**DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT**
*1010 10TH Street, Suite 3400, Modesto, CA 95354*
*Planning Phone: (209) 525-6330 Fax: (209) 525-5911*
*Building Phone: (209) 525-6557 Fax: (209) 525-7759*

# CEQA Referral Initial Study And Notice of Intent to Adopt a Negative Declaration

**Date:** **August 9, 2019**

**To:** **Distribution List (See Attachment A)**

**From:** **Kristen Anaya, Assistant Planner**
**Planning and Community Development**

**Subject:** **USE PERMIT APPLICATION NO. PLN2018-0054 – S & S DAIRY, INC.**

**Comment Period:** **August 9, 2019 – September 11, 2019**

**Respond By:** **September 11, 2019**

**Public Hearing Date:** **Not yet scheduled. A separate notice will be sent to you when a hearing is scheduled.**

You may have previously received an Early Consultation Notice regarding this project, and your comments, if provided, were incorporated into the Initial Study. Based on all comments received, Stanislaus County anticipates adopting a Negative Declaration for this project. This referral provides notice of a 30-day comment period during which Responsible and Trustee Agencies and other interested parties may provide comments to this Department regarding our proposal to adopt the Negative Declaration.

All applicable project documents are available for review at: Stanislaus County Department of Planning and Community Development, 1010 10th Street, Suite 3400, Modesto, CA 95354. Please provide any additional comments to the above address or call us at (209) 525-6330 if you have any questions. Thank you.

**Applicant:** **Darin Bylsma, S & S Dairy, Inc.**

**Project Location:** **348 East Monte Vista Avenue, on the southwest corner of East Monte Vista Avenue and Bystrum Road, east of Crows Landing Road, in the Ceres area.**

**APN:** **022-026-014**

**Williamson Act Contract:** **1973-1300**

**General Plan:** **Agriculture**

**Current Zoning:** **A-2-40 (General Agriculture)**

**Project Description:** **Request to expand an existing dairy facility, operating on a 106± acre parcel in the A-2-40 (General Agriculture) zoning district, by increasing the herd size from 1,380 mature cows to 2,900 mature cows (2,500 milk and 400 dry) and support stock from 1,175 to 1,550 heifers (comprised of 850 heifers between 15 to 24 months, 400 heifers from seven to 14 months, and 300 calves from four to six months), for a total herd increase of 1,895. The project will involve the demolition of three existing structures totaling 19,620 square feet and the**

**construction of five new free-stall barns with flush lanes totaling 175,350 square feet for animal housing. The existing dairy operation includes a hay barn, milking parlor, equipment storage, and commodity barn. All proposed structures will be constructed within the existing dairy production area boundary.**

**The estimated wastewater storage needs will be accommodated by the existing capacity of the three on-site lagoons. The nutrients produced by the herd will be utilized to fertilize approximately 32 parcels totaling 1,210± farmable acres. A Waste Management Plan and Nutrient Management Plan have been prepared and reviewed by the Regional Water Quality Control Board and are attached. The project site has a private domestic well and two septic-leach systems. A 20-foot PG&E easement runs north-south and adjacent to the project site's eastern property line. A Health Risk Assessment and Ambient Air Quality Analysis have been prepared for the expansion and are attached.**

**Full document with attachments available for viewing at:**
**http://www.stancounty.com/planning/pl/act-projects.shtm**

**DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT**
*1010 10TH Street, Suite 3400, Modesto, CA 95354*
*Planning Phone: (209) 525-6330 Fax: (209) 525-5911*
*Building Phone: (209) 525-6557 Fax: (209) 525-7759*

**USE PERMIT APPLICATION NO. PLN2018-0054 – S & S DAIRY, INC.**
Attachment A

Distribution List

| | | | |
|---|---|---|---|
| X | CA DEPT OF CONSERVATION<br>Land Resources | | STAN CO ALUC |
| X | CA DEPT OF FISH & WILDLIFE | | STAN CO ANIMAL SERVICES |
| | CA DEPT OF FORESTRY (CAL FIRE) | X | STAN CO BUILDING PERMITS DIVISION |
| X | CA DEPT OF TRANSPORTATION DIST 10 | X | STAN CO CEO |
| X | CA OPR STATE CLEARINGHOUSE | | STAN CO CSA |
| X | CA RWQCB CENTRAL VALLEY REGION | X | STAN CO DER |
| | CA STATE LANDS COMMISSION | X | STAN CO ERC |
| | CEMETERY DISTRICT | X | STAN CO FARM BUREAU |
| | CENTRAL VALLEY FLOOD PROTECTION | X | STAN CO HAZARDOUS MATERIALS |
| | CITY OF: | | STAN CO PARKS & RECREATION |
| | COMMUNITY SERVICES/SANITARY DIST | X | STAN CO PUBLIC WORKS |
| X | COOPERATIVE EXTENSION | | STAN CO RISK MANAGEMENT |
| | COUNTY OF: | X | STAN CO SHERIFF |
| X | FIRE PROTECTION DIST: MOUNTAIN VIEW FIRE | X | STAN CO SUPERVISOR 2: CHIESA |
| | HOSPITAL DIST: | X | STAN COUNTY COUNSEL |
| X | IRRIGATION DIST: TURLOCK | | StanCOG |
| X | MOSQUITO DIST: TURLOCK | X | STANISLAUS FIRE PREVENTION BUREAU |
| X | MOUNTIAN VALLEY EMERGENCY MEDICAL SERVICES | X | STANISLAUS LAFCO |
| | MUNICIPAL ADVISORY COUNCIL: | | STATE OF CA SWRCB DIVISION OF DRINKING WATER DIST. 10 |
| X | PACIFIC GAS & ELECTRIC | X | SURROUNDING LAND OWNERS |
| | POSTMASTER: | X | TELEPHONE COMPANY: AT&T |
| X | RAILROAD: UNION PACIFIC | | TRIBAL CONTACTS<br>(CA Government Code §65352.3) |
| X | SAN JOAQUIN VALLEY APCD | | US ARMY CORPS OF ENGINEERS |
| X | SCHOOL DIST 1: CHATOM UNION | X | US FISH & WILDLIFE |
| X | SCHOOL DIST 2: TURLOCK | X | US MILITARY (SB 1462) (4 agencies) |
| | STAN ALLIANCE | X | USDA NRCS |
| X | STAN CO AG COMMISSIONER | | WATER DIST: |
| | TUOLUMNE RIVER TRUST | | |

# STANISLAUS COUNTY
# CEQA REFERRAL RESPONSE FORM

**TO:** **Stanislaus County Planning & Community Development**
**1010 10th Street, Suite 3400**
**Modesto, CA 95354**

**FROM:** _____

**SUBJECT:** **USE PERMIT APPLICATION NO. PLN2018-0054 – S & S DAIRY, INC.**

Based on this agency's particular field(s) of expertise, it is our position the above described project:

_____ Will not have a significant effect on the environment.
_____ May have a significant effect on the environment.
_____ No Comments.

Listed below are specific impacts which support our determination (e.g., traffic general, carrying capacity, soil types, air quality, etc.) – (attach additional sheet if necessary)

1.
2.
3.
4.

Listed below are possible mitigation measures for the above-listed impacts: *PLEASE BE SURE TO INCLUDE WHEN THE MITIGATION OR CONDITION NEEDS TO BE IMPLEMENTED (PRIOR TO RECORDING A MAP, PRIOR TO ISSUANCE OF A BUILDING PERMIT, ETC.):*

1.
2.
3.
4.

In addition, our agency has the following comments (attach additional sheets if necessary).

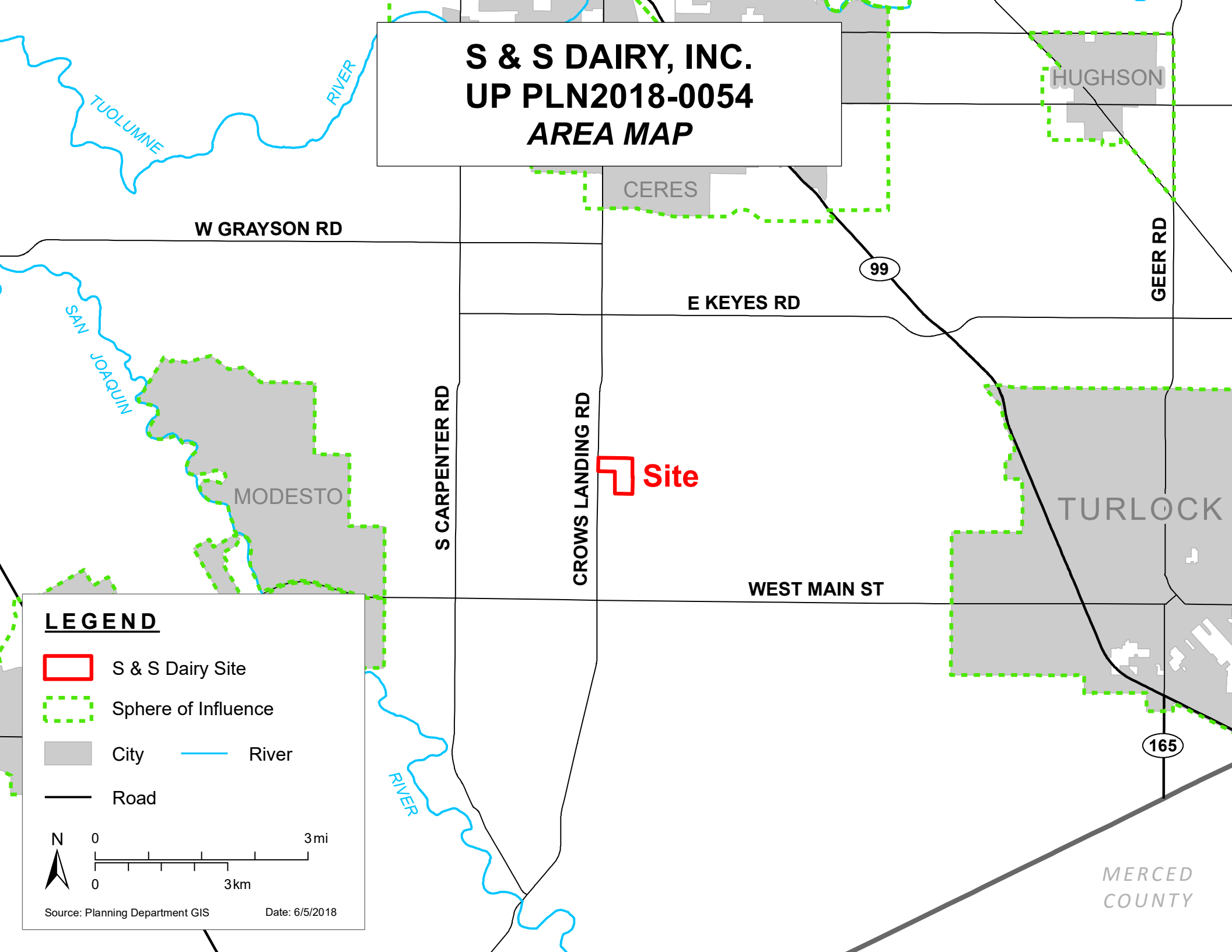
_____

_____

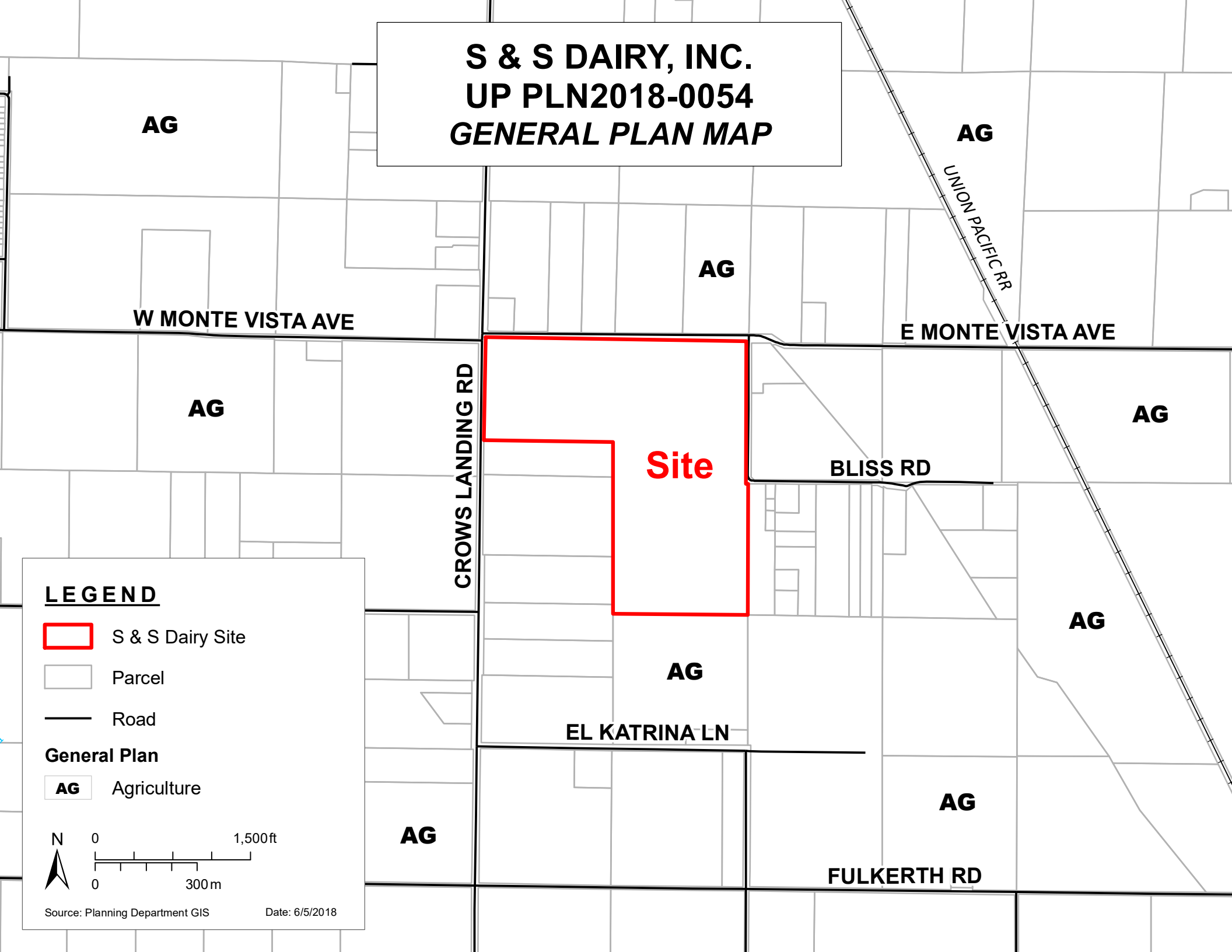
Response prepared by:

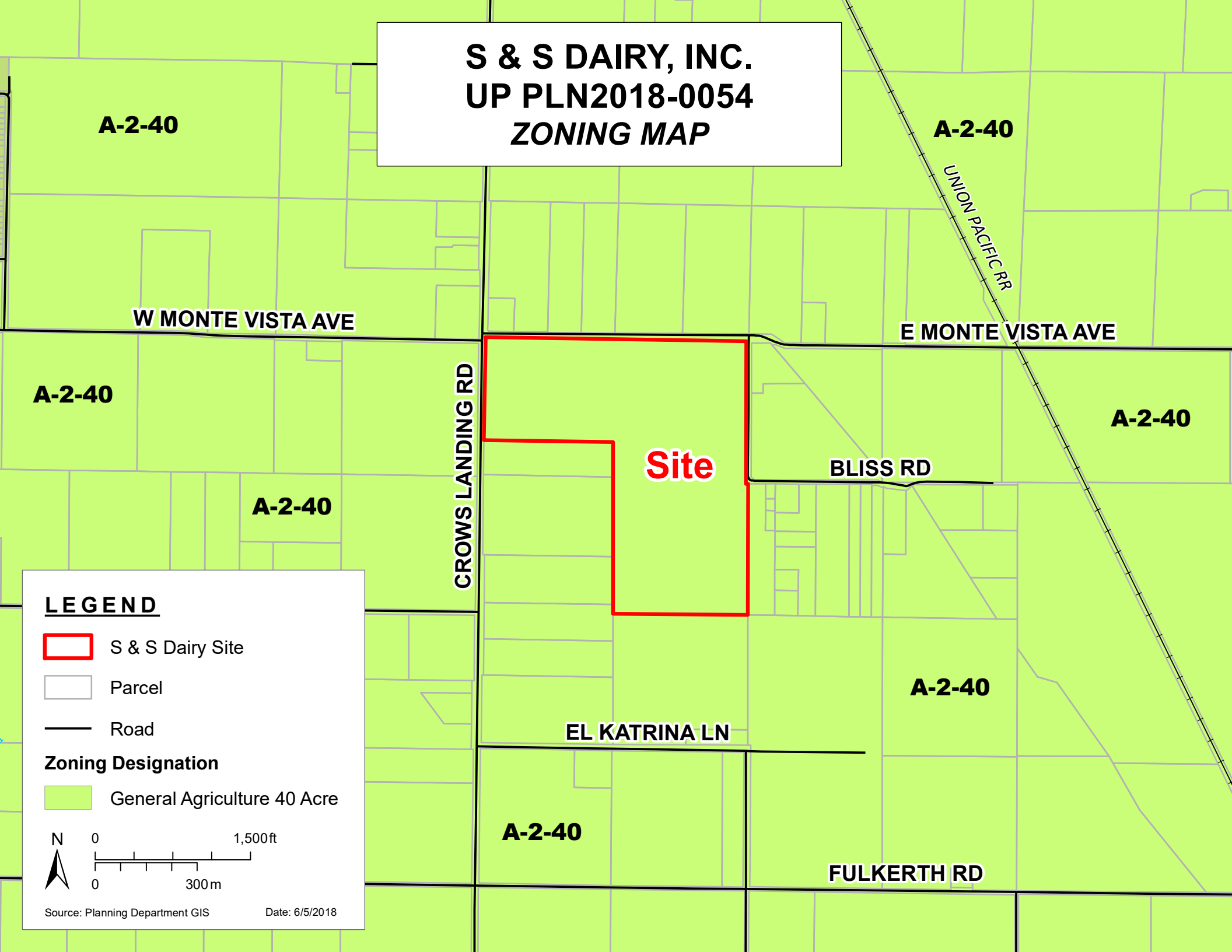
_____

Name Title Date

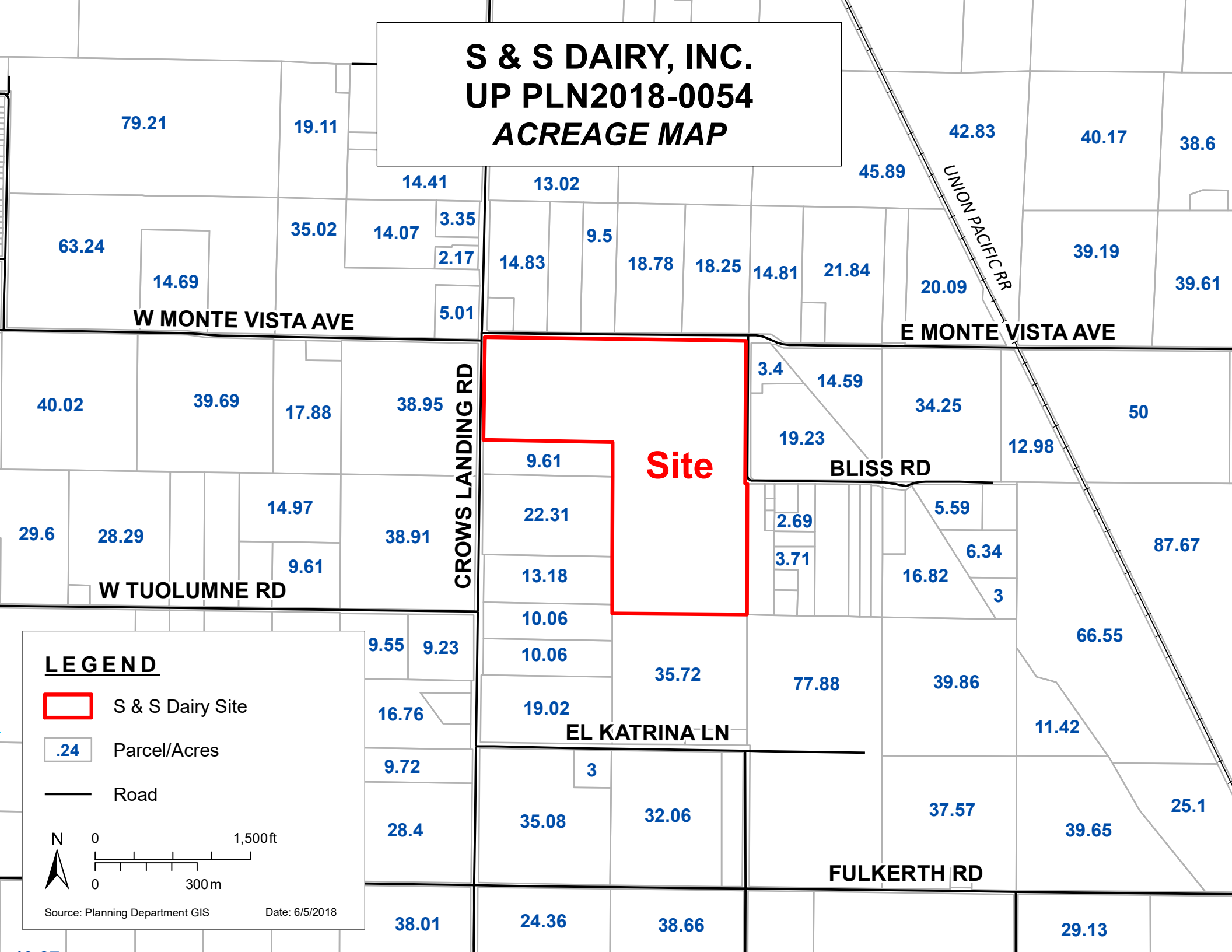

S & S DAIRY, INC.
UP PLN2018-0054
AREA MAP
TUOLUMNE RIVER
SAN JOAQUIN RIVER
RIVER
HUGHSON
CERES
W GRAYSON RD
99
GEER RD
E KEYES RD
S CARPENTER RD
CROWS LANDING RD
Site
MODESTO
TURLOCK
WEST MAIN ST
165
MERCED COUNTY
LEGEND
S & S Dairy Site
Sphere of Influence
City
River
Road
N
0
3 mi
0
3 km
Source: Planning Department GIS
Date: 6/5/2018

