's website at:

http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm

District Rules and Regulations

- 5) The proposed project is subject to District Rule 2010 (Permits Required) and Rule 2201 (New and Modified Stationary Source Review). Since this facility is currently permitted (N-6536 KB Dairy) with the District, any modification that would result in a change in emissions or change in method of operation/equipment requires the submittal of an Authority to Construct permit application. As such, the District recommends the applicant contact the District's Small Business Assistance (SBA) office regarding the requirements for an Authority to Construct (ATC) and to identify other District rules and regulations that apply to this project. SBA staff can be reached at (209) 557-6446.

In addition, please note that starting construction before receiving an ATC may result in a violation of District regulations and be subject to enforcement action.

- 7) As stated above, the project will be subject to District Rule 2010 and Rule 2201. Per Section 4.4.3 of District Rule 9510 (Indirect Source Review), any project whose

primary functions are subject to District Rule 2010 and Rule 2201 is exempted from Rule 9510. Therefore, the District concludes that the proposed project is not subject to District Rule 9510 (Indirect Source Review).

- 8) The District recommends that a copy of the District's comments be provided to the project proponent.

District staff is available to meet with you and/or the applicant to discuss the regulatory requirements that are associated with this project. If you have any questions or require further information, please call Georgia Stewart at (559) 230-5937 and provide the reference number at the top of the letter.

Sincerely,

Arnaud Marjollet
Director of Permit Services



For: Brian Clements
Program Manager

AM: gs

April 7, 2016 **Addendum**

Kristin Doud
County of Stanislaus
Department of Planning & Community Development
1010 10th Street, Suite 3400
Modesto, CA 95354

Project: Initial Study and Negative Declaration – Use Permit Application No. PLN2014-0044 for KB Dairy

District CEQA Reference No: 20160116

Dear Ms. Doud:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the project referenced above. Per the Initial Study, the proposed project consists of the expansion an existing dairy facility from the currently permitted 851 milk cows to 2,150 cows consisting of: 1,500 milk cows, 300 dry cows, 75 bred heifers (15-24 months), 220 calves (4-6 months), and 55 calves (0-3 months). No structural improvements are proposed as part of this application. All new animals will be housed in the existing on-site facilities. The Waste Water Management Plan (WMP) and Nutrition Management Plan (NMP) provide details on managing the expanded dairy cows within the current 20 acre dairy production area and 9 acres of waste water storage ponds. The existing dairy facility is located at 3701 Langworth Road, Modesto, CA. in rural Stanislaus County. (APN: 014-015-002).

The District offers the following comments:

- 1) After performing a health risk analysis of the KB Dairy expansion, it has been determined that the project, as currently constituted, would not exceed the District CEQA thresholds for Cancer Risk (20 in million) and Chronic and Acute Hazard Indices (both 1.0). As proposed, the project triggers public notice. An ambient air quality analysis (AAQA) will be performed as part of the District's permitting process.

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
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Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585

- 2) The proposed project is subject to District Rule 2010 (Permits Required) and Rule 2201 (New and Modified Stationary Source Review). Since this facility is currently permitted with the District (N-6536 KB Dairy), any modification that would result in a change in emissions or change in method of operation/equipment requires the submittal of an Authority to Construct permit application. As such, the District recommends the applicant contact the District's Small Business Assistance (SBA) office regarding the requirements for an Authority to Construct (ATC) and to identify other District rules and regulations that apply to this project. SBA staff can be reached at (209) 557-6446.
- 3) The District recommends that a copy of the District's comments be provided to the project proponent.

District staff is available to meet with you and/or the applicant to discuss the regulatory requirements that are associated with this project. If you have any questions or require further information, please call Georgia Stewart at (559) 230-5937 and provide the reference number at the top of the letter.

Sincerely,

Arnaud Marjollet
Director of Permit Services



Brian Clements
Program Manager

AM: gs

NEGATIVE DECLARATION

NAME OF PROJECT: USE PERMIT APPLICATION NO. PLN2014-0044 – KB DAIRY

LOCATION OF PROJECT: 3701 Langworth Road, on the southwest corner of Langworth and Rice Roads, east of the city of Modesto and southeast of the city of Riverbank. Stanislaus County & 014-015-002.