# S & S DAIRY, INC.
# UP PLN2018-0054
## *GENERAL PLAN MAP*




S & S DAIRY, INC.
UP PLN2018-0054
ZONING MAP
A-2-40
A-2-40
A-2-40
A-2-40
A-2-40
A-2-40
A-2-40
W MONTE VISTA AVE
E MONTE VISTA AVE
CROWS LANDING RD
UNION PACIFIC RR
BLISS RD
EL KATRINA LN
FULKERTH RD
Site
LEGEND
S & S Dairy Site
Parcel
Road
Zoning Designation
General Agriculture 40 Acre
N
0
1,500 ft
0
300 m
Source: Planning Department GIS
Date: 6/5/2018

# S & S DAIRY, INC.
# UP PLN2018-0054
## *ACREAGE MAP*

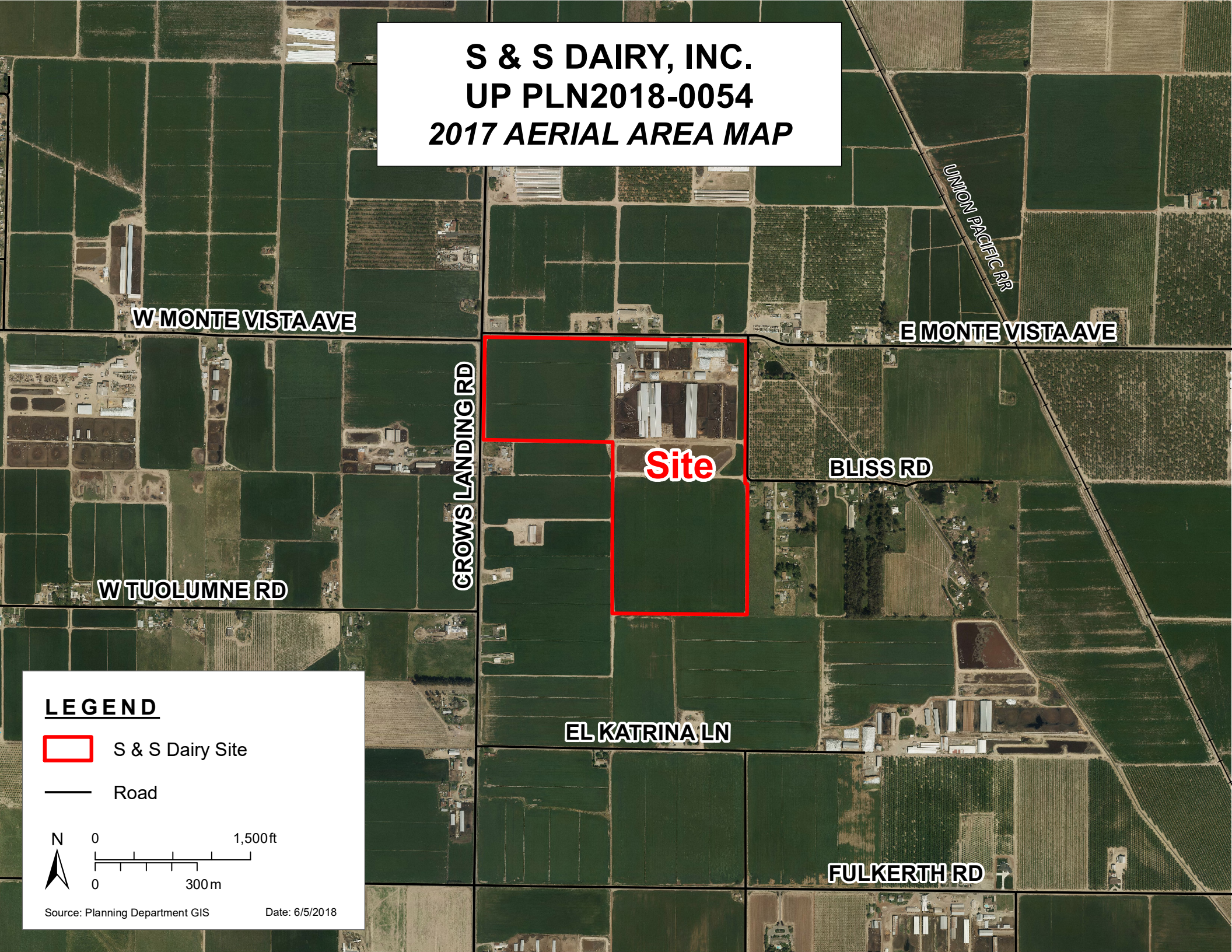



**LEGEND**

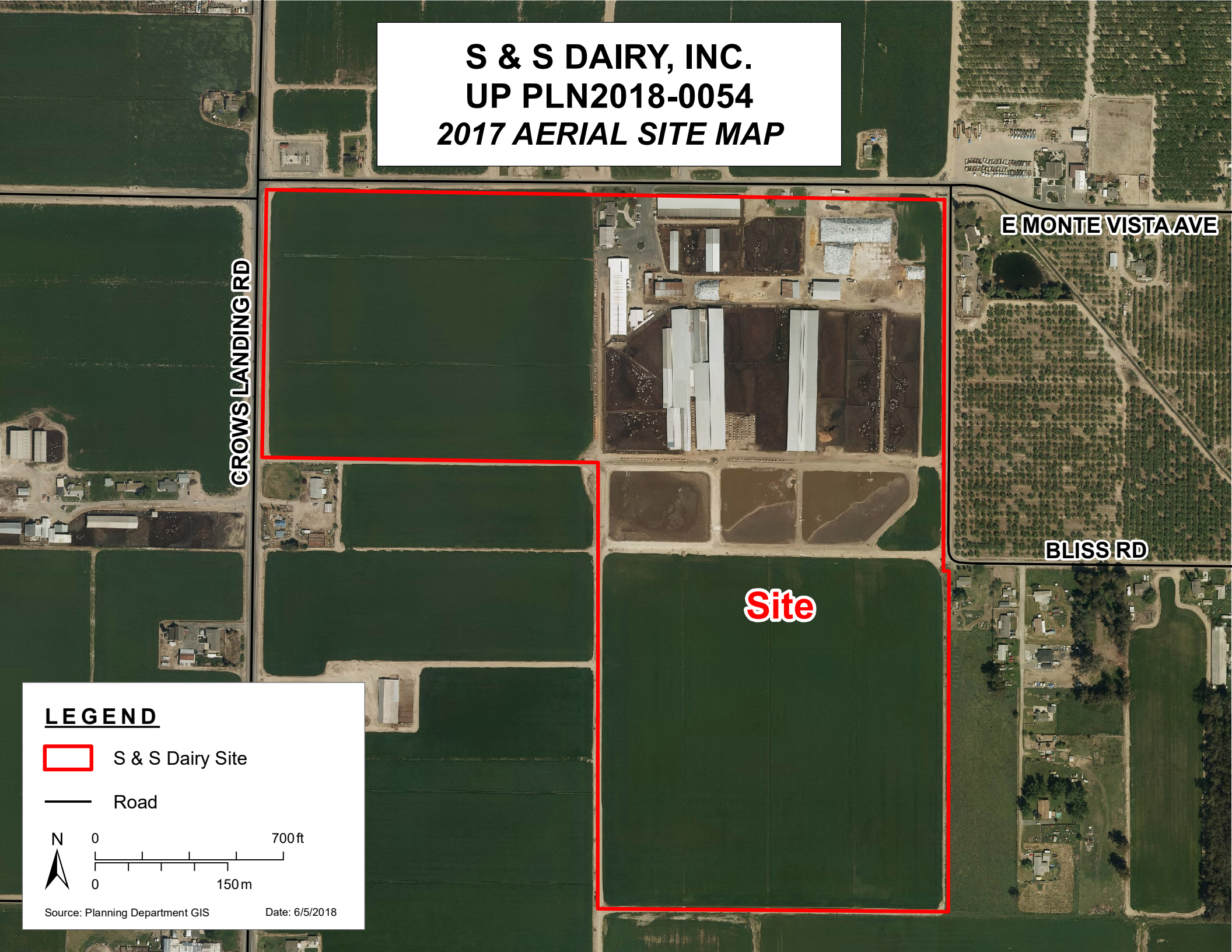
- S & S Dairy Site
- .24 Parcel/Acres
- Road

N 0 1,500ft 0 300m

Source: Planning Department GIS Date: 6/5/2018


S & S DAIRY, INC.
UP PLN2018-0054
2017 AERIAL AREA MAP
W MONTE VISTA AVE
E MONTE VISTA AVE
UNION PACIFIC RR
CROWS LANDING RD
Site
BLISS RD
W TUOLUMNE RD
EL KATRINA LN
FULKERTH RD
LEGEND
S & S Dairy Site
Road
N
0
1,500 ft
0
300 m
Source: Planning Department GIS
Date: 6/5/2018

# S & S DAIRY, INC.
# UP PLN2018-0054
## *2017 AERIAL SITE MAP*




**LEGEND**

S & S Dairy Site

Road

N

0 700 ft

0 150 m

Source: Planning Department GIS

Date: 6/5/2018


SHEET 2 OF 2

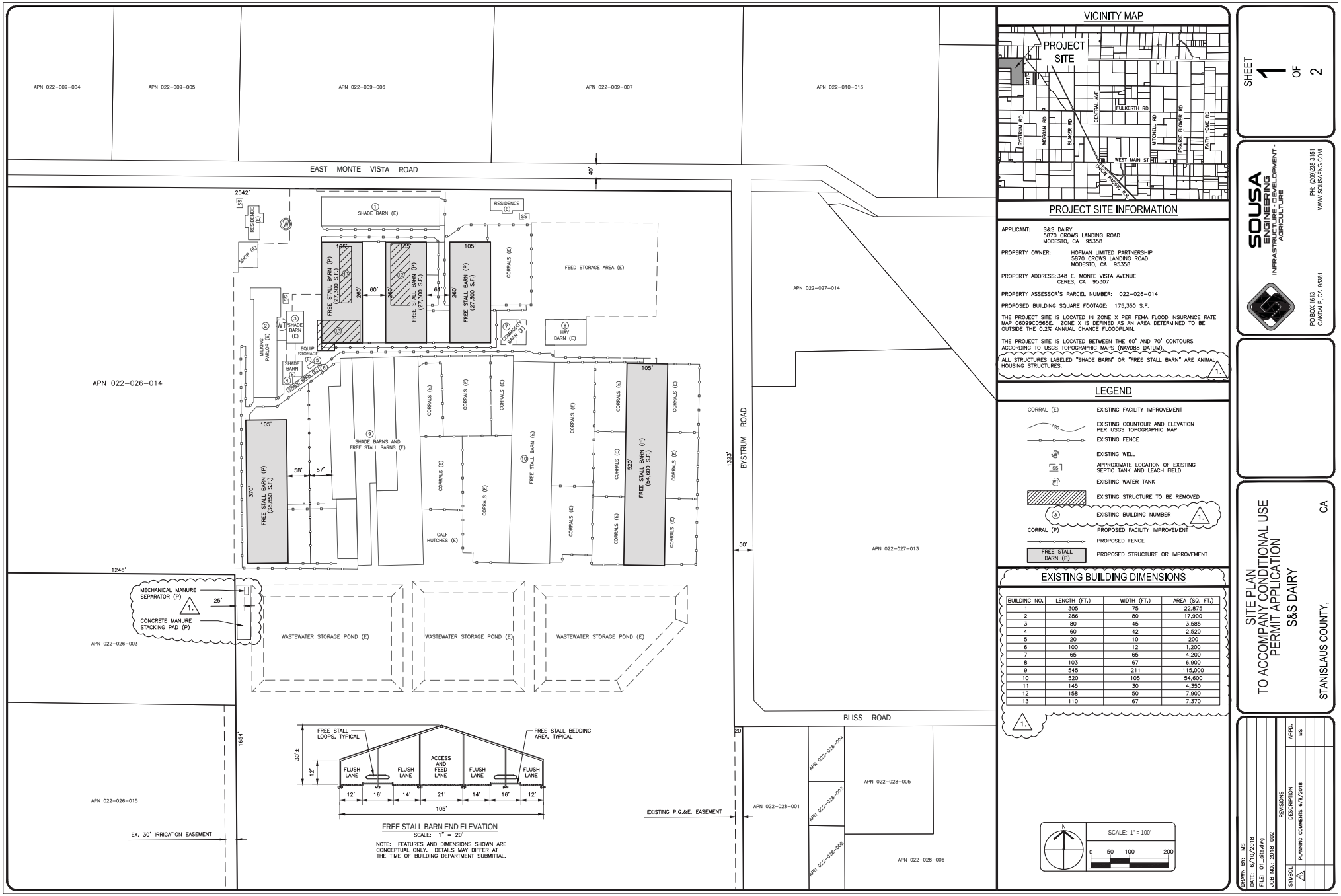
SOUSA ENGINEERING
INFRASTRUCTURE - DEVELOPMENT - AGRICULTURE
PO BOX 1613
OAKDALE, CA 95361
PH: (209)238-3151
WWW.SOUSAENG.COM

# LOCATION PLAN
# TO ACCOMPANY CONDITIONAL USE PERMIT APPLICATION
# S&S DAIRY

STANISLAUS COUNTY, CA

| REVISIONS | | |
|---|---|---|
| SYMBOL | DESCRIPTION | APPD. |
| | | |

DRAWN BY: MS
DATE: 6/10/2018
FILE: 02_location.dwg
JOB NO.: 2018-002




FREE STALL BARN END ELEVATION
SCALE: 1" = 20'

NOTE: FEATURES AND DIMENSIONS SHOWN ARE CONCEPTUAL ONLY. DETAILS MAY DIFFER AT THE TIME OF BUILDING DEPARTMENT SUBMITTAL.

## VICINITY MAP




## PROJECT SITE INFORMATION

APPLICANT: S&S DAIRY
5870 CROWS LANDING ROAD
MODESTO, CA 95358

PROPERTY OWNER: HOFMAN LIMITED PARTNERSHIP
5870 CROWS LANDING ROAD
MODESTO, CA 95358

PROPERTY ADDRESS: 348 E. MONTE VISTA AVENUE
CERES, CA 95307

PROPERTY ASSESSOR'S PARCEL NUMBER: 022-026-014

PROPOSED BUILDING SQUARE FOOTAGE: 175,350 S.F.

THE PROJECT SITE IS LOCATED IN ZONE X PER FEMA FLOOD INSURANCE RATE MAP 06099C0056E. ZONE X IS DEFINED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

THE PROJECT SITE IS LOCATED BETWEEN THE 60' AND 70' CONTOURS ACCORDING TO USGS TOPOGRAPHIC MAPS (NAVD88 DATUM).

ALL STRUCTURES LABELED "SHADE BARN" OR "FREE STALL BARN" ARE ANIMAL HOUSING STRUCTURES. 1.

## LEGEND

- CORRAL (E) — EXISTING FACILITY IMPROVEMENT
- 100 — EXISTING COUNTOUR AND ELEVATION PER USGS TOPOGRAPHIC MAP
- EXISTING FENCE
- EXISTING WELL
- SS — APPROXIMATE LOCATION OF EXISTING SEPTIC TANK AND LEACH FIELD
- WT — EXISTING WATER TANK
- EXISTING STRUCTURE TO BE REMOVED
- 3 — EXISTING BUILDING NUMBER 1.
- CORRAL (P) — PROPOSED FACILITY IMPROVEMENT
- PROPOSED FENCE
- FREE STALL BARN (P) — PROPOSED STRUCTURE OR IMPROVEMENT

## EXISTING BUILDING DIMENSIONS

| BUILDING NO. | LENGTH (FT.) | WIDTH (FT.) | AREA (SQ. FT.) |
|---|---|---|---|
| 1 | 305 | 75 | 22,875 |
| 2 | 286 | 80 | 17,900 |
| 3 | 80 | 45 | 3,585 |
| 4 | 60 | 42 | 2,520 |
| 5 | 20 | 10 | 200 |
| 6 | 100 | 12 | 1,200 |
| 7 | 65 | 65 | 4,200 |
| 8 | 103 | 67 | 6,900 |
| 9 | 545 | 211 | 115,000 |
| 10 | 520 | 105 | 54,600 |
| 11 | 145 | 30 | 4,350 |
| 12 | 158 | 50 | 7,900 |
| 13 | 110 | 67 | 7,370 |

1.

N

SCALE: 1" = 100'

0 50 100 200

SHEET 1 OF 2

SOUSA ENGINEERING
INFRASTRUCTURE - DEVELOPMENT - AGRICULTURE
PO BOX 1613
OAKDALE, CA 95361
PH: (209)238-3151
WWW.SOUSAENG.COM

# SITE PLAN
TO ACCOMPANY CONDITIONAL USE PERMIT APPLICATION
S&S DAIRY
STANISLAUS COUNTY, CA

| SYMBOL | REVISIONS DESCRIPTION | APPD. |
|---|---|---|
| 1 | PLANNING COMMENTS 9/8/2018 | MS |

DRAWN BY: MS
DATE: 6/10/2018
FILE: 01_site.dwg
JOB NO.: 2018-002

***DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT***
*1010 10TH Street, Suite 3400, Modesto, CA 95354*
*Planning Phone: (209) 525-6330 Fax: (209) 525-5911*
*Building Phone: (209) 525-6557 Fax: (209) 525-7759*

# CEQA INITIAL STUDY

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

| | | |
|---|---|---|
| **1.** | **Project title:** | Use Permit Application No. PLN2018-0054 – S & S Dairy, Inc. |
| **2.** | **Lead agency name and address:** | Stanislaus County<br>1010 10th Street, Suite 3400<br>Modesto, CA 95354 |
| **3.** | **Contact person and phone number:** | Kristen Anaya, Assistant Planner,<br>(209) 525-6330 |
| **4.** | **Project location:** | 348 East Monte Vista Avenue, on the southwest corner of East Monte Vista Avenue and Bystrum Road, east of Crows Landing Road, in the Ceres area (APN 022-026-014). |
| **5.** | **Project sponsor's name and address:** | Darin Bylsma, S & S Dairy, Inc.<br>5870 Crows Landing Road<br>Modesto, CA 95358 |
| **6.** | **General Plan designation:** | Agriculture |
| **7.** | **Zoning:** | A-2-40 (General Agriculture) |

**8. Description of project:**

Request to expand an existing dairy facility, operating on a 106.93± acre parcel, by increasing herd size from 1,380 mature cows to 2,900 mature cows (2,500 milk and 400 dry). The heifer support stock is proposed to increase from 1,175 support stock to 1,550 support stock to be comprised of 850 bred heifers (15 to 24 months), 400 heifers (seven to 14 months), and 300 calves (four to six months). Ultimately, the total number of animals is to increase by 1,895. Consequently, additional waste will be generated. A Waste Management Plan (WMP) and Nutrient Management Plan (NMP) has been prepared to account for the increase in waste and resulting storage and disposal needs associated with the increase in the herd size. The WMP estimates that daily manure production will be approximately 56,013 gallons and 7,487 cubic feet of manure per day (pre-separation). The estimated wastewater storage needs will be accommodated by the existing capacity of the three existing on-site lagoons.

The existing dairy operation contains all the necessary feed storage, waste containment, and utilities. The existing dairy operation includes a hay barn, milking parlor, equipment storage, and commodity barn. A mechanical manure separator is proposed with the expansion. Due to the increase in animal units, this application includes a request for the demolition of three existing structures and the construction of five new free-stall barns with flush lanes totaling 175,350 square feet over existing corral footprints. All proposed structures will be constructed within the existing dairy production area boundary. The project site has a private domestic well, an irrigation well, and two septic-leach systems. Traffic related to the on-site operation takes access off County-maintained East Monte Vista Avenue. A 20-foot PG&E easement runs north-south and adjacent to the project site's eastern property line. Staff has contacted the San Joaquin Valley Air Pollution Control District (SJVAPCD) and the Regional Water Quality Control Board (RWQCB), who have confirmed that the proposed numbers are below CEQA significant impact thresholds and that the project requires individual Waste Discharge Requirements (WDRs) (see e-mail dated July 10, 2019 and July 12, 2019, from Kyle Melching of SJVAPCD, and e-mail dated June 7, 2018, from Kyle Cockerham of RWQCB).

The facility fertilizes approximately 32 parcels, totaling 1,210± farmable acres, with nutrients produced by the herd. According to the NMP for this expansion, the dairy anticipates importing 1,701 pounds of nitrogen, exporting 14,700 tons of manure, and utilizing the wastewater generated at the site. In the NMP, the field-by-field nitrogen applied-to-removed ratio ranges from .06 to 1.36. The whole farm nitrogen balance ratio is 1.61. Furthermore, the WMP was prepared in order to evaluate the impact of the expansion on the required lagoon capacity. In the WMP, the storage capacities were calculated using two feet of freeboard. In addition, two of the ponds' capacities were calculated with one foot of dead storage loss and the third with two feet of dead storage loss. The existing and required storage capacities were calculated to be 18.3 and 26.2 gallons, respectively. Consequently, the current design and capacity of the existing lagoons is adequate. RWQCB staff have determined that the revised NMP and WMP are in accordance with the standards outlined in the General Order and that thorough implementation of these plans will minimize the impacts of animal waste on surface and groundwater quality. Furthermore, the SJVAPCD has determined that, based on the Ambient Air Quality Assessment and Health Risk Analysis which were prepared for this document, project-specific emissions of criteria pollutants are not expected to exceed District significance thresholds of 10 tons/year NOX, 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.

| | | |
|---|---|---|
| **9.** | **Surrounding land uses and setting:** | Scattered single-family dwellings and irrigated agriculture are located to the north, east, south, and west. A dairy operation is located to the west. |
| **10.** | **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.):** | Building Permits Division, CA Department of Conservation, Regional Water Quality Control Board, San Joaquin Valley Air Pollution Control District |
| **11.** | **Attachments:** | Maps<br>Negative Declaration<br>Waste Management Plan<br>Nutrient Management Plan<br>Health Risk Assessment<br>Ambient Air Quality Assessment<br>Early Consultation Referral Responses |

**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.**

| | | |
|---|---|---|
| ☐ **Aesthetics** | ☐ **Agriculture & Forestry Resources** | ☐ **Air Quality** |
| ☐ **Biological Resources** | ☐ **Cultural Resources** | ☐ **Geology / Soils** |
| ☐ **Greenhouse Gas Emissions** | ☐ **Hazards & Hazardous Materials** | ☐ **Hydrology / Water Quality** |
| ☐ **Land Use / Planning** | ☐ **Mineral Resources** | ☐ **Noise** |
| ☐ **Population / Housing** | ☐ **Public Services** | ☐ **Recreation** |
| ☐ **Transportation** | ☐ **Utilities / Service Systems** | ☐ **Mandatory Findings of Significance** |
| ☐ **Wildfire** | ☐ **Energy** | |

**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.**

**Kristen Anaya, Assistant Planner** — Prepared by

**August 9, 2019** — 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 – Except as provided in Public Resources Code Section 21099, could 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) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?** | | | X | |
| **d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?** | | | X | |

**Discussion:** The site itself is not considered to be a scenic resource or unique scenic vista. Aesthetics associated with the project site and proposed structures are not anticipated to change as a result of this project. The site is currently developed with an existing dairy facility. The proposed structures will be similar in nature to the other structures on-site and will be comprised of materials consistent with structures in and around the A-2 (General Agriculture) zoning district. Likewise, all proposed improvements are to occur within the footprint of the existing facility. Standard conditions of approval will be added to this project to address glare and nightglow from any proposed on-site lighting.

**Mitigation:** None.

**References:** Application information; Stanislaus County Zoning Ordinance; the Stanislaus County General Plan; and Support Documentation[1].

| 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. 73-1300. Surrounding land uses consist of mostly cropland, orchard, and scattered single-family homes and agricultural buildings. Another dairy facility is in operation west of the property.

The portion of the parcel where the dairy operation is located is designated by the California Department of Conservation Farmland Mapping and Monitoring Program as Confined Animal Facility. The remainder of the parcel is designated primarily as Prime Farmland and Unique Farmland. According to the California Department of Agriculture's Natural Resources Conservation Service's Soil Survey, the parcel's soil is classified as being comprised of 55.6% Dinuba sandy loam, 0 to 1 percent slopes (DrA – California Revised Storie Index Rating: 86); 20.3% Dinuba sandy loam, slightly saline-alkali, 0 to 1 percent slopes (DwA – Index Rating: 68); 12.7% Hilmar loamy sand, 0 to 1 percent (HfA – Index Rating: 24); and 11.4% Fresno sandy loam, moderately saline-alkali, 0 to 1 percent slopes (FuA – Index Rating: 68). The area specifically within the dairy facility footprint indicates a soil composition of 33.8% Hilmar loamy sand and 66.2% Dinuba sandy loam. The California Revised Storie Index is a rating system based on soil properties that dictate the potential for soils to be used for irrigated agricultural production in California.

This rating system grades soils with an index rating of 86 as excellent soil to be used for irrigated agriculture, 68 as good, and 24 as poor.

The project proposes to increase the number of permitted cows from 1,380 combined milk and dry cows to 2,900 combined milk and dry cows. The proposed support stock includes an increase from 1,175 to 1,550 heifers. The project also proposes the demolition and replacement of three free-stall shade structures (4,350 square feet, 7,900 square feet, and 7,370 square feet in size) with three free-stall barns (27,300 square feet each), and the construction of two additional free-stall barns (38,850 square feet and 54,600 square feet). The proposal includes installation of a concrete stacking pad and a mechanical manure separator to serve the existing on-site lagoons. The site is served by well and private septic systems. The attached Wastewater Management Plan (WMP) and Nutrition Management Plan (NMP) provide details on managing the expanded dairy cows. The nutrients produced by the herd will be utilized to fertilize approximately 1,210 farmable acres of irrigated cropland.

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 WMP and NMP and stated the provided plans are sufficient.

The project will have no impact to forest land or timberland. The project does not appear to 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 no response has been received to date.

General Plan Amendment No. 2011-01 - *Revised Agricultural Buffers* was approved by the Board of Supervisors on December 20, 2011, to modify County requirements for buffers on agricultural projects. The existing facility and current proposal both meet the criteria of an agricultural use, considered closely related to agriculture and necessary for a healthy agricultural economy. If not considered "people-intensive" by the Planning Commission, the project will not be subject to agricultural buffers.

The project site is enrolled in an active Williamson Act Contract. Based on the specific features and design of this project, it does not appear this project will impact the long-term productive agricultural capability of surrounding contracted lands in the A-2 zoning district. There is no indication this project will result in the removal of adjacent contracted land from agricultural use.

**Mitigation:** None.

**References:** E-mail correspondence Regional Water Quality Control Board, dated November 30, 2018 and June 7, 2018; 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; Stanislaus County General Plan and Support Documentation[1].

| **III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management district 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) 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?** | | | **X** | |
| **c) Expose sensitive receptors to substantial pollutant concentrations?** | | | **X** | |
| **d) Result in other emissions (such as those odors adversely affecting a substantial number of people?** | | | **X** | |

**Discussion:** The proposed project is located within the San Joaquin Valley Air Basin (SJVAB) and, therefore, falls under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). In conjunction with the Stanislaus Council of Governments (StanCOG), the SJVAPCD is responsible for formulating and implementing air pollution control strategies. The SJVAPCD's most recent air quality plans are the 2007 PM10 (respirable particulate matter) Maintenance Plan, the 2008 PM2.5 (fine particulate matter) Plan, and the 2007 Ozone Plan. These plans establish a comprehensive air pollution control program leading to the attainment of state and federal air quality standards in the SJVAB, which has been classified at the federal level for National Ambient Air Quality Standards (NAAQS) as "extreme non-attainment" for the 8-hour ozone standards, "non-attainment" for the PM2.5 standards, and "attainment" for the 1-Hour ozone, respirable particulate matter (PM-10), and CO standards, as defined by the Federal Clean Air Act. At the state level, the District is currently designated as non-attainment for the 8-hour ozone, PM10, and PM2.5 California Ambient Air Quality Standards (CAAQS).

A source of air pollutants generated by this project would be classified as being generated from "mobile" sources. Mobile sources would generally include dust from roads, farming, and automobile exhausts. Mobile sources are generally regulated by the Air Resources Board of the California EPA, which sets emissions for vehicles and acts on issues regarding cleaner burning fuels and alternative fuel technologies. As such, the District has addressed most criteria air pollutants through basin-wide programs and policies to prevent cumulative deterioration of air quality within the Basin. The project will increase traffic in the area and will thereby impact air quality.

Potential impacts on local and regional air quality are anticipated to be less than significant, falling below SJVAPCD thresholds, as a result of the nature of the proposed project and project's operation after construction. Implementation of the proposed project would fall below the SJVAPCD significance thresholds for both short-term construction and long-term operational emissions, as discussed below. Because construction and operation of the project would not exceed the SJVAPCD significance thresholds, the proposed project would not increase the frequency or severity of existing air quality standards or the interim emission reductions specified in the air plans.

This project was referred to SJVAPCD and a response letter was received requiring a Health Risk Assessment and Ambient Air Quality Analysis be conducted in order for the District to assess the project's potential impact on air quality. The District's

response letter also requested that the assessment include the project's potential impacts to construction emissions, operational emissions (both permitted stationary sources and non-permitted mobile sources), nuisance odors, and health impacts from toxic air contaminants (TACs).

Matt Daniel of Insight Environmental Consultants prepared the Health Risk Assessment (HRA) for the proposed expansion, evaluating hazardous air pollutants (HAP) and their emissions sources, as well as the risk potential on sensitive receptors. The document found that the unmitigated potential carcinogenic and non-carcinogenic health risk to receptors resulting from the dairy expansion is less than significant based on the following thresholds set by SJVACPD:

- The potential chronic carcinogenic risk falls below the significance threshold of twenty in one million
- The hazard index for the potential chronic non-cancer risk falls below the significance threshold of 1.0
- The hazard index for the potential acute non-cancer risk falls below the significance threshold of 1.0

Mr. Daniel also prepared the Ambient Air Quality Analysis (AAQA) for the project request. The AAQA evaluates the impacts of the project-related emission of criteria pollutants by their violation of set air quality standards. The criteria pollutants are identified as nitrogen dioxide (NO2), carbon monoxide (CO), sulfur dioxide (SO2), particulate matter between 2.5 and 10 micrometers in diameter (PM10), particulate matter less than 2.5 micrometers in diameter (PM2.5), and hydrogen sulfide (H2S) resulting from the proposed increased herd numbers and the addition on-site mobile sources resulting from the expansion. The request is considered a violation of air quality standards if it conflicts with implementation of an adopted air quality plan, substantially contributes to the existing or projected air quality standard, causes a cumulatively considerable net increase of any criteria pollutant for which the project region is designated non-attainment, exposes sensitive receptors to substantial pollutant concentrations, or creates objectionable odors affecting a substantial number of people. The report found that the ambient air quality impact of this request is determined to be less than significant based on the following conclusions:

- Proposed emissions for the project will not cause or contribute to a violation of any NAAQS or CAAQS for NO2, SO2, CO, or H2S or cause a violation of the SJVAPCD thresholds for PM10 and PM2.5.

The Air District provided a response to the submitted HRA and AAQA, concurring with the conclusions established in the reports that the proposed project is below the District's thresholds of significance for emissions. Both the HRA and AAQA have been included as an attachment to this report.

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 Agriculture) zoning district. Chapter 9.32 - *Agricultural Land Policies* of the Stanislaus County Code requires that 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.

For these reasons, the proposed project would be consistent with the applicable air quality plans. Also, the proposed project would not conflict with applicable regional plans or policies adopted by agencies with jurisdiction over the project and would be considered to have a less than significant impact.

Construction activities associated with new development can temporarily increase localized PM10, PM2.5, volatile organic compound (VOC), nitrogen oxides (NOX), sulfur oxides (SOX), and carbon monoxide (CO) concentrations a project's vicinity. The primary source of construction-related CO, SOX, VOC, and NOX emission is gasoline and diesel-powered, heavy-duty mobile construction equipment. Primary sources of PM10 and PM2.5 emissions are generally clearing and demolition activities, grading operations, construction vehicle traffic on unpaved ground, and wind blowing over exposed surfaces.

Construction activities associated with the proposed project would consist primarily of demolition of three free-stall barns and construction of five free-stall animal housing structures. These activities would not require any substantial use of heavy-duty construction equipment and would require little or no grading as the project area is presently already improved and considered to be topographically flat. Consequently, emissions would be minimal. Furthermore, all construction activities would occur in compliance with all SJVAPCD regulations; therefore, construction emissions would be less than significant without mitigation.

**Mitigation:** None.

**References:** Referral response from San Joaquin Valley Air Pollution Control District, dated July 12, 2018; Health Risk Assessment prepared by Matt Daniel of Insight Environmental Consultants, dated July 2019; Ambient Air Quality Assessment prepared by Matt Daniel of Insight Environmental Consultants, dated May 2019; E-mail correspondence from San Joaquin Valley Air Pollution Control District, dated July 10, 2019 and July 12, 2019; Stanislaus County General Plan and Support Documentation[1]**.**

| 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 state or federally protected wetlands (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, or impede the use of native wildlife nursery sites?** | | | **X** | |
| **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:** It does not appear this project will result in impacts to endangered species or habitats, locally designated species, or wildlife dispersal or mitigation corridors. There are no known sensitive or protected species or natural community located on the site. The project is located within the Ceres Quad of the California Natural Diversity Database, which identifies several special-status species of plant and animal as potentially located within the quad: Swainson's hawk, steelhead, elderberry longhorn beetle, and tricolor blackbird. The proposed project site is mostly developed, making the likelihood that any of these species exist on the site low. No rivers, creeks, ponds, or open canals exist on the project site or within the immediate vicinity.

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 to date.

**Mitigation:** None.

**References:** California Department of Fish and Wildlife's Natural Diversity Database Quad Species List; Stanislaus County General Plan and Support Documentation[1].

| 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 pursuant to in § 15064.5?** | | | **X** | |
| **b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?** | | | **X** | |
| **c) Disturb any human remains, including those interred outside of formal cemeteries?** | | | **X** | |

**Discussion:** This project does not fall under the requirements for tribal consultation of either AB 52 or SB 18, as it is not a General Plan or Specific Plan Amendment, and to date, none of the tribes listed by the Native American Heritage Commission (NAHC) have contacted the County to request project referrals.

This project has low sensitivity for cultural, historical, paleontological, or tribal resources due to it being already developed for many years. It does not appear that this project will result in significant impacts to any archaeological or cultural resources; however, a standard condition of approval will be added to this project to address any discovery of cultural resources during ground-disturbing activities.

**Mitigation:** None.

**References:** Stanislaus County General Plan and Support Documentation[1].

| VI. ENERGY -- Would the project: | Potentially Significant Impact | Less Than Significant With Mitigation Included | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?** | | | **X** | |
| **b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?** | | | **X** | |

**Discussion:** The CEQA Guidelines Appendix F states that energy consuming equipment and processes, which will be used during construction or operation, shall be taken into consideration when evaluating energy impacts, such as: energy requirements of the project by fuel type and end use; energy conservation equipment and design features; energy supplies that would serve the project; and total estimated daily vehicle trips to be generated by the project and the additional energy consumed per trip by mode. Additionally, the project's compliance with applicable state or local energy legislation, policies, and standards must be considered.

The applicant is requesting to expand an existing dairy facility by increasing the number of permitted cows from 1,380 combined milk and dry cows to 2,900 combined milk and dry cows and to increase support stock by an additional 375 cows. The project also proposes the demolition and replacement of three free-stall shade structures (4,350 square feet, 7,900 square feet, and 7,370 square feet in size) with three free-stall barns (27,300 square feet each), and the construction of two additional free-stall barns (38,850 square feet and 54,600 square feet). All proposed building-mounted lighting on the proposed animal structures will be LED. The project proposes to increase employee numbers on a maximum shift from 14 to 20 while maintaining two employees on a minimum shift. The request will generate 60 vehicle trips per day, which are not anticipated to produce criteria pollutants that exceed the Air District's threshold of significance. Additionally, the applicant has agreed to be part of a "cluster" digester project that is currently in the planning stages. The cluster concept involves capturing and piping methane from multiple dairies to a centrally located digester which uses the methane to generate electricity rather than allowing it to be emitted into the atmosphere.

It does not appear that this project will result in significant impacts to the wasteful, inefficient, or unnecessary consumption of energy resources. A condition of approval will be added to this project to address compliance with Title 24, Green Building Code, for projects that require energy efficiency. Additionally, a condition of approval will be added requiring any site lighting to meet industry standards for energy efficiency.

The project was referred to Pacific Gas & Electric (PG&E) and Turlock Irrigation District, which provides the project site with gas and electric service, and no response was received to date.

With the project's existing requirements in place and with the proposed additional measures providing energy efficient improvements, it does not appear this project will result in significant impacts to the wasteful, inefficient, or unnecessary consumption of energy resources.

**Mitigation:** None.

**References:** Stanislaus County General Plan and Support Documentation[1].

| **VII. GEOLOGY AND SOILS -- Would the project:** | **Potentially Significant Impact** | **Less Than Significant With Mitigation Included** | **Less Than Significant Impact** | **No Impact** |
|---|---|---|---|---|
| **a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:** | | | | |
| **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, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect 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** | |
| **f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?** | | | **X** | |

**Discussion:** The USDA Natural Resources Conservation Service's Eastern Stanislaus County Soil Survey indicates that the property is made up of Dinuba sandy loam, 0 to 1 percent slops (DrA); Dinuba sandy loam, slightly saline-alkali, 0 to 1 percent slopes (DwA); Hilmar loamy sand, 0 to 1 percent (HfA); and Fresno sandy loam, moderately saline-alkali, 0 to 1 percent slopes (FuA). The area within the dairy facility footprint is comprised of a soil composition of Hilmar loamy sand, 0 to 1 percent (HfA) and Dinuba sandy loam, 0 to 1 percent slopes (DrA). 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 soil test may be required at building permit application. Results from the soil 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 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 or expansion 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.

The project site is not located near an active fault or within a high earthquake zone. Landslides are not likely due to the flat terrain of the area.

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 and will be triggered when a building permit is requested.

An Early Consultation was referred to the Department of Public Works which responded with a condition requiring a drainage and grading permit. All comments will be added to the project's conditions of approval.

**Mitigation:** None.

**References:** Referral response from the Stanislaus County Department of Public Works dated September 4, 2018; Referral response received from the Stanislaus County Department of Planning and Community Development – Building Division, dated July 9, 2018; Stanislaus County General Plan and Support Documentation[1].

| **VIII. 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) to 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. As a requirement of AB 32, the ARB was assigned the task of developing a Climate Change Scoping Plan that outlines the state's strategy to achieve the 2020 GHG emissions limits. This Scoping Plan includes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce the state's dependence on oil, diversify the state's energy sources, save energy, create new jobs, and enhance public health. The Climate Change Scoping Plan was approved by the ARB on December 22, 2008. According to the September 23, 2010, AB 32 Climate Change Scoping Plan Progress Report, 40 percent of the reductions identified in the Scoping Plan have been secured through ARB actions and California is on track to its 2020 goal.

Although not originally intended to reduce GHGs, California Code of Regulations (CCR) Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. Since then, Title 24 has been amended with recognition that energy-efficient buildings require less electricity and reduce fuel consumption, which in turn decreases GHG emissions. The current Title 24 standards were adopted to respond to the requirements of AB 32. Specifically, new development projects within California after January 1, 2011, are subject to the mandatory planning and design, energy efficiency, water efficiency and conservation, material conservation and resources efficiency, and environmental quality measures of the California Green Building Standards (CALGreen) Code (California Code of Regulations, Title 24, Part 11).

The proposed project would result in short-term emissions of GHGs during construction. These emissions, primarily CO2, CH4, and N2O, are the result of fuel combustion by construction equipment and motor vehicles. The other primary GHGs (HFCs, PFCs, and SF6) are typically associated with specific industrial sources and are not expected to be emitted by the proposed project. As described above in Section III - Air Quality, the use of heavy-duty construction equipment would be very limited; therefore, the emissions of CO2 from construction would be less than significant.

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 2,900 milk and dry cows, with a total of 3,187 metric tons of CO2e per year, which will not require reporting to the EPA.

Should Best Management Practices for the reduction of greenhouse gases from dairy operations be adopted either locally or by SJVAPCD, the S & S Dairy, Inc. will be required to meet those standards, as required by conditions of approval for this project. With conditions of approval in place, the project's impact to greenhouse gas emissions is considered to be less than significant. Additionally, the applicant has agreed to be part of a "cluster" digester project that is currently in the planning stages. The cluster concept involves capturing and piping methane from multiple dairies to a centrally located digester which uses the methane to generate electricity rather than allowing it to be emitted into the atmosphere.

The applicant proposes to increase the number of permitted cows from 1,380 combined milk and dry cows to 2,900 combined milk and dry cows (2,500 milk and 400 dry). The proposed support stock includes an increase from 1,175 to 1,550 cows (consisting of 850 bred heifers, 15 to 24 months; 400 heifers, seven to 14 months; and 300 calves, four to six months). The project also proposes the demolition and replacement of three free-stall shade structures (4,350 square feet, 7,900 square feet and 7,370 square feet in size) with three free-stall barns (27,300 square feet each), and the construction of two additional free-stall barns (38,850 square feet and 54,600 square feet). The project proposes to increase employee numbers on a maximum shift from 14 to 20 while maintaining two employees on a minimum shift. Two visitors are anticipated during peak times and a maximum of twelve truck deliveries per day is estimated. The Air District provided a project referral response indicating that the proposed project is below the District's thresholds of significance for emissions and that the proposed construction will 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 complies with the District's rules and regulations.

**Mitigation:** None.

**References:** E-mail correspondence from San Joaquin Valley Air Pollution Control District, dated July 10, 2019 and July 12, 2019; Stanislaus County General Plan and Support Documentation[1].

| IX. 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 or excessive noise for people residing or working in the project area?** | | | | **X** |
| **f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?** | | | **X** | |
| **g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?** | | | **X** | |

**Discussion:** The County's Department of Environmental Resources is responsible for overseeing hazardous materials and has not indicated any particular concerns in this area. Pesticide exposure is a risk in areas located in the vicinity of agriculture. Sources of exposure include contaminated groundwater, which is consumed, and drift from spray applications. Applications of sprays are strictly controlled by the Agricultural Commissioner and can only be accomplished after first obtaining permits. Animal waste resulting from daily operations will be managed through Waste and Nutrient Management Plans, which have been reviewed and approved by the Regional Water Quality Control Board. The proposed use is otherwise not recognized as a generator and/or consumer of hazardous materials, therefore no significant impacts associated with hazards or hazardous materials are anticipated to occur as a result of the proposed project.

The project site is not listed on the EnviroStor database managed by the CA Department of Toxic Substances Control or within the vicinity of any airstrip. The groundwater is not known to be contaminated in this area. The site is not located in a State Responsibility Area (SRA) for fire protection and is served by the Mountain View Fire Protection District. An Early Consultation was sent to the Mountain View Fire Protection District, and no comments have been received to date.