PROJECT DEVELOPERS: Mike Barry and/or Paul Konzen
5707 Langworth Rd.
Oakdale, CA 95361

DESCRIPTION OF PROJECT: Request to increase the number of permitted cows from 851 to 2,150, consisting of: 1,500 milk cows; 300 dry cows; 75 bred heifers (15-24 months); 220 calves (4-6 months); and 55 calves (0-3 months) on an existing dairy facility. The 105± acre property is located at 3701 Langworth Road, at the southwest corner of Langworth and Rice Roads, east of the City of Modesto and southeast of the City of Riverbank and is zoned A-2-40 (General Agriculture). The Planning Commission will consider adoption of a CEQA Negative Declaration for this project.

Based upon the Initial Study, dated **February 24, 2016 (as amended on April 20, 2016)**, the Environmental Coordinator finds as follows:

1. This project does not have the potential to degrade the quality of the environment, nor to curtail the diversity of the environment.
2. This project will not have a detrimental effect upon either short-term or long-term environmental goals.
3. This project will not have impacts which are individually limited but cumulatively considerable.
4. This project will not have environmental impacts which will cause substantial adverse effects upon human beings, either directly or indirectly.

The Initial Study and other environmental documents are available for public review at the Department of Planning and Community Development, 1010 10th Street, Suite 3400, Modesto, California.

Initial Study prepared by: Kristin Doud, Associate Planner

Submit comments to: Stanislaus County
Planning and Community Development Department
1010 10th Street, Suite 3400
Modesto, California 95354

SUMMARY OF RESPONSES FOR ENVIRONMENTAL REVIEW REFERRALS

PROJECT: USE PERMIT APPLICATION NO. PLN2014-0044 - KB DAIRY

REFERRED TO:	RESPONDED			RESPONSE			MITIGATION MEASURES		CONDITIONS			
	2 WK	30 DAY	PUBLIC HEARING NOTICE	YES	NO	WILL NOT HAVE SIGNIFICANT IMPACT	MAY HAVE SIGNIFICANT IMPACT	NO COMMENT NON CEQA	YES	NO	YES	NO
CA DEPT OF CONSERVATION, LAND RESOURCES	X	X	X		X							
CA DEPT OF FISH & WILDLIFE	X	X	X		X							
CA OPR STATE CLEARINGHOUSE	X	X	X	X				X		X		X
CA RWQCB CENTRAL VALLEY REGION	X	X	X	X				X		X	X	
CITY OF: RIVERBANK & MODESTO	X	X	X		X							
COOPERATIVE EXTENSION	X	X	X		X							
FIRE PROTECTION DIST: OES, STANISLAUS CONSOLIDATED & OAKDALE	X	X	X	X				X		X		X
HOSPITAL DIST: OAK VALLEY	X	X	X		X							
IRRIGATION DIST: OAKDALE & MODESTO	X	X	X	X				X		X	X	
MOSQUITO DISTRICT: EASTSIDE	X	X	X		X							
MT VALLEY EMERGENCY MEDICAL	X	X	X		X							
PACIFIC GAS & ELECTRIC	X	X	X		X							
RAILROAD: BURLINGTON NORTHERN SANTA FE	X	X	X		X							
SAN JOAQUIN VALLEY APCD	X	X	X	X				X		X	X	
SCHOOL DISTRICT 1: RIVERBANK	X	X	X		X							
STAN CO AG COMMISSIONER	X	X	X		X							
STAN CO BUILDING PERMITS DIVISION	X	X	X	X				X		X	X	
STAN CO CEO	X	X	X		X							
STAN CO DER (ENV HEALTH & MILK & DAIRY DIV)	X	X	X		X							
STAN CO ERC	X	X	X		X							
STAN CO FARM BUREAU	X	X	X		X							
STAN CO HAZARDOUS MATERIALS	X	X	X		X							
STAN CO PUBLIC WORKS	X	X	X	X				X		X	X	
STAN CO SHERIFF	X	X	X		X							
STAN CO SUPERVISOR DIST #1: O'BRIEN	X	X	X		X							
STAN COUNTY COUNSEL	X	X	X		X							
STANISLAUS FIRE PREVENTION BUREAU	X	X	X		X							
STANISLAUS LAFCO	X	X	X		X							
SURROUNDING LAND OWNERS			X		X							
TELEPHONE COMPANY: AT&T	X	X	X		X							
US FISH & WILDLIFE	X	X	X		X							
US MILITARY (7 AGENCIES)	X	X	X		X							
USDA NRCS	X	X	X		X							