The project site is not within the vicinity of any airstrip or wildlands.

**Mitigation:** None.

**References:** E-mail correspondence from Regional Water Quality Control Board, dated November 30, 2018; Stanislaus County General Plan and Support Documentation[1].

| X. 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 or otherwise substantially degrade surface or ground water quality?** | | | X | |
| **b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?** | | | 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 or through the addition of impervious surfaces, in a manner which would:** | | | | |
| **(i) result in substantial erosion or siltation on – or off-site;** | | | | X |
| **(ii) substantially increase the rate of amount of surface runoff in a manner which would result in flooding on- or off-site;** | | | | X |
| **(iii) 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; or** | | | X | |
| **(iv) impede or redirect flood flows?** | | | | X |
| **d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?** | | | X | |
| **e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?** | | | X | |

**Discussion:** The project also proposes the demolition and replacement of three free-stall shade structures (4,350 square feet, 7,900 square feet, and 7,370 square feet in size) with three free-stall barns (27,300 square feet each) and the construction of two additional free-stall barns (38,850 square feet and 54,600 square feet). The square footage of roof-only structures is increased by 155,730 square feet which will result in an increase of run-off featured on-site.

Run-off is not considered an issue because of several factors which limit the potential impact. These factors include a relative flat terrain of the subject site and relatively low rainfall intensities. 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. As such, flooding is not considered to be an issue with respect to this project. Flood zone requirements will be addressed by the Building Permits Division during the building permit application process. The Stanislaus County Department of Public Works has reviewed the project and is requiring a grading, drainage, and erosion/sediment control plan as a part of the building permit for the roof-only structures. Consequently, run-off associated with the construction of the new structure will be reviewed as part of the overall building permit review process. No septic systems or additional wells are being proposed as a part of this project.

The WMP and NMP were reviewed by RWQCB staff to determine if the amount of wastewater generated, utilized to wash down the facility, and applied to crops was in accordance with the standards outlined in the General Order and whether new individual WDRs are needed. The purpose of review of these plans and compliance with the General Order is to ensure that approved plans are designed and implemented to ensure that the impact of animal waste on surface and groundwater quality is minimized and poses a less than significant impact on water quality. According to the WMP, the total process

wastewater generated daily will be 164,364 gallons per day. The existing and required lagoon storage capacities were calculated to be 18.3 and 26.2 million gallons, respectively. RWQCB staff have determined that the aforementioned plans are compliant with the General Order and that the existing lagoons are adequately sized to handle any additional waste resulting from the reorganization. Consequently, the potential for impacts to ground and surface water, water quality, and polluted run-off were determined to be less than significant.

**Mitigation:** None.

**References:** Waste Management Plan; Nutrient Management Plan; E-mail correspondence from Regional Water Quality Control Board, dated November 30, 2018; Stanislaus County General Plan and Support Documentation[1].

| XI. 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) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?** | | | **X** | |

**Discussion:** The project site is designated Agriculture in the County General Plan and is zoned A-2-40 (General Agriculture). The applicant is requesting to expand an existing dairy facility by increasing the number of permitted cows from 1,380 combined milk and dry cows to 2,900 combined milk and dry cows and to increase support stock by an additional 375 cows, on a 106± acre parcel further identified by Assessor's Parcel Number 022-026-014. A dairy herd expansion is permitted in the agricultural zone; however, the RWQCB has determined that the proposed project is subject to CEQA and, therefore, 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. In addition, agricultural uses requiring a Use Permit which do not fall under Tier One, Two, or Three uses may be allowed when the Planning Commission finds that:

> The establishment, maintenance, and operation of the proposed use or buildings applied for are consistent with the General Plan 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 project also proposes the demolition and replacement of three free-stall shade structures (4,350 square feet, 7,900 square feet, and 7,370 square feet in size) with three free-stall barns (27,300 square feet each) and the construction of two additional free-stall barns (38,850 square feet and 54,600 square feet).

The project will not physically divide an established community, nor conflict with any habitat conservation plans.

**Mitigation:** None.

**References:** Stanislaus County General Plan and Support Documentation[1].

| XII. 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. The project site is located in the Ceres Quad of the United States Geological Survey 7.5-minute topographic quadrangle map. There are no known significant resources on the site, nor is the project site located in a geological area known to produce resources.

**Mitigation:** None.

**References:** Stanislaus County General Plan and Support Documentation[1].

| XIII. NOISE -- Would the project result in: | Potentially Significant Impact | Less Than Significant With Mitigation Included | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?** | | | **X** | |
| **b) Generation of excessive ground-borne vibration or ground-borne noise levels?** | | | **X** | |
| **c) For a project located within the vicinity of a private airstrip or 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** | |

**Discussion:** The Stanislaus County General Plan identifies noise levels up to 75 dB Ldn (or CNEL) as the normally acceptable level of noise for agricultural uses. On-site grading and construction of five free-stall barns, resulting from this project, may result in a temporary increase in the area's ambient noise levels, and added cows and equipment associated with dairy processes may increase the noise associated with the project site. As such, the project will be conditioned to abide by County regulations related to hours and days of construction. However, noise impacts associated with on-site activities and traffic are not anticipated to exceed the normally acceptable level of noise. Permanent increases may result as the number of animal units is increased on-site; however, Stanislaus County has adopted a Right-to-Farm Ordinance (§9.32.050) which states that inconveniences associated with agricultural operations, such as noise, odors, flies, dust, or fumes shall not be considered to be a nuisance if agricultural operations are consistent with accepted customs and standards. The site itself is impacted by the noise generated from vehicular traffic and adjacent farming operations. Operating hours are proposed to be 20 hours per day, year-round. The nearest sensitive noise receptors are homes on neighboring properties. The nearest dwellings are located within 150 feet of the existing dairy facility footprint.

The site is not located within an airport land use plan.

**Mitigation:** None.

**References:** Stanislaus County General Plan and Support Documentation[1].

| XIV. POPULATION AND HOUSING -- Would the project: | Potentially Significant Impact | Less Than Significant With Mitigation Included | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **a) Induce substantial unplanned 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 people or housing, necessitating the construction of replacement housing elsewhere?** | | | | **X** |

**Discussion:** The site is not included in the Vacant Sites Inventory for the 2016 Stanislaus County Housing Element, which covers the 5th cycle Regional Housing Needs Allocation (RHNA) for the County and will therefore not impact the County's ability to meet their RHNA. 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 project site is adjacent to large scale agricultural operations, and the nature of the use is considered consistent with the A-2 (General Agriculture) zoning district.

**Mitigation:** None.

**References:** Stanislaus County General Plan and Support Documentation[1].

| XV. 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 Fire Facility Fees on behalf of the appropriate fire district, to address impacts to public services. The applicant proposes the demolition and replacement of three free-stall shade structures (4,350 square feet, 7,900 square feet, and 7,370 square feet in size) with three free-stall barns (27,300 square feet each) and the construction of two additional free-stall barns (38,850 square feet and 54,600 square feet). When this construction occurs on the property, all adopted public facility fees will be required to be paid at the time of building permit issuance.

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.

**Mitigation:** None.

**References:** Stanislaus County General Plan and Support Documentation[1].

| XVI. 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 Documentation[1].

| XVII. TRANSPORATION-- Would the project: | Potentially Significant Impact | Less Than Significant With Mitigation Included | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?** | | | **X** | |
| **b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?** | | | **X** | |
| **c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?** | | | **X** | |
| **d) Result in inadequate emergency access?** | | | **X** | |

**Discussion:** Significant impacts to traffic and transportation were not identified by reviewing agencies. According to the application, the expansion will result in an increase of employees on a maximum shift from 14 to 20. The number of daily customers/visitors on-site at peak time is estimated to remain at two. Furthermore, the applicant proposes an increase of average daily trips from 45 (including six daily truck trips) to 60 (including eight daily truck trips). Truck deliveries/loadings are estimated to occur up to six hours per day. The existing facility has direct access onto County-maintained East Monte Vista Road. The size of the parcel is large enough to offer adequate on-site parking opportunities.

This project was referred to the California Department of Transportation (Caltrans), which had no comments regarding the proposed project.

The project was referred to the Stanislaus County Department of Public Works, which has requested conditions of approval to address driveway approaches installed according to Public Works' Standards and Specifications, restrictions on loading, parking, unloading within the County right-of-way, the need for an irrevocable offer of dedication, and a grading, drainage, and sediment management plan.

**Mitigation:** None.

**References:** Referral response from Public Works, dated September 4, 2018; Stanislaus County General Plan and Support Documentation[1].

| XIX. UTILITIES AND SERVICE SYSTEMS -- Would the project: | Potentially Significant Impact | Less Than Significant With Mitigation Included | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?** | | | **X** | |
| **b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?** | | | **X** | |

| | | | | |
|---|---|---|---|---|
| **c) 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** | |
| **d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?** | | | **X** | |
| **e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?** | | | **X** | |

**Discussion:** Limitations on providing services have not been identified. The project proposes to utilize an on-site well and water tank for water and septic systems for wastewater. Turlock Irrigation District (TID) is the irrigation and electric service provider for this project site. The project was referred to Turlock Irrigation District, Department of Environmental Resources (DER), Environmental Review Committee (ERC), and the Regional Water Quality Control Board (RWQCB). DER did not respond with comments; however, comments were received from Public Works requiring 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.

The project site is improved with on-site wells which provide drinking and milk room wash water for the facility. Flush lanes, utilized in free-stall barns, are washed out with lagoon water. Solid waste (manure) is separated from liquid waste. Liquid waste is stored in lagoons along with wash water. The WMP for this project indicates that the existing lagoons have sufficient carrying capacity for the increased liquid waste resulting from the proposed expansion. Wastewater will be applied to 32 parcels totaling 1,210± farmable acres of cropland. Application of wastewater is strictly monitored by the RWQCB to ensure that wastewater does not impact the quality of surface water and groundwater. As a result, dairies are required to submit a NMP and a WMP to ensure the optimal level of lagoon water is used on crop land without it causing impacts to water resources.

**Mitigation:** None.

**References:** Referral response from the Stanislaus County Department of Public Works dated September 4, 2018; Waste Management Plan; E-mail correspondence from Regional Water Quality Control Board, dated November 30, 2018; Referral response from Regional Water Quality Control Board, dated July 23, 2018; Referral response from the Environmental Review Committee, dated July 24, 2018; Nutrient Management Plan; Stanislaus County General Plan and Support Documentation[1].

| | | | | |
|---|---|---|---|---|
| **XX. WILDFIRE – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:** | **Potentially Significant Impact** | **Less Than Significant With Mitigation Included** | **Less Than Significant Impact** | **No Impact** |
| **a) Substantially impair an adopted emergency response plan or emergency evacuation plan?** | | | **X** | |
| **b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?** | | | **X** | |
| **c) Require the installation of maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?** | | | **X** | |
| **d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?** | | | **X** | |

**Discussion**: The project site is in a non-urbanized area with no wildlands located in the vicinity of the project site. In addition, the project site is not located within a designated high or very high fire hazard severity zone, or near state responsibility areas. No significant impacts to the project site's or surrounding environment's wildfire risk, as a result of this project, are anticipated.

**Mitigation:** None.

**References:** Stanislaus County General Plan and Support Documentation[1].

| XXI. 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 substantially 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, substantially 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. The RWQCB and SJVAPCD review all dairies for this region. No indications were given by RWQCB that the project would have a cumulative impact or substantial adverse effects on human beings, either directly or indirectly. The project was referred to the California Department of Fish and Wildlife, which did not comment nor indicate that the project would result in impacts to plant or animal species and/or habitat.

**Mitigation:** None.

**References:** Initial Study; Stanislaus County General Plan and Support Documentation[1].

[1]Stanislaus County General Plan and Support Documentation adopted in August 23, 2016, as amended. ***Housing Element*** adopted on April 5, 2016.

**DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT**
*1010 10th Street, Suite 3400, Modesto, CA 95354*
*Planning Phone: (209) 525-6330 Fax: (209) 525-5911*
*Building Phone: (209) 525-6557 Fax: (209) 525-7759*

# NEGATIVE DECLARATION

**NAME OF PROJECT:** Use Permit Application No. PLN2018-0054 – S & S Dairy, Inc.

**LOCATION OF PROJECT:** 348 East Monte Vista Avenue, on the southwest corner of East Monte Vista Avenue and Bystrum Road, in the Ceres area. APN: 022-026-014.

**PROJECT DEVELOPERS:** Hofman Limited Partnership
5870 Crows Landing Road
Modesto, CA 95358

**DESCRIPTION OF PROJECT:** Request to expand an existing dairy facility, operating on a 106± acre parcel in the A-2-40 (General Agriculture) zoning district, by increasing the herd size from 1,380 mature cows to 2,900 mature cows and support stock from 1,175 to 1,550 heifers, for a total herd increase of 1,895. This request includes the replacement of three free-stall barns with five free-stall barns totaling 175,350 square feet.

Based upon the Initial Study, dated **August 9, 2019**, 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: Kristen Anaya, Assistant Planner

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

# Waste Management Plan
# For
# S&S Dairy, Inc.
# Stanislaus County, CA

Prepared For:
S&S Dairy, Inc.
348 E. Monte Vista Road
Ceres, CA 95307

SOUSA
ENGINEERING
INFRASTRUCTURE-DEVELOPMENT-
AGRICULTURE

SOUSA
ENGINEERING
INFRASTRUCTURE-DEVELOPMENT-
AGRICULTURE

PO BOX 1613
OAKDALE, CA 95361
PHONE: (209)238-3151
www.sousaeng.com

# WASTE MANAGEMENT PLAN
# FOR
# S&S DAIRY, INC.
# STANISLAUS COUNTY, CA

## TABLE OF CONTENTS

# 1. NARRATIVE

## INTRODUCTION

This Waste Management Plan (WMP) has been prepared at the request of the subject dairy's owner and/or operator in order to comply with Section H.1.b., *Waste Management Plan,* of Order No. R5-2013-0122, *Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies,* (Order) adopted by the California Regional Water Quality Control Board (CRWQCB) Central Valley Region. Per the requirements set forth by the aforementioned Order it is the intent of this plan to provide an evaluation of the existing milk cow facility's design, construction, operation, and maintenance for flood protection and waste containment and to determine whether the facility complies with Prohibition A.14 and General Specifications B.1 through B.3 and B.10 through B.16. Should the evaluation provided by this plan determine that the existing facility does not comply with the requirements of the Order, then modifications will be proposed for the facility that will bring it into compliance and those modifications shall be made a part of this plan.

## COMPLIANCE CRITERIA

As required by the Order this plan must evaluate the existing facility's compliance with Prohibition A.14 and General Specifications B.1 through B.3 and B.10 through B.16. The criteria set forth by this Prohibition and General Specifications are as follows:

Prohibition A.14: *"The direct discharge of wastewater into groundwater via backflow through water supply or irrigation supply wells is prohibited."*

The water, irrigation, and wastewater systems of this facility have been examined by a Registered Civil Engineer licensed in the State of California. It has been determined and hereby documented that there are no existing conditions on the project site that would allow for direct discharge of wastewater into groundwater via backflow through water supply or irrigation supply wells. The existing well that supplies the irrigation system has been constructed with an air gap so as to prevent backflow of wastewater into the well.

General Specification B.1: *"The existing milk cow dairy shall have facilities that are designed, constructed, operated, and maintained to retain all facility process wastewater generated during the storage period (maximum period of time anticipated between land application of process wastewater), together with all precipitation on and drainage through manured areas, up to and including during a 25-year, 24-hour storm (see item II of Attachment B, which is attached to and made part of this Order)."*

Attachment B is contained in Section 3.d. of this plan and demonstrates the facility's ability to retain all process wastewater and precipitation generated by the 25-year, 24-hour storm. The tributary areas for storm drain runoff were determined by utilizing field measurements and aerial photography.

The existing Wastewater Basins (WW) were field measured. Depths were determined by field measurements taken with probes and by reviewing design information provided by the facility owner.

General Specification B.2: "*In the Sacramento and San Joaquin River Basins, ponds and manured areas at existing milk cow dairies in operation on or before 27 November 1984 shall be protected from inundation or washout by overflow from any stream channel during 20-year peak stream flows. Existing milk cow dairies that were in operation on or before 27 November 1984 and that are protected against 100-year peak stream flows must continue to provide such protection. Existing milk cow dairies built or expanded after 27 November 1984 shall be protected against 100-year peak stream flows (Title 27 Section 22562(c))."*

The facility is in the San Joaquin River Basin and was constructed before 27 November 1984. However the facility has been expanded since 27 November 1984 and thus must have protection against the 100-year storm event. The relevant Flood Zone Map published by the Federal Emergency Management Agency (FEMA) is Panel No. 06099C0565E. This map indicates that the existing dairy facility is in Zone X and is thus not subject to inundation by the 100-year storm event.

General Specification B.3: **"***In the Tulare Lake Basin, existing milk cow dairies that existed as of 25 July 1975 shall be protected from inundation or washout from overflow from any stream channel during 20-year peak stream flows and existing milk cow dairies constructed after 25 July 1975 shall be protected from 100-year peak stream flows. Existing milk cow dairies expanded after 8 December 1984 shall be protected from 100-year peak stream flows."*

As the facility is in the San Joaquin River Basin this specification is not applicable.

General Specification B.10: *"The level of waste in the process wastewater retention ponds shall be kept a minimum of two (2) feet from the top of each aboveground embankment and a minimum of one (1) foot from the ground surface of each belowground pond. Less freeboard may be approved by the Executive Officer when 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, demonstrates that the structural integrity of the pond will be maintained with the proposed freeboard.*

2' of freeboard has been assigned to the all wastewater retention ponds as all have been constructed above grade.

General Specification B.11: *"Ponds shall be managed and maintained to prevent breeding of mosquitoes and other vectors. In particular,*

*a. Small coves and irregularities shall not be allowed around the perimeter of the water surface;*
*b. Weeds shall be minimized through control of water depth, harvesting, or other appropriate method;*
*c. Dead algae, vegetation, and debris shall not accumulate on the water surface; and*
*d. Management shall be in accordance with the requirements of the Mosquito Abatement District."*

An Operations and Maintenance Plan addressing these items has been included with Attachment B and is hereby made a part of this plan.

General Specification B.12: *"All precipitation and surface drainage from outside of the existing milk cow dairy (i.e., "run on") shall be diverted away from any manured areas unless such drainage is fully contained (Title 27 Section 22562(b))."*

Precipitation and surface drainage outside of the Dairy Production Area (DPA, Exhibit Sheet 10) are diverted away from the DPA or are self-contained.

General Specification B.13: **"***Ponds designated to contain the 25-year, 24-hour storm event runoff must have a depth marker that clearly indicates the minimum capacity necessary to contain the runoff and direct precipitation from a 25-year, 24-hour storm event."*

A marker meeting this specification will be installed in all of the facility's ponds by the compliance date.

General Specification B.14: *"All roofs, buildings, and non-manured areas located in the production area of the existing milk cow dairy shall be constructed or otherwise designed so that clean rainwater is diverted away from manured areas and waste containment facilities, unless such drainage is fully contained in the wastewater retention system (Title 27 Section 22562(b))."*

Exhibit Sheet 10, "Site Map – Production Area", indicates all areas that contribute runoff to the wastewater retention system. All other areas are diverted away from the wastewater retention system or are self-contained.

General Specification B.15: *"Roof drainage from barns, milk houses, or shelters shall not drain into the corrals unless the corrals are properly graded and drained (Title 3 CCR, Division 2, Chapter 1, Article 22, Section 661)."*

Roof drainage on this facility is collected by gutters and directed to flush lanes with downspouts or are directed to fields; the destination of roof drainage for structures in the DPA is indicated in Section 3.a., *Waste Management Plan Report*.

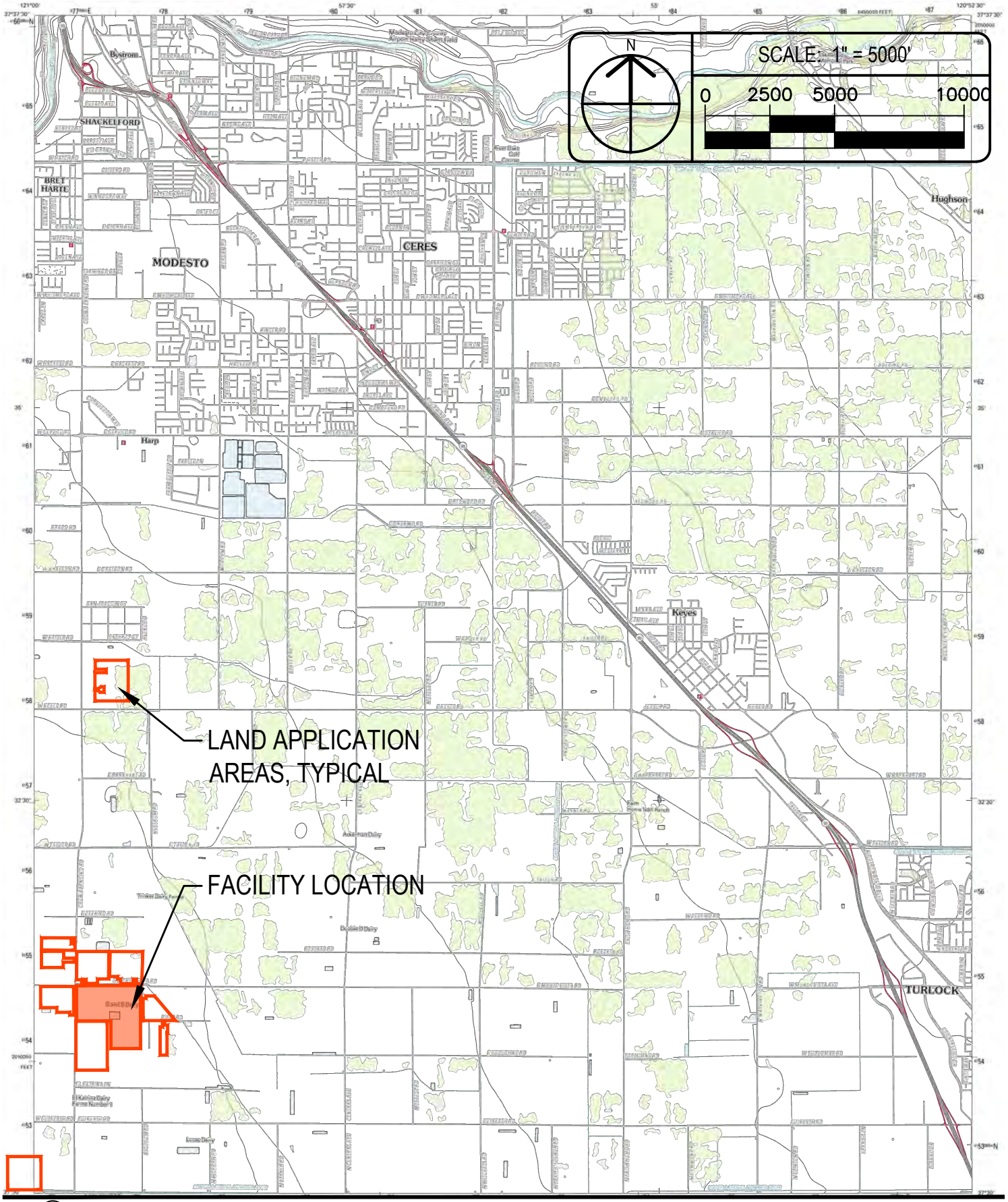
General Specification B.16: "*The milk parlor, animal confinement area (including corrals), and manure and feed storage areas shall be designed and maintained to convey all water that has contacted animal wastes or feed to the wastewater retention system and to minimize standing water as of 72 hours after the last rainfall and the infiltration of water into the underlying soils.*

The milk parlor, some animal confinement areas, and the feed storage area are constructed in such a manner to convey water that has contacted animal wastes or feed to the wastewater retention system and to minimize standing water.

## RESULTS AND CONCLUSIONS

After conducting a visual inspection of the site, obtaining herd and facility information from the operator, performing the required measurements of facility improvements, and performing the calculations included in Attachment B it has been determined that the design, construction, operation, and waste containment of this facility are in compliance with Prohibition A.14 and General Specifications B.1 through B.3 and B.10 through B.16 of Order No. R5-2013-0122, *Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies.*

## 2. EXHIBITS



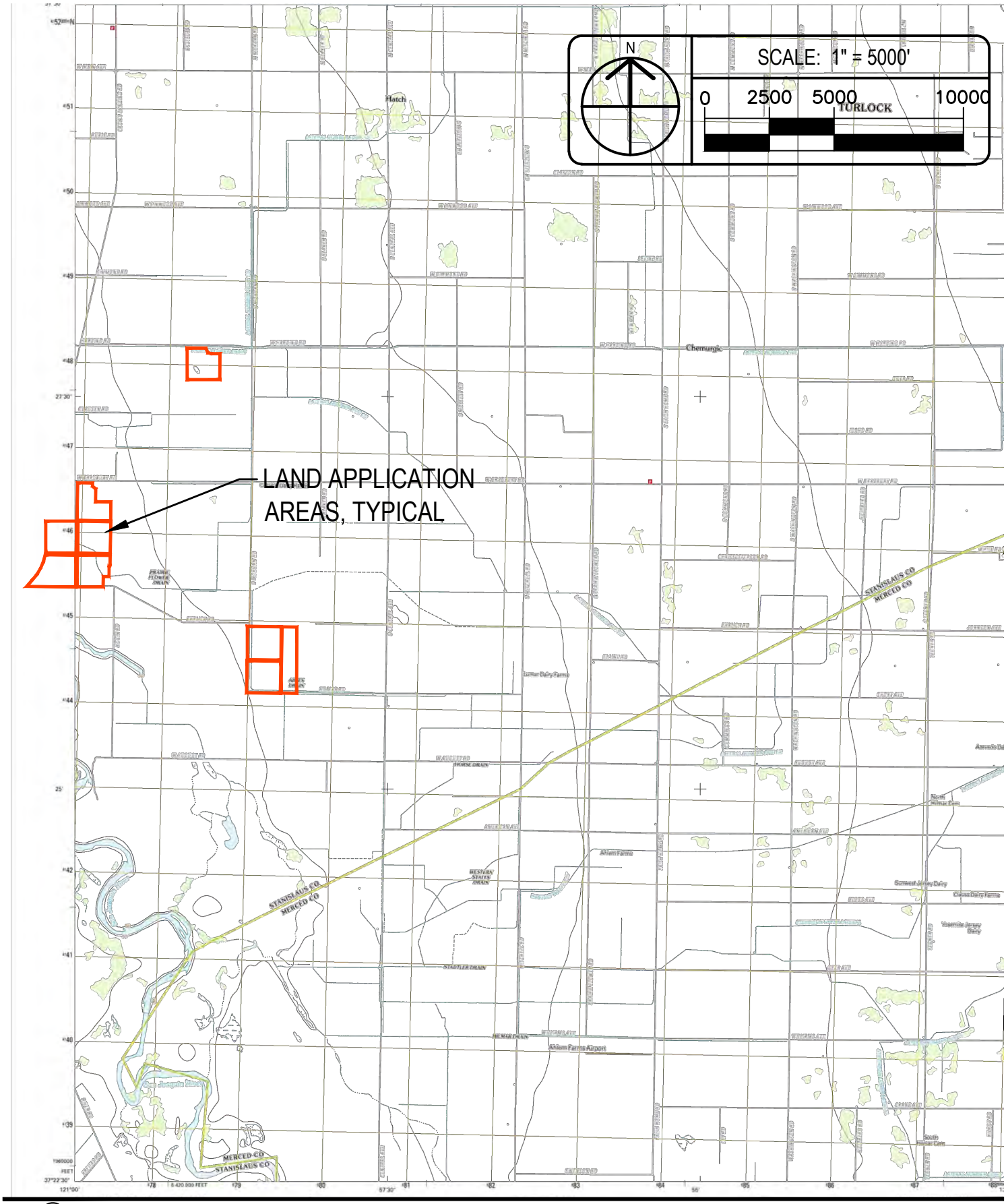

SOUSA
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT - AGRICULTURE

PO BOX 1613
OAKDALE, CA 95361

PH: (209)238-3151
WWW.SOUSAENG.COM

VICINITY MAP
S&S DAIRY

STANISLAUS COUNTY, CA



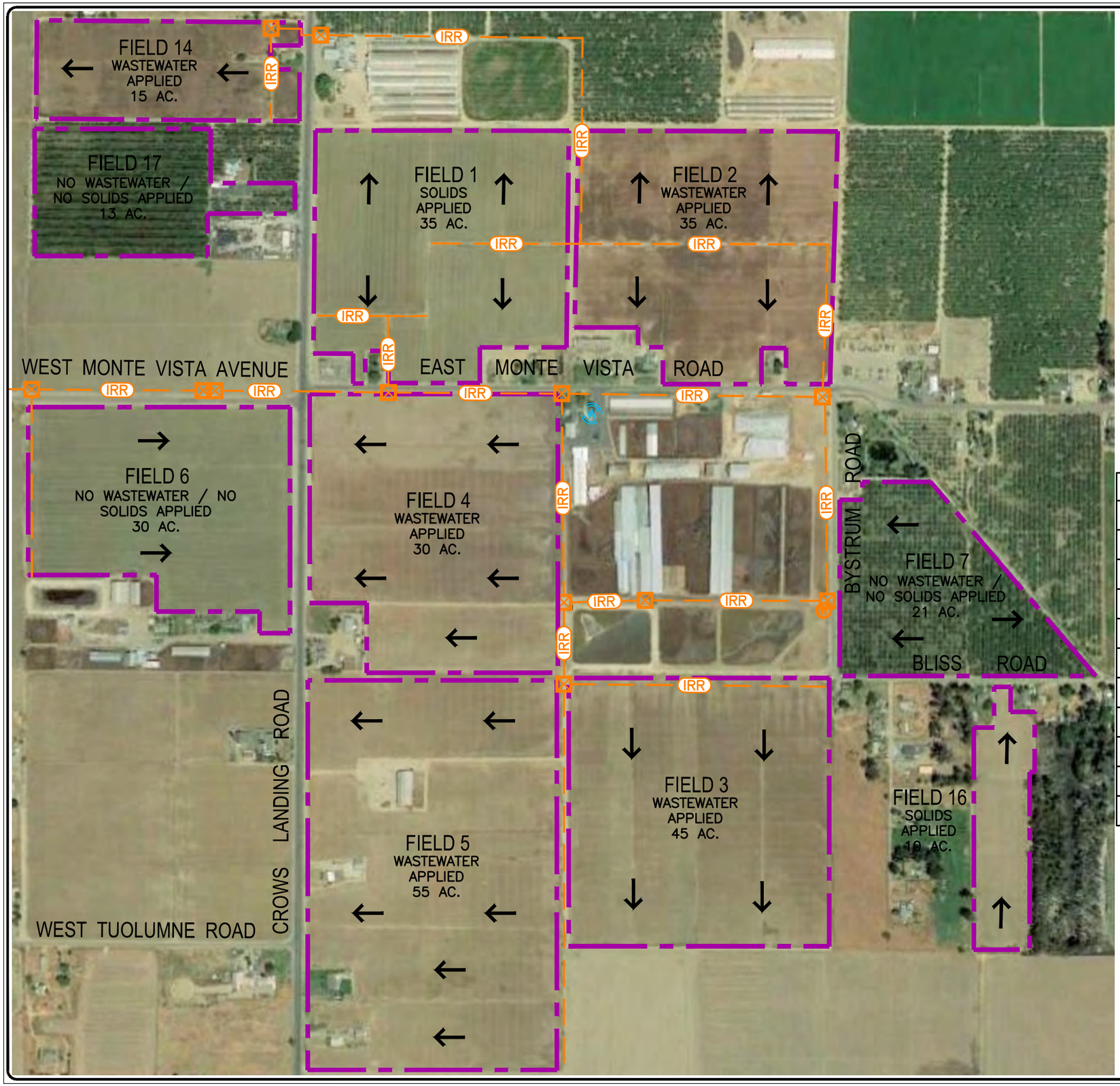

**SOUSA**
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT - AGRICULTURE

PO BOX 1613
OAKDALE, CA 95361

PH: (209)238-3151
WWW.SOUSAENG.COM

# VICINITY MAP
S&S DAIRY

STANISLAUS COUNTY, CA




## LEGEND

- LAND APPLICATION AREA
- IRRIGATION LINE
- IRRIGATION CONTROL BOX
- IRRIGATION WELL
- DOMESTIC WELL
- GENERAL SLOPE AND DIRECTION OF FLOW

| DISCHARGE POINTS | | | |
|---|---|---|---|
| | LAND APP. AREA | LATITUDE | LONGITUDE |
| | 16 | N37° 30' 58.64" | W120° 58' 57.98" |
| | 14 | N37° 31' 34.71" | W120° 59' 49.15" |
| | 1 | N37° 31' 26.54" | W120° 59' 31.95" |
| | 2 | N37° 31' 26.39" | W120° 59' 16.32" |
| | 6 | N37° 31' 14.25" | W120° 59' 49.25" |
| | 4 | N37° 31' 13.11" | W120° 59' 32.43" |
| | 7 | N37° 31' 10.54" | W120° 59' 02.50" |
| | 5 | N37° 30' 56.26" | W120° 59' 32.62" |
| | 3 | N37° 30' 59.45" | W120° 59' 16.72" |
| | 17 | N37° 31' 29.21" | W120° 59' 51.51" |

N

SCALE: 1" = 500'

0 250 500 1000

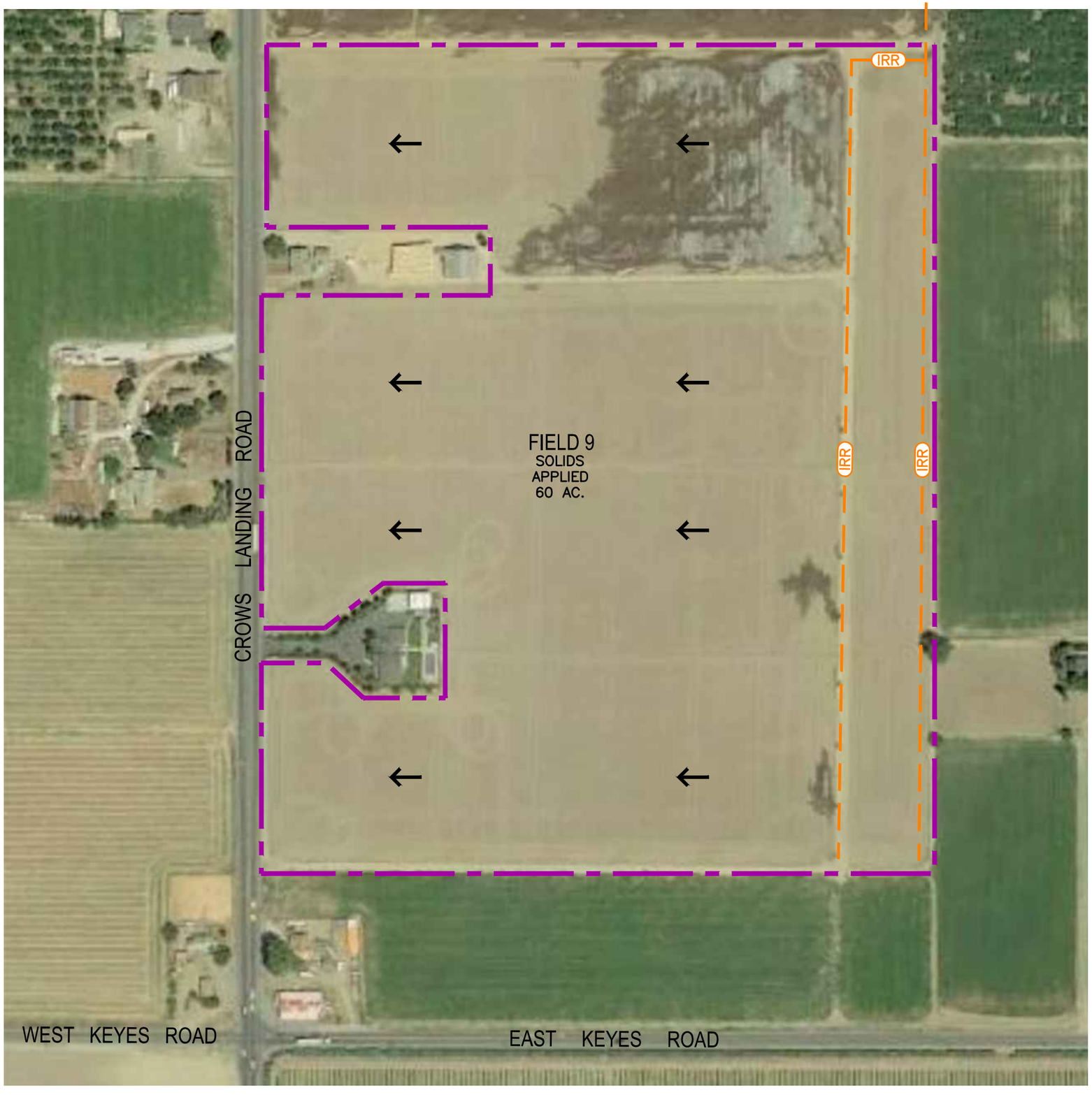
SHEET 3 OF 11

SOUSA
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT - AGRICULTURE
PH: (209)238-3151
WWW.SOUSAENG.COM
PO BOX 1613
OAKDALE, CA 95361

SITE MAP
LAND APPLICATION AREAS
S&S DAIRY
STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 4/9/2018
FILE: 03_site_laa.dwg
JOB NO.: 2018-002

| SYMBOL | REVISIONS DESCRIPTION | APPD. |
|---|---|---|
| | | |




## LEGEND

- LAND APPLICATION AREA
- IRRIGATION LINE
- IRRIGATION CONTROL BOX
- GENERAL SLOPE AND DIRECTION OF FLOW

| DISCHARGE POINTS | | | |
|---|---|---|---|
| | LAND APP. AREA | LATITUDE | LONGITUDE |
| | 9 | N37° 33' 15.18" | W120° 59' 24.14" |

N

SCALE: 1" = 200'

0 100 200 400

SHEET 4 OF 11

SOUSA
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT - AGRICULTURE
PO BOX 1613 OAKDALE, CA 95361
PH: (209)238-3151
WWW.SOUSAENG.COM

SITE MAP
LAND APPLICATION AREAS
S&S DAIRY
STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 4/9/2018
FILE: 04_site_laa.dwg
JOB NO.: 2018-002

| REVISIONS | | |
|---|---|---|
| SYMBOL | DESCRIPTION | APPD. |
| | | |


## LEGEND

LAND APPLICATION AREA

IRRIGATION LINE

GENERAL SLOPE AND DIRECTION OF FLOW

| DISCHARGE POINTS | | | |
|---|---|---|---|
| | LAND APP. AREA | LATITUDE | LONGITUDE |
| | 10 | N37° 30' 07.46" | W121° 00' 04.66" |

N

SCALE: 1" = 200'

0 100 200 400

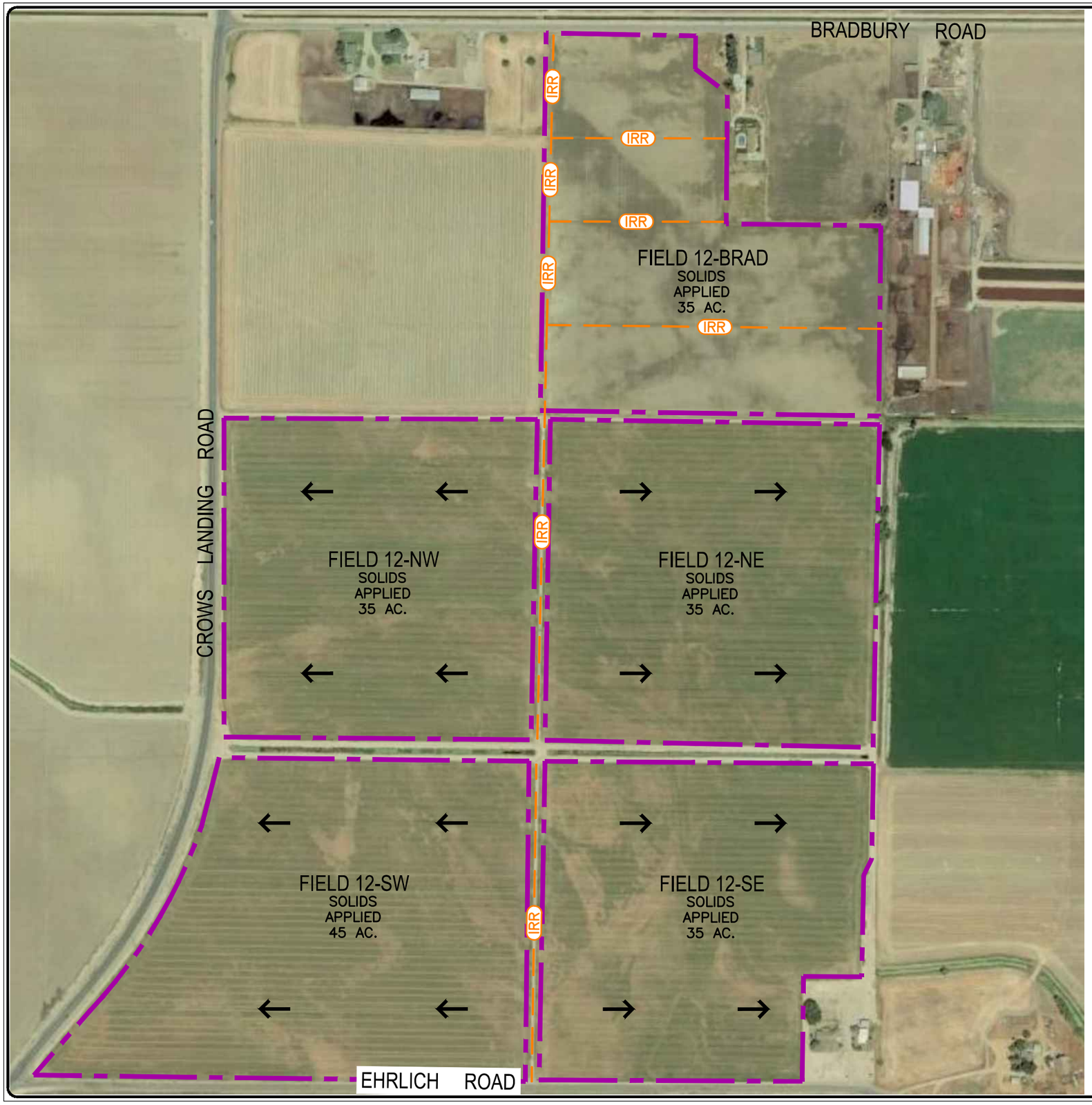
SHEET 5 OF 11

SOUSA
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT - AGRICULTURE
PO BOX 1613 OAKDALE, CA 95361
PH: (209)238-3151
WWW.SOUSAENG.COM

SITE MAP
LAND APPLICATION AREAS
S&S DAIRY
STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 4/9/2018
FILE: 05_site_laa.dwg
JOB NO.: 2018-002

| REVISIONS | | |
|---|---|---|
| SYMBOL | DESCRIPTION | APPD. |
| | | |




## LEGEND

- LAND APPLICATION AREA
- IRRIGATION LINE (IRR)
- GENERAL SLOPE AND DIRECTION OF FLOW

| DISCHARGE POINTS | | |
|---|---|---|
| LAND APP. AREA | LATITUDE | LONGITUDE |
| 12–BRAD | N37° 26' 47.55" | W120° 59' 49.82" |
| 12–NW | N37° 26' 36.63" | W121° 00' 04.90" |
| 12–NE | N37° 26' 36.58" | W120° 59' 49.80" |
| 12–SW | N37° 26' 24.00" | W121° 00' 06.28" |
| 12–SE | N37° 26' 24.00" | W120° 59' 49.69" |

N

SCALE: 1" = 400'

0 200 400 800

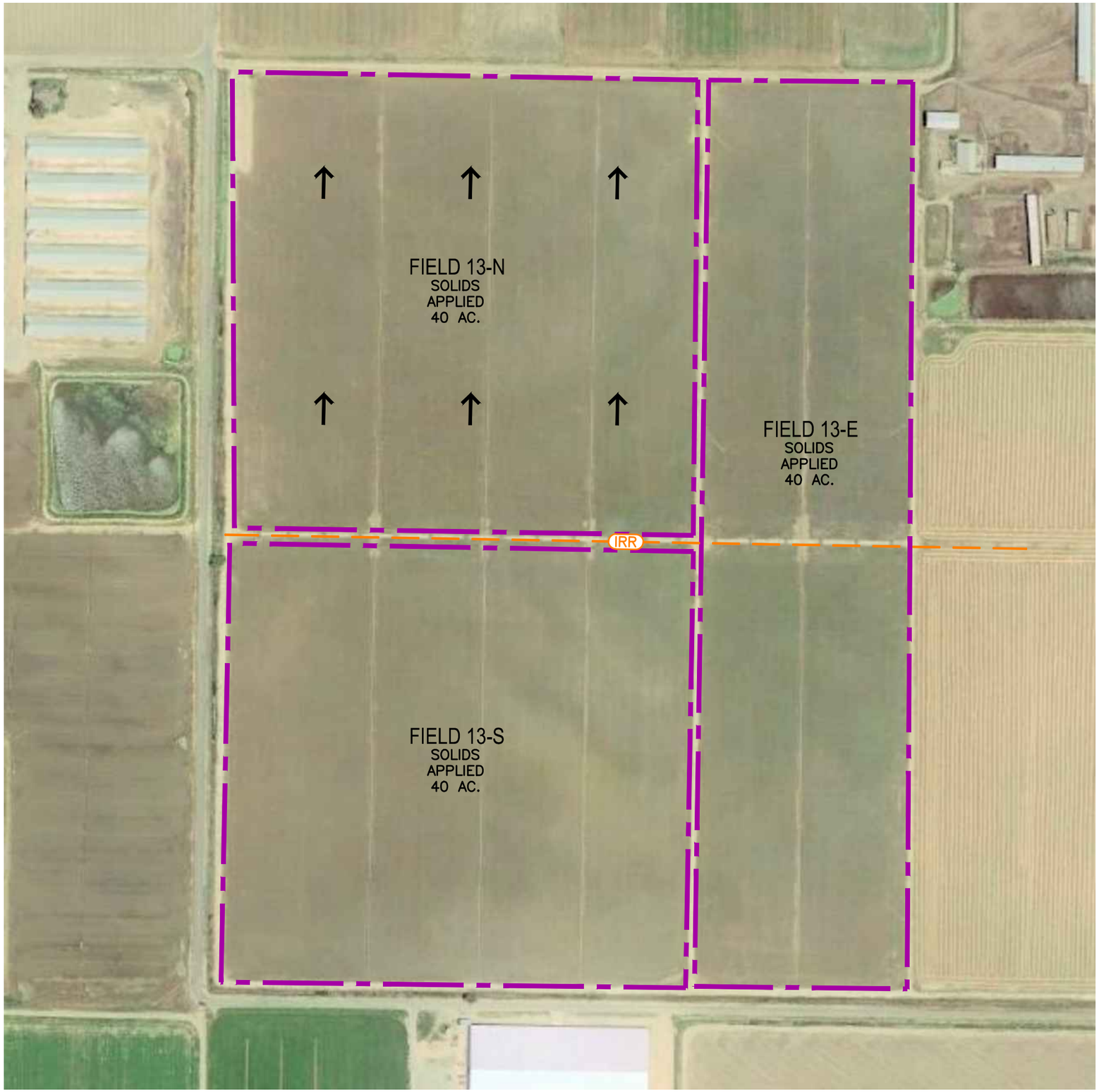
SHEET 6 OF 11

SOUSA
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT - AGRICULTURE
PO BOX 1613 OAKDALE, CA 95361
PH: (209)238-3151
WWW.SOUSAENG.COM

SITE MAP
LAND APPLICATION AREAS
S&S DAIRY
STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 4/9/2018
FILE: 06_site_laa.dwg
JOB NO.: 2018-002

| SYMBOL | REVISIONS DESCRIPTION | APPD. |
|---|---|---|
| | | |




## LEGEND

LAND APPLICATION AREA

IRR — IRRIGATION LINE

GENERAL SLOPE AND DIRECTION OF FLOW

| DISCHARGE POINTS | | | |
|---|---|---|---|
| | LAND APP. AREA | LATITUDE | LONGITUDE |
| | 13–N | N37° 25' 56.52" | W120° 58' 27.65" |
| | 13–S | N37° 25' 43.81" | W120° 58' 27.57" |
| | 13–E | N37° 25' 50.07" | W120° 58' 15.77" |

N

SCALE: 1" = 300'

0 150 300 600

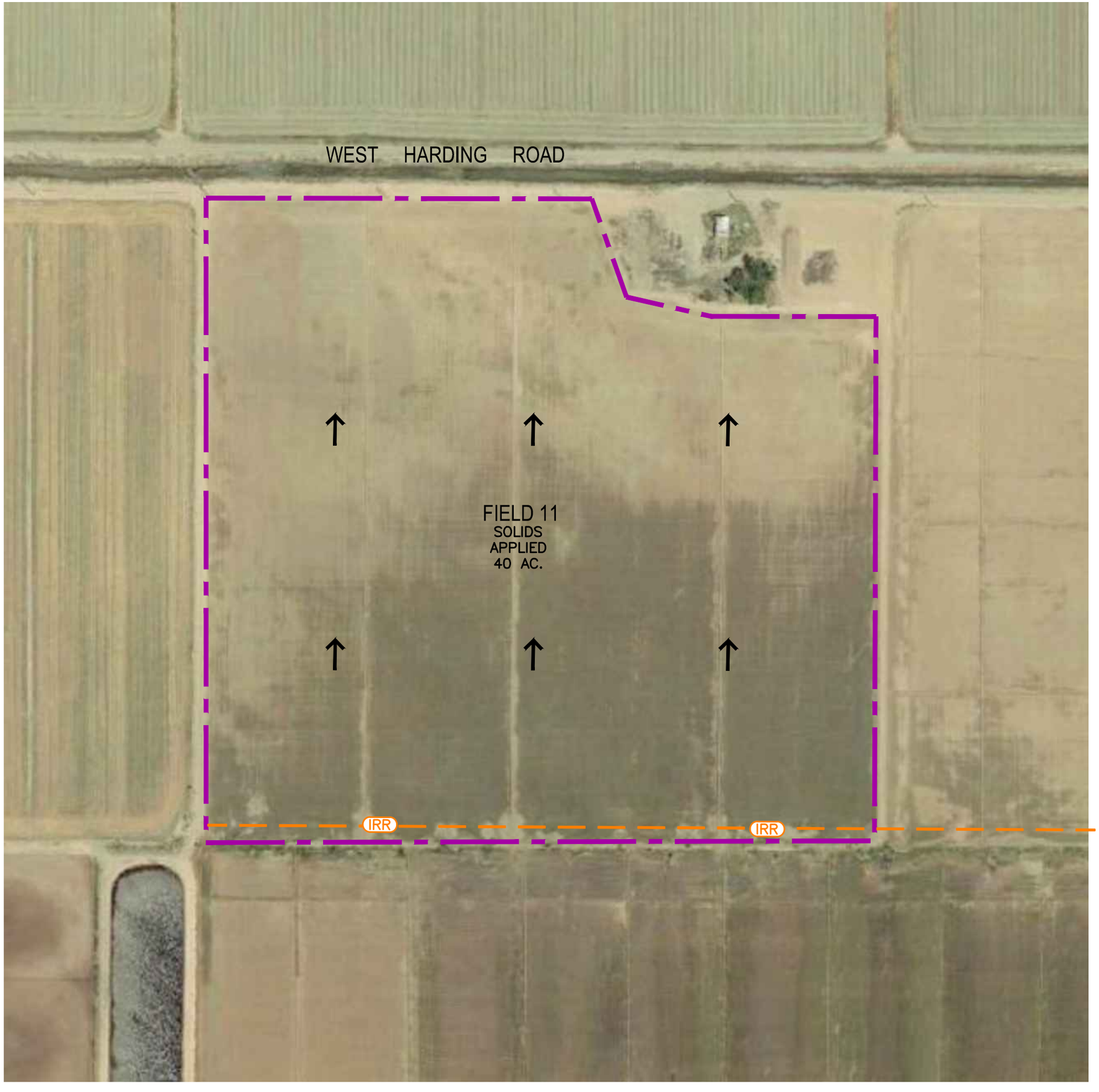
SHEET 7 OF 11

SOUSA
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT - AGRICULTURE
PO BOX 1613 OAKDALE, CA 95361
PH: (209)238-3151
WWW.SOUSAENG.COM

SITE MAP
LAND APPLICATION AREAS
S&S DAIRY
STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 11/9/2018
FILE: 07_site_laa.dwg
JOB NO.: 2018-002

| REVISIONS | | |
|---|---|---|
| SYMBOL | DESCRIPTION | APPD. |
| | | |




## LEGEND

- LAND APPLICATION AREA
- IRRIGATION LINE (IRR)
- GENERAL SLOPE AND DIRECTION OF FLOW

| DISCHARGE POINTS | | | |
|---|---|---|---|
| | LAND APP. AREA | LATITUDE | LONGITUDE |
| | 11 | N37° 27' 42.68" | W120° 58' 57.55" |

N

SCALE: 1" = 200'

0 100 200 400

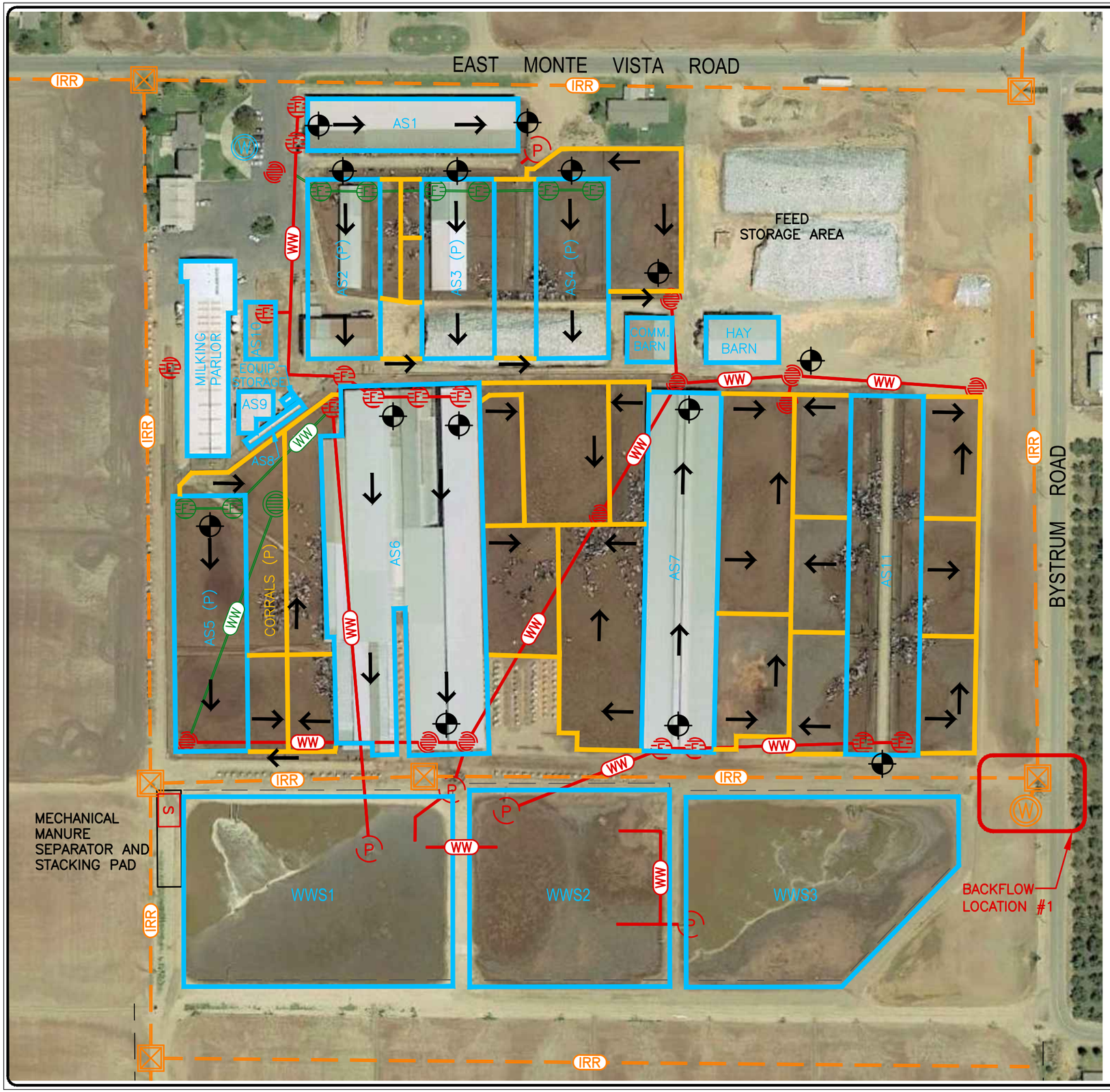
SHEET 8 OF 11

SOUSA
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT - AGRICULTURE
PO BOX 1613 OAKDALE, CA 95361
PH: (209)238-3151
WWW.SOUSAENG.COM

SITE MAP
LAND APPLICATION AREAS
S&S DAIRY
STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 4/9/2018
FILE: 08_site_laa.dwg
JOB NO.: 2018-002

| REVISIONS | | |
|---|---|---|
| SYMBOL | DESCRIPTION | APPD. |
| | | |




## LEGEND

- ROOF AREA
- (P) ROOF AREA (PROPOSED)
- CORRAL AREA
- (P) CORRAL AREA (PROPOSED)
- IRR IRRIGATION LINE
- WW WASTEWATER LINE (PROPOSED)
- WW WASTEWATER LINE
- P WASTEWATER SUMP WITH PUMP
- FLUSH SYSTEM DRAIN INLET
- FLUSH SYSTEM DRAIN INLET (PROPOSED)
- FE FLUSH SYSTEM DISCHARGE VALVE
- FE FLUSH SYSTEM DISCHARGE VALVE (PROPOSED)
- S MECHANICAL MANURE SEPARATOR (PROPOSED)
- W WELL
- GENERAL SLOPE AND DIRECTION OF FLOW
- INSPECTION POINT FOR MONITORING ANIMAL HOUSING AND FLUSH WATER CONVEYANCE SYSTEM

N

SCALE: 1" = 150'

0 75 150 300



SOUSA
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT - AGRICULTURE
PO BOX 1613 OAKDALE, CA 95361
PH: (209)238-3151
WWW.SOUSAENG.COM

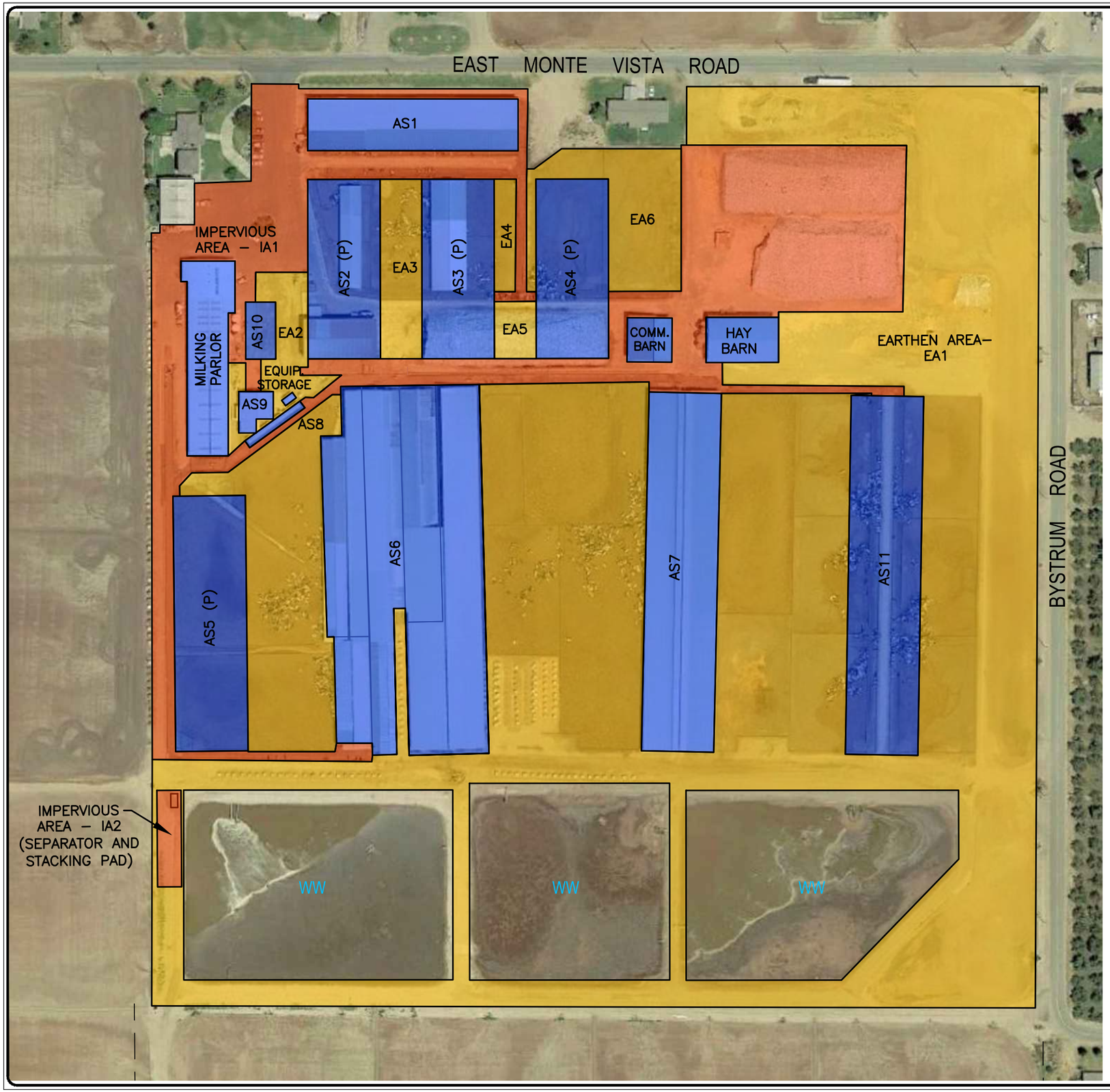
SITE MAP - PRODUCTION AREA

S&S DAIRY

STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 4/9/2018
FILE: 09_dpa.dwg.dwg
JOB NO.: 2018-002

| SYMBOL | REVISIONS DESCRIPTION | APPD. |
|---|---|---|
| | | |




LEGEND

- ROOF AREA
- EARTHEN AREA
- IMPERVIOUS AREA

N

SCALE: 1" = 150'

0 75 150 300

SHEET 10 OF 11

SOUSA
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT - AGRICULTURE
PO BOX 1613 OAKDALE, CA 95361
PH: (209)238-3151
WWW.SOUSAENG.COM

PRODUCTION AREA HYDROLOGIC MAP

S&S DAIRY

STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 4/9/2018
FILE: 10_hydro.dwg
JOB NO.: 2018-002

| SYMBOL | REVISIONS DESCRIPTION | APPD. |
|---|---|---|
| | | |

# National Flood Hazard Layer FIRMette

FEMA

37°31'34.06"N

120°59'39.17"W


120°59'1.71"W

37°31'5.53"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth
- Regulatory Floodway *Zone AE, AO, AH, VE, AR*

**OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

**MAP PANELS**
- Digital Data Available
- No Digital Data Available
- Unmapped

N

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's base map accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/2/2018 at 4:08:24 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: base map imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# 3. DESIGN, CONSTRUCTION, OPERATION, AND MAINTENANCE DOCUMENTATION

**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:** S&S Dairy, Inc.

Physical address of dairy:

| 348 E Monte Vista RD | Ceres | Stanislaus | 95307 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

Street and nearest cross street (if no address):

TRS Data and Coordinates:

| 5S | 9E | 9 | Mt. Diablo | 37° 31' 15.70" N | 120° 59' 23.50" W |
|---|---|---|---|---|---|
| Township (T_) | Range (R_) | Section (S_) | Baseline meridian | Latitude (N) | Longitude (W) |

Date facility was originally placed in operation: 01/01/1968

Regional Water Quality Control Board Basin Plan designation: San Joaquin River Basin

County Assessor Parcel Number(s) for dairy facility:

0022-0026-0014-0000

**B. OPERATOR NAME:** S&S Dairy, Inc. Telephone no.: Landline (209) 606-4894 Cellular

| 5870 Crows Landing RD | Modesto | CA | 95358 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

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

**C. LEGAL OWNER NAME:** Hofman, Limited Partnership Telephone no.: Landline (209) 606-4894 Cellular

| 5870 Crows Landing RD | Modesto | CA | 95358 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

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

**D. CONTACT NAME:** Sousa, Manny Telephone no.: Landline (209) 238-3151 Cellular

Title: Civil Engineer

| P.O. Box 1613 | Oakdale | CA | 95361 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

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

HERD AND MILKING EQUIPMENT

## A. HERD AND MILKING

The milk cow dairy is currently regulated under individual Waste Discharge Requirements.

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:

2,900 milk and dry cows combined (regulatory review is required for any expansion)

| Type of Animal | Present Count | Maximum Count | Daily Flush Hours | Avg Live Weight (lbs) |
|---|---|---|---|---|
| Milk Cows | 2,500 | 2,500 | 20 | 1,400 |
| Dry Cows | 400 | 400 | 20 | 1,450 |
| Bred Heifers (15-24 mo.) | 850 | 850 | 20 | 900 |
| Heifers (7-14 mo.) | 400 | 400 | 20 | 600 |
| Calves (4-6 mo.) | 300 | 300 | 0 | |
| Calves (0-3 mo.) | 0 | 0 | 0 | |

Predominant milk cow breed: Holstein

Average milk production: 77 pounds per cow per day

Average number of milk cows per string sent to the milkbarn: 228 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: 4.0 run cycles/wash

Bulk tank wash vat volume: 75 gallons/cycle

Bulk tank wash wastewater: 600.0 gallons/day

Pipeline wash and sanitizing: 4.0 run cycles/wash

Pipeline wash vat volume: 100 gallons/cycle

Pipeline wash wastewater: 800.0 gallons/day

Reused / recycled water is the source of parlor floor wash water: [X] Yes [ ] No

Milkbarn / parlor floor wash volume: 10,000 gallons/day

Plate coolers type: Well Water Cooled (Water Reused/Recycled)

Plate coolers volume: 44,767 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: 46,167 gallons/day

### C. OTHER WATER USES

Reused/recycled water is the source of herd drinking water: [ ] Yes [X] 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<br>*of 2,500* | 0<br>*of 400* | 0<br>*of 850* | 0<br>*of 400* | 0<br>*of 300* | 0<br>*of 0* |
| *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: [X] Yes [ ] No

Number of sprinklers in the holding pen: 0 sprinklers

Duration of each sprinkler cycle: 1.0 minutes

Number of sprinkler pen runs/milking: 1 cycles/milking

Flow rate for each sprinkler head: 1.0 gallons/minute

Total sprinkler pen wastewater volume: 0 gallons/day

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

### D. MISCELLANEOUS EQUIPMENT

*No miscellaneous equipment entered.*

### E. MILKBARN AND EQUIPMENT SUMMARY

Number of days in storage period: 120 days

Water available for reuse/recycle: 44,767 gallons/day

Recycled water reused: 10,000 gallons/day

Recycled water leaving system: 0 gallons/day

Reusable water balance: 34,767 gallons/day

Volume of milkbarn and equipment wastewater generated for storage period: 5,540,040 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 | 2,400 | 40.0 | 50% | 60,000 |
| | | | Total: | 60,000 |

### B. SOLIDS SEPARATION PROCESS

Combined manure solids separation efficiency (weight basis): 30 %

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

A mechanical manure separator is proposed with the expansion.

### C. MANURE AND BEDDING SOLIDS SUMMARY

| | cubic feet | | gallons | |
|---|---|---|---|---|
| | day | storage period | day | storage period |
| Manure generated by the herd (pre-separation): | 7,487.90 | 898,548 | 56,013.37 | 6,721,605 |
| Manure generated by the herd sent to pond(s): | 5,538.42 | 664,610 | 41,430.26 | 4,971,631 |
| Manure generated by the herd sent to dry lot(s): | 1,323.02 | 158,763 | 9,896.90 | 1,187,628 |
| Manure solids (herd) removed by separation: | 303.27 | 36,392 | 2,268.58 | 272,230 |
| Liquid component in separated solids not send to pond(s): | 323.19 | 38,783 | 2,417.64 | 290,116 |
| Imported and facility generated bedding sent to pond(s): | 500.00 | 60,000 | 3,740.26 | 448,831 |
| Total manure and bedding sent to pond(s): | 6,038.42 | 724,610 | 45,170.52 | 5,420,462 |
| Residual manure solids and bedding sent to pond(s) w/factor: | 603.81 | 72,457 | 4,516.81 | 542,017 |
| | cubic feet per year | | gallons per year | |
| Residual manure solids and bedding sent to pond(s) w/factor: | 220,390 | | 1,648,634 | |

## 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 |
|---|---|---|---|---|---|
| Impervious Area - IA1 | 213,600 | 1 | 0.95 | 0.50 | Drains into pond(s). |
| Impervious Area - IA2 (Stacking Pad) | 4,900 | 1 | 0.95 | 0.50 | Drains into pond(s). |

Surface area that does not run off into pond(s): 0 sq. ft.

Surface area that runs off into pond(s): 218,500 sq. ft.

Total surface area: 218,500 sq. ft.

Runoff from normal storage period rainfall: 538,702 gallons/storage period

Runoff from normal storage period rainfall with 1.5 factor: 808,053 gallons/storage period

25 year/24 hour storm event runoff: 323,494 gallons/storage period

Total surface area runoff: 862,195 gallons/storage period

Total surface area runoff with 1.5 factor: 1,131,546 gallons/storage period

**C. ROOF AREAS**

| Name | Surface Area (sq. ft.) | Quantity | Runoff Destination |
|---|---|---|---|
| Animal Shelter - AS1 | 22,875 | 1 | Wastewater pond |
| Animal Shelter - AS10 | 3,585 | 1 | Wastewater pond |
| Animal Shelter - AS11 | 54,600 | 1 | Wastewater pond |
| Animal Shelter - AS2 | 27,300 | 1 | Wastewater pond |
| Animal Shelter - AS3 | 27,300 | 1 | Wastewater pond |
| Animal Shelter - AS4 | 27,300 | 1 | Wastewater pond |
| Animal Shelter - AS5 | 38,850 | 1 | Wastewater pond |
| Animal Shelter - AS6 | 115,000 | 1 | Wastewater pond |
| Animal Shelter - AS7 | 54,600 | 1 | Wastewater pond |
| Animal Shelter - AS8 | 1,200 | 1 | Wastewater pond |
| Animal Shelter - AS9 | 2,520 | 1 | Wastewater pond |
| Commodity Barn | 4,200 | 1 | Wastewater pond |
| Equipment Storage | 200 | 1 | Wastewater pond |
| Hay Barn | 6,900 | 1 | Wastewater pond |
| Milking Parlor | 17,900 | 1 | Wastewater pond |

Surface area that does not run off into pond(s): 0 sq. ft.

Surface area that runs off into pond(s): 404,330 sq. ft.

Total surface area: 404,330 sq. ft.

Runoff from normal storage period rainfall: 1,993,714 gallons/storage period

Runoff from normal storage period rainfall with 1.5 factor: 2,990,572 gallons/storage period

25 year/24 hour storm event runoff: 630,125 gallons/storage period

Total surface area runoff: 2,623,839 gallons/storage period

Total surface area runoff with 1.5 factor: 3,620,696 gallons/storage period

**D. EARTHEN AREAS**

| Name | Surface Area (sq. ft.) | Quantity | 25yr/24 Storm Coefficient | Storage Period Coefficient | Runoff Destination |
|---|---|---|---|---|---|
| Earthen Area - EA1 | 629,600 | 1 | 0.35 | 0.20 | Drains into pond(s). |
| Earthen Area - EA2 | 16,270 | 1 | 0.35 | 0.20 | Drains into pond(s). |
| Earthen Area - EA3 | 15,675 | 1 | 0.35 | 0.20 | Drains into pond(s). |
| Earthen Area - EA4 | 5,080 | 1 | 0.35 | 0.20 | Drains into pond(s). |
| Earthen Area - EA5 | 5,010 | 1 | 0.35 | 0.20 | Drains into pond(s). |
| Earthen Area - EA6 | 28,300 | 1 | 0.35 | 0.20 | Drains into pond(s). |

| | | |
|---|---|---|
| Surface area that does not run off into pond(s): | 0 | sq. ft. |
| Surface area that runs off into pond(s): | 699,935 | sq. ft. |
| Total surface area: | 699,935 | sq. ft. |
| Runoff from normal storage period rainfall: | 690,263 | gallons/storage period |
| Runoff from normal storage period rainfall with 1.5 factor: | 1,035,395 | gallons/storage period |
| 25 year/24 hour storm event runoff: | 381,783 | gallons/storage period |
| Total surface area runoff: | 1,072,046 | gallons/storage period |
| Total surface area runoff with 1.5 factor: | 1,417,177 | gallons/storage period |

**E. TAILWATER MANAGEMENT**

*No fields with tailwater entered.*

## LIQUID STORAGE

**A. POND OR BASIN DESCRIPTION:** WW1

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

| Dimensions | | | |
|---|---|---|---|
| Earthen Length (EL): | 390 ft. | Earthen Depth (ED): | 30 ft. |
| Earthen Width (EW): | 275 ft. | Side Slope (S): | 2.0 ft. (h:1v) |
| Free Board (FB): | 2 ft. | Dead Storage Loss (DS): | 2.0 ft. |

| Calculations | | | |
|---|---|---|---|
| Liquid Length (LL): | 382 ft. | Storage Volume Adjusted for Dead Storage Loss: | 1,868,135 cu. ft. |
| Liquid Width (LW): | 267 ft. | | |
| Pond Surface Area: | 107,250 sq. ft. | Pond Marker Elevation: | 27.1 ft. |
| Storage Volume: | 1,955,277 cu. ft. | Evaporation Volume: | 542,348 gals/period |
| | | Adjusted Surface Area: | 100,871 sq. ft. |

**POND OR BASIN DESCRIPTION:** WW2

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

| Dimensions | | | |
|---|---|---|---|
| Earthen Length (EL): | 290 ft. | Earthen Depth (ED): | 14 ft. |
| Earthen Width (EW): | 285 ft. | Side Slope (S): | 2.0 ft. (h:1v) |
| Free Board (FB): | 2 ft. | Dead Storage Loss (DS): | 1.0 ft. |

| Calculations | | | |
|---|---|---|---|
| Liquid Length (LL): | 282 ft. | Storage Volume Adjusted for Dead Storage Loss: | 731,075 cu. ft. |
| Liquid Width (LW): | 277 ft. | | |
| Pond Surface Area: | 82,650 sq. ft. | Pond Marker Elevation: | 11.1 ft. |
| Storage Volume: | 785,592 cu. ft. | Evaporation Volume: | 414,761 gals/period |
| | | Adjusted Surface Area: | 77,142 sq. ft. |

**POND OR BASIN DESCRIPTION:** WW3

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

| Dimensions | | | |
|---|---|---|---|
| Earthen Length (EL): | 350 ft. | Earthen Depth (ED): | 14 ft. |
| Earthen Width (EW): | 285 ft. | Side Slope (S): | 2.0 ft. (h:1v) |
| Free Board (FB): | 2 ft. | Dead Storage Loss (DS): | 1.0 ft. |

| Calculations | | | |
|---|---|---|---|
| Liquid Length (LL): | 342 ft. | Storage Volume Adjusted for Dead Storage Loss: | 899,375 cu. ft. |
| Liquid Width (LW): | 277 ft. | | |
| Pond Surface Area: | 99,750 sq. ft. | Pond Marker Elevation: | 11.1 ft. |
| Storage Volume: | 967,752 cu. ft. | Evaporation Volume: | 503,586 gals/period |
| | | Adjusted Surface Area: | 93,662 sq. ft. |

Potential storage losses (due to dead storage): 210,036.0 cubic feet - or - 1,571,178.4 gallons

Liquid storage surface area: 274,842 sq. ft.

Rainfall onto retention pond(s): 1,428,238 gallons/storage period

Rainfall runoff into retention pond(s): 3,222,679 gallons/storage period

Normal rainfall onto retention pond(s) with 1.5 factor: 2,142,357 gallons/storage period

Normal rainfall runoff into retention pond(s) with 1.5 factor: 4,834,019 gallons/storage period

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

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

Storage period evaporation volume: 1,460,695 gallons/storage period

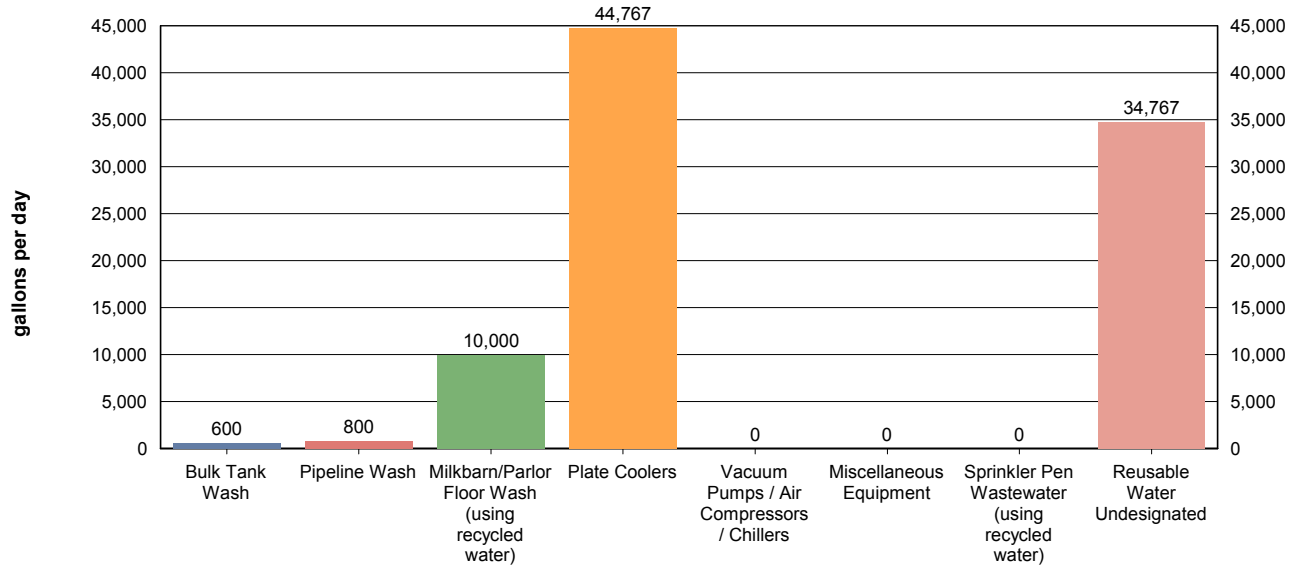
Manure and bedding sent to pond(s): 5,420,462 gallons/storage period

Milkbarn water sent to pond(s): 5,540,040 gallons/storage period

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

CHARTS

## A. MILKBARN WASTEWATER SENT TO POND(S)

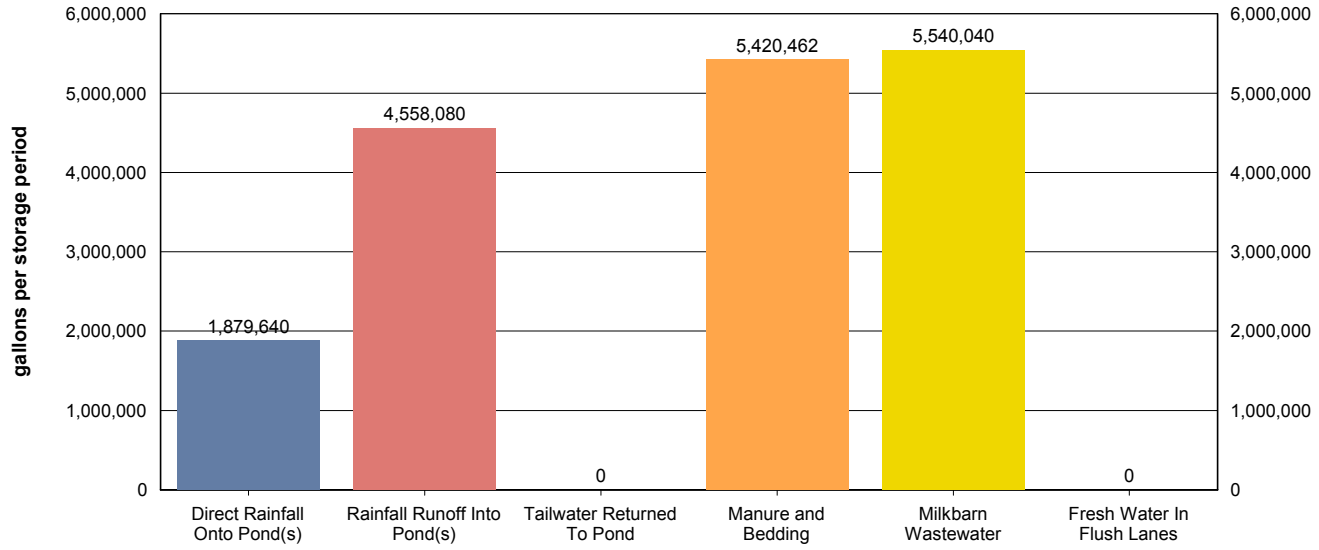



*Values shown in chart are approximate values per day.*

Total milkbarn wastewater generated daily: 46,167 gallons/day

Total milkbarn wastewater generated per period: 5,540,040 gallons/storage period

## B. PROCESS WASTEWATER (NORMAL PRECIPITATION)

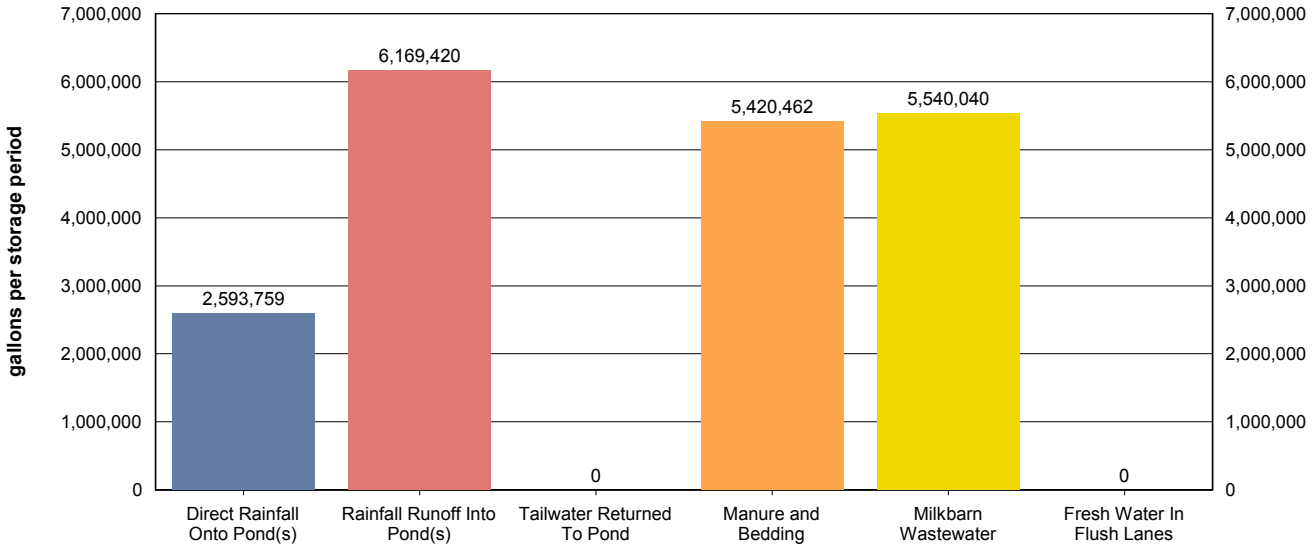



*Values shown in chart are approximate values for storage period.*

| | | |
|---|---|---|
| Storage period: | 120 | days |
| Total process wastewater generated daily: | 144,985 | gallons/day |
| Total process wastewater generated per period: | 17,398,223 | gallons/storage period |
| Total process wastewater removed due to evaporation: | 1,460,695 | gallons/storage period |
| Total storage capacity required: | 15,937,528 | gallons |
| | 2,130,538 | cu. ft. |
| Existing storage capacity (adjusted for dead storage loss): | 26,171,233 | gallons |
| | 3,498,585 | cu. ft. |

***Considering normal precipitation, existing capacity meets estimated storage needs:*** [X] Yes [ ] No

## C. PROCESS WASTEWATER (NORMAL PRECIPITATION WITH 1.5 FACTOR)

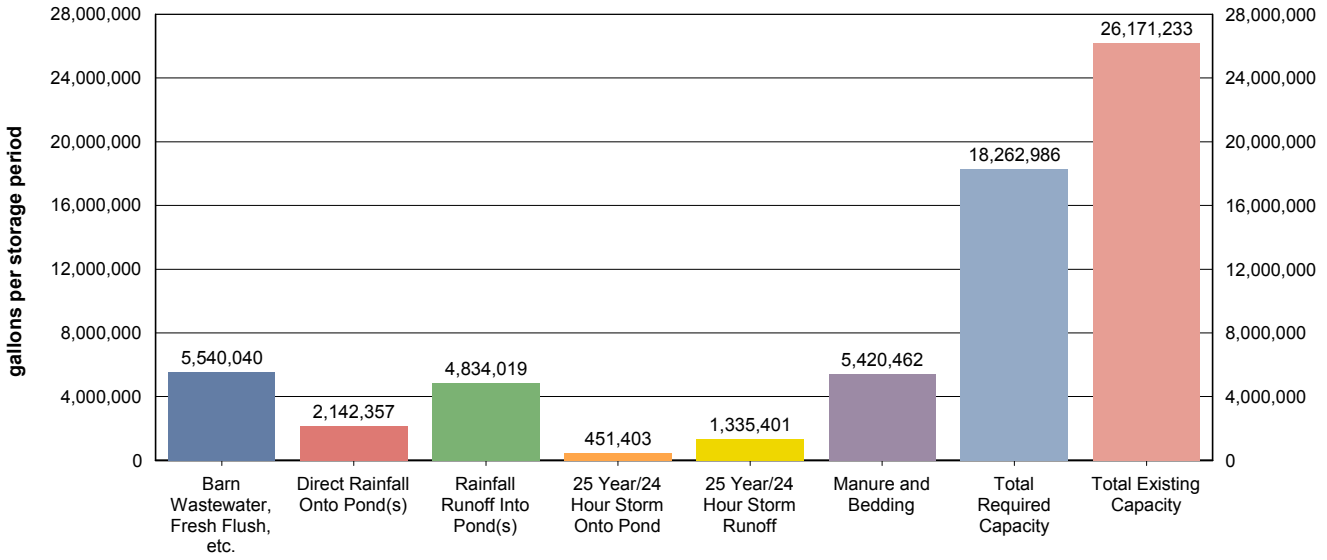



*Values shown in chart are approximate values for storage period.*

| | | |
|---|---|---|
| Storage period: | 120 | days |
| Total process wastewater generated daily: | 164,364 | gallons/day |
| Total process wastewater generated per period: | 19,723,681 | gallons/storage period |
| Total process wastewater removed due to evaporation: | 1,460,695 | gallons/storage period |
| Total storage capacity required: | 18,262,986 | gallons |
| | 2,441,406 | cu. ft. |
| Existing storage capacity (adjusted for dead storage loss): | 26,171,233 | gallons |
| | 3,498,585 | cu. ft. |

***Considering factored precipitation, existing capacity meets estimated storage needs:*** [X] Yes [ ] No

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




*Values shown in chart are approximate values for storage period.*

| | | |
|---|---|---|
| Storage period: | 120 | days |
| Barn wastewater, fresh flush water, and tailwater: | 5,540,040 | gallons/storage period |
| Manure and bedding sent to pond: | 5,420,462 | gallons/storage period |
| Precipitation onto pond: | 2,142,357 | gallons/storage period |
| Precipitation runoff: | 4,834,019 | gallons/storage period |
| 25 year/24 hour storm onto pond: | 451,403 | gallons/storage period |
| 25 year/24 hour storm runoff: | 1,335,401 | gallons/storage period |
| Residual solids after liquids have been removed (liquid equivalent): | 542,017 | gallons/storage period |
| Total process wastewater removed due to evaporation: | 1,460,695 | gallons/storage period |
| Total required capacity: | 18,262,986 | gallons/storage period |
| Total existing capacity: | 26,171,233 | gallons/storage period |
| ***Existing capacity meets estimated storage needs:*** | [X] Yes [ ] No | |

## 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 2.0 feet above the pond invert beginning in May 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 with a probe after lowering of process wastewater.

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:

Solids are typically removed with a backhoe or excavator.

**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 May 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 with a probe after lowering of process wastewater.

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:

Solids are typically removed with a backhoe or excavator.

**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 2.0 feet above the pond invert beginning in May 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 with a probe after lowering of process wastewater.

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:

Solids are typically removed with a backhoe or excavator.

**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.

| ***Buildings with rooftop rainfall collection systems*** | Quantity | Surface Area (sq. ft.) |
|---|---|---|
| Animal Shelter - AS1 | 1 | 22,875 |
| Animal Shelter - AS10 | 1 | 3,585 |
| Animal Shelter - AS11 | 1 | 54,600 |
| Animal Shelter - AS2 | 1 | 27,300 |

| | | |
|---|---|---|
| Animal Shelter - AS3 | 1 | 27,300 |
| Animal Shelter - AS4 | 1 | 27,300 |
| Animal Shelter - AS5 | 1 | 38,850 |
| Animal Shelter - AS6 | 1 | 115,000 |
| Animal Shelter - AS7 | 1 | 54,600 |
| Animal Shelter - AS8 | 1 | 1,200 |
| Animal Shelter - AS9 | 1 | 2,520 |
| Commodity Barn | 1 | 4,200 |
| Equipment Storage | 1 | 200 |
| Hay Barn | 1 | 6,900 |
| Milking Parlor | 1 | 17,900 |

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:

Rainfall collection systems will be inspected, cleared, and repaired as necessary prior to the rain season.

**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 runon 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:

Corrals will be scraped and cleaned twice per year to prevent manure buildup.

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 runon 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**

i. During the dry season and prior to the wet season, the perimeter of manure storage areas will be assessed to ensure all runon 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:

Animal housing drainage system will be monitored daily and will be cleared and repaired as necessary.

**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 [X] No

## I. MONITORING SALT IN ANIMAL RATIONS

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: Monthly

## 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.

| Chemical Name | Quantity | Units | Frequency | Usage Area | Destination (Used Chemical / Container) | Disposal Company | | Collection Frequency |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Name | Phone | |
| Teat Dip | 500 | gallons | year | Milk Parlor | Picked up by supplier | | | |
| Acid | 200 | gallons | year | Milk Parlo | Picked up by supplier | | | |
| Detergent | 300 | gallons | year | Milk Parlor | Picked up by supplier | | | |

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: Exhibit Sheet 9

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: Exhibit Sheets 3-8

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: Exhibit Sheet 9

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: Exhibit Sheets 1 & 2

**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: Exhibit Sheet 9

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: Exhibit Sheets 3-8

**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: Exhibit Sheet 9

**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: Exhibit Sheet 11

**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 Section 3.c.

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

CERTIFICATION

## A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: S&S Dairy, Inc.

Physical address of dairy:

| 348 E Monte Vista RD | Ceres | Stanislaus | 95307 |
|---|---|---|---|
| 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

5/20/2018

SIGNATURE OF CIVIL ENGINEER — DATE

Manny Sousa

PRINT OR TYPE NAME

P.O. Box 1613; Oakdale, CA 95361

MAILING ADDRESS

(209) 238-3151

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 | SIGNATURE OF OPERATOR |
| Limited Partnership Hofman | Inc. S&S Dairy |
| PRINT OR TYPE NAME | PRINT OR TYPE NAME |
| 5-18-18 | 5-18-18 |
| DATE | DATE |

CDQAP – WDR General Order Reference Binder TAB 6.22, November 2009

# PRODUCTION AREA DESIGN & CONSTRUCTION REPORT

## PART I: DAIRY FACILITY INFORMATION

A. Name of Dairy or Business Operating the Dairy: S&S Dairy, Inc.

Physical address of Dairy:

| 348 E. Monte Vista Road | Ceres | Stanislaus | 95307 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

B. Operator Name: S&S Dairy, Inc. Telephone No: (209)606-4894

Operator mailing address:

| 5870 Crows Landing Road | Modesto | Stanislaus | 95358 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

C. Owner Name: Hofman L.P. Telephone No: (209)606-4894

Owner Mailing Address:

| 5870 Crows Landing Road | Modesto | Stanislaus | 95358 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

## PART II: DESIGN AND CONSTRUCTION DETAILS

### A. Corrals and Pens

(1) Is all process wastewater collected in the retention pond? ☒ Yes ☐ No

If Yes, describe how (circle all that apply):

ditch curbs berm(s) drainpipe sumps pumps other

Explain how your system works: Corrals are sloped to drain to drain inlets and sumps. From the sumps wastewater is pumped to the wastewater retention pond..

If No, describe what is done with it: _____

(2) Is all run on water (clean precipitation and surface drainage) diverted away from the production area? ☒ Yes ☐ No

If Yes, describe how (circle all that apply):

ditch curbs berm(s) slope elevation other

Explain how your system works: _____

If No, identify areas where the run on occurs: _____

If No, identify how the run on is contained: _____

(3) If run on water has the potential to contact manure and is not contained, explain what modifications or improvements are proposed, and provide a schedule for construction. (Note: a certification of completion must be provided when complete): _____

(4) Are there areas where water contacting manure stands for more than 72 hours? ☐Yes ☒ No

If No, explain how standing water is avoided: The production area is properly graded and has proper infrastructure in place to convey runoff to inlets and sumps, and then pump runoff to the wastewater retention ponds.

If Yes, describe what modifications or improvements are proposed, and provide a schedule for construction. (Note: a certification of completion must be provided when complete.): _____

(5) Are there conveyance structures such as earthen ditches, bermed channels, or swales where manure water stands for more than 72 hours? ☐Yes ☒ No

If No, explain how standing water is avoided: The production area is properly graded and has proper infrastructure in place to convey runoff to inlets and sumps, and then pump runoff to the wastewater retention ponds.

If Yes, explain what modifications or improvements are proposed, and provide a schedule for construction. Note: a certification of completion must be provided when complete): _____

**B. Animal Housing Area**

(1) Is the animal housing area (i.e., barn, shed, milk parlor, paved and unpaved roadways and areas within the production area, etc.) designed, and constructed to drain all water that has contacted animal wastes to the retention pond? ☐Yes ☐ No ☐Partially

If Yes, describe how (circle all that apply)

ditch curbs berm(s) slope elevation drainpipe other

Explain how your system works: Wastewater is collected in flush lanes which convey the wastewater to drain inlets and sumps. From the sumps wastewater is pumped to the wastewater ponds.

If No or Partially, describe the areas not diverted to the retention pond: _____

For the areas not diverted to the retention pond, explain what modifications or improvements are proposed, and a schedule for construction. (Note: a certification of completion must be provided when complete): _____

(2) Are there any areas, outside of the retention system, where water that has contacted manure stands for more than 72 hours? ☐Yes ☒ No

If No, describe how your system works to avoid standing water: The production area is properly graded and has proper infrastructure in place to convey runoff to inlets and sumps, and then pump runoff to the wastewater retention ponds.

If Yes, explain what modifications or improvements are proposed, and provide a schedule for construction. A certification of completion must be provided when complete: _____

(3) Are there conveyance structures such as earthen ditches, bermed channels, or swales where water that has contacted manure stands for more than 72 hours, or where parts of the conveyance system are used for storage of manure water? ☐Yes ☒ No

If Yes, explain what modifications or improvements are proposed to prevent this condition, and provide a schedule for construction. (Note: a certification of completion must be provided when complete): _____

**C. Manure and Feed Storage Area**

(1) Is all leachate or water that has contacted stored manure, bedding, or feed collected in the retention pond? ☒ Yes ☐ No

If Yes, describe how (circle all that apply):

ditch curbs berm(s) drainpipe sumps pumps other

Explain how your system works: The production area is properly graded and has proper infrastructure in place to convey runoff to inlets and sumps, and then pump runoff to the wastewater retention ponds.

If No, describe where it is collected and what is done with it: _____

If necessary, explain what modifications or improvements are proposed, and provide a schedule for construction. (Note: a certification of completion must be provided when complete): _____

(2) Are there any areas where leachate or water contacting stored manure, bedding, or feed stands for more than 72 hours? ☐ Yes ☒ No

If No, describe how standing leachate and water is prevented or handled: The production area is properly graded and has proper infrastructure in place to convey runoff to inlets and sumps, and then pump runoff to the wastewater retention ponds.

If Yes, explain what modifications or improvements are proposed, and provide a schedule for construction. (Note: a certification of completion must be provided when complete): _____

(3) Are there conveyance structures such as earthen ditches, bermed channels, or swales where leachate or water that has contacted stored manure, bedding, or feed stands for more than 72 hours, or are there parts of the system that are used for storage of leachate or manure water? ☐ Yes ☒ No

If Yes, explain what modifications or improvements are proposed to prevent this condition, and provide a schedule for construction. (Notes: a certification of completion must be provided when complete): _____

**PART III: CERTIFICATION OF COMPLETION THAT PROPOSED MODIFICATIONS OR IMPROVEMENTS TO ACHIEVE THE DESIGN AND CONSTRUCTION CRITERIA (due by 1 July 2011)**

I certify that the modifications or improvements identified above or similar alternatives were completed to achieve collection and management of all process wastewater, water that has contacted animal wastes, and runoff and leachate from manure and feed storage areas.

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 /Operator | SIGNATURE OF OPERATOR |
|---|---|
| Darin Bylsma | |
| PRINT OR TYPE NAME | PRINT OR TYPE NAME |
| 11/8/2018 | |
| DATE | DATE |

**FORM FOR DOCUMENTING BACKFLOW PREVENTION**
**UNDER**
**WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035**
**FOR**
**EXISTING MILK COW DAIRIES**

This form consists of six parts and can be used to document compliance with the requirements in Waste Discharge Requirements General Order No. R5-2007-0035 for owners/operators of existing milk cow dairies (Dischargers) to:

1. Identify cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map;

2. Propose and schedule corrective action to prevent backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map; and/or

3. Document 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 dairy's Site Map.

The Discharger must complete this form except for Parts IV and V, which are to be completed by a trained professional[1]. Both the owner and the operator of the dairy must sign the certification statement in Part VI. Additional sheets may be attached as necessary to complete Parts I, II, and III.

A Site Map must be attached to this form that shows all water supply wells, irrigation wells, and surface water bodies in the dairy's Production Area and all Land Application Areas that are under the Discharger's control. The Site Map must also show all wastewater conveyance structures, wastewater discharge points to surface water, and where wastewater is mixed/blended with fresh irrigation water in these areas. Each of these locations must be identified by a name or number and listed in Part II below. Completion of Part II will identify how backflow can or does occur at each location and any current backflow preventive measures.

**PART I: DAIRY FACILITY INFORMATION**

A. Name of Dairy or Business Operating the Dairy: S&S Dairy, Inc.

Physical address of Dairy:

| 348 E. Monte Vista Road | Ceres | Stanislaus | 95307 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

B. Operator Name: S&S Dairy, Inc. Telephone No: (209)606-4894

Operator mailing address:

| 5870 Crows Landing Road | Modesto | Stanislaus | 95358 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

C. Owner Name: Hofman L.P. Telephone No: (209)606-4894

Owner Mailing Address:

| 5870 Crows Landing Road | Modesto | Stanislaus | 95358 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

[1] A trained professional could be a person certified by the American Backflow Prevention Association, an inspector for a state or local governmental agency who has experience and/or training in backflow prevention, or a consultant with such experience and/or training.

**FORM FOR DOCUMENTING BACKFLOW PREVENTION**
**UNDER**
**WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035**
**FOR**
**EXISTING MILK COW DAIRIES**

**PART II: IDENTIFICATION OF EXISTING BACKFLOW CONDITIONS (due by 1 July 2008)**
The attached Site Map identifies all of the locations in the Production Area and all Land Application Areas under the control of the Discharger at the dairy identified in Part I above where there are cross-connections that could, or do, allow the backflow of wastewater into a water supply well, irrigation well, or surface water. For each location shown on the map, the table below describes:

a. How and where wastewater can potentially, or does, backflow to a groundwater supply and/or surface water supply (if there are no current or potential backflow problems, indicate so with "none"), and

b. How backflow of process wastewater into the groundwater or surface water supply is currently prevented (if there is no current prevention method, indicate so with "none").

| Location Where Backflow can Occur | How Backflow Can or Does Occur | Current Backflow Preventive Measure |
|---|---|---|
| Backflow Location #1 | Backflow does not occur | Acceptable air gap is in place |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**FORM FOR DOCUMENTING BACKFLOW PREVENTION**
**UNDER**
**WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035**
**FOR**
**EXISTING MILK COW DAIRIES**

**PART III: PROPOSED BACKFLOW CORRECTIVE ACTIONS AND SCHEDULE (due by 1 July 2008)**

For each location identified in Part II above where there is currently no backflow prevention, the table below identifies:

a. The method proposed to be implemented that will prevent backflow, and

b. A schedule to install the preventive measure.

If there are no current or potential backflow problems identified in Part II above, this Part does not need to be completed.

| Location With No Current Backflow Prevention | Proposed Backflow Prevention Method | Schedule to Install Proposed Backflow Prevention Method |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

**PART IV: DOCUMENTATION OF EXISTING BACKFLOW CONDITIONS AND PROPOSED BACKFLOW PREVENTION METHODS (due by 1 July 2008)**

*As a trained professional in backflow prevention, I certify that, based on the information provided to me by the Discharger named above and my personal examination of the wastewater system, the above information in Part II above is true, accurate, and complete and the proposed backflow prevention method in Part III above will be effective to prevent the backflow of wastewater into a water supply well, irrigation well, or surface water at the dairy named in Part I above.*

CA Registered Civil Engineer No. 65379

QUALIFICATIONS OF TRAINED PROFESSIONAL (EDUCATION AND/OR EXPERIENCE)

Manuel R. Sousa 11/8/2018

SIGNATURE OF TRAINED PROFESSIONAL DATE

Manny Sousa

PRINT OR TYPE NAME

**FORM FOR DOCUMENTING BACKFLOW PREVENTION**
**UNDER**
**WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035**
**FOR**
**EXISTING MILK COW DAIRIES**

**PART V: DOCUMENTATION THAT THERE ARE NO CROSS-CONNENCTIONS THAT WOULD ALLOW THE BACKFLOW OF WASTEWATER INTO A WATER SUPPLY WELL, IRRIGATION WELL, OR SURFACE WATER (due by 1 July 2009)**

*As a trained professional in backflow prevention, I certify that, based on the information provided to me by the Discharger named in Part I above and my personal examination of the wastewater system, that the backflow prevention methods proposed in Part III above (if any) have been completed, and/or there are currently no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water at the dairy named in Part I above.*

CA Registered Civil Engineer No. 65379

QUALIFICATIONS OF TRAINED PROFESSIONAL (EDUCATION AND/OR EXPERIENCE)

Manuel R Sousa — 11/8/2018

SIGNATURE OF TRAINED PROFESSIONAL — DATE

Manny Sousa

PRINT OR TYPE NAME

**PART VI: 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 /Operator | SIGNATURE OF OPERATOR |
|---|---|
| Darin Bylsma | |
| PRINT OR TYPE NAME | PRINT OR TYPE NAME |
| 11/8/2018 | |
| DATE | DATE |

SOUSA
ENGINEERING
INFRASTRUCTURE-DEVELOPMENT-
AGRICULTURE

PO BOX 1613
OAKDALE, CA 95361
PHONE: (209)238-3151
www.sousaeng.com

# VECTOR CONTROL PLAN
# FOR
# S&S DAIRY, INC.
# STANISLAUS COUNTY, CA

## TABLE OF CONTENTS

## 1. INTRODUCTION

Vector control is an important aspect of disease prevention and public health. Without proper management, agricultural production facilities can create or enhance opportunities for vectors to develop and proliferate. Certain land management practices can reduce vector populations thereby reducing long–term vector treatment costs, reducing the amount of pesticides used in vector control operations, helping to protect public health, and contributing to an integrated pest management (IPM) approach to vector control.

Integrated Pest Management is an approach that focuses on site–specific, scientifically sound decisions to manage pest populations by matching a wide variety of techniques with the conditions found on site. These techniques are commonly grouped into four categories:

1. Source reduction or physical control—environmental manipulation that results in a reduction of vector development sites.
2. Biological Control—use of biological agents to limit vector populations
3. Chemical Control—larvicides (materials that kill immature larval vectors and mosquitoes) and adulticides (materials that kill adult vectors and mosquitoes)
4. Cultural Control—change the behavior of people so that their actions prevent the development of vectors or the transmission of vector–borne disease.

Through the adoption of these policies and procedures, this Plan will provide an outline to effectively control vectors by physical, cultural, and biological means.

The Vector Reduction Best Management Practices (BMPs) referred to in this document are the recommended land management practices that can provide a reduction in vector populations by various means including: reducing or eliminating breeding areas, increasing the efficacy of biological controls, increasing the efficacy of chemical controls, and improving access for control operations.

While it is generally accepted that vector production from all sources may be reduced through the widespread implementation of vector Reduction BMPs, these policies specifically target the most severe vector problems with the greatest likelihood of responding through the use of BMPs.

## 2. BEST MANAGEMENT PRACTICES (BMPs)

a. Land Application Areas: for Land Application Areas, the following are areas of concern and recommended BMPs for vector control:

Common Vector Development Areas

- Vegetated ditches
- Seepage or flooding of fallow fields
- Irrigation tail water return sumps
- Blocked ditches or culverts
- Leaky water control structures
- Irrigated pastures
- Low areas caused by improper grading
- Broken or leaky irrigation pipes or valves

Special Concerns

Agricultural practices vary among growers, locations, and conventional or organic production methods. Pesticide regulations can affect the ability to use chemical control. The Best Management Practices below are offered as tools to balance the economic and agronomic requirements of the growers and land owners with the need for effective vector control.

General Vector Reduction Principles

1. Prevent or eliminate unnecessary standing water that stands for more than 72 –96 hours during mosquito season which can start as early as March and extend through October depending on weather.
2. Maintain access for Abatement District staff to monitor and treat mosquito breeding sources.
3. Minimize emergent vegetation and surface debris on the water.
4. Contact the County Department of Environmental Health or Mosquito Abatement District for technical guidance or assistance in implementing vector reduction BMPs.

### Vector Reduction BMPs for Land Application Areas

Ditches and Drains

DD-1 Construct or improve ditches with at least 2:1 slopes and a minimum 4-foot bottom. Consider a 3:1 slope or greater to discourage burrowing animal damage, potential seepage problems, and prevent unwanted vegetation growth. Other designs may be approved by the MVCD based on special circumstances.

DD-2 Keep ditches clean and well–maintained. Periodically remove accumulated sediment and vegetation. Maintain ditch grade to prevent areas of standing water.

DD-3 Design irrigation systems to use water efficiently and drain completely to avoid standing water.

Irrigated Pastures

IP-1 Grade field to achieve efficient use of irrigation water. Use NRCS guidelines for irrigated pastures. Initial laser leveling and periodic maintenance to repair damaged areas are needed to maintain efficient water flow.

IP-2 Irrigate only as frequently as is needed to maintain proper soil moisture. Check soil moisture regularly until you know how your pasture behaves

IP-3 Do not over fertilize. Excess fertilizers can leach into irrigation tail water, making mosquito production more likely in ditches or further downstream

IP-4 Apply only enough water to wet the soil to the depth of rooting.

IP-5 Drain excess water from the pasture within 24 hours following each irrigation. This prevents scalding and reduces the number of weeds in the pasture. good check slopes are needed to achieve drainage. A drainage ditch may be used to remove water from the lower end of the field.

IP-6 Inspect fields for drainage and broken checks to see whether re–leveling or reconstruction of levees is needed. Small low areas that hold water can be filled and replanted by hand. Broken checks create cross–leakage that provide habitat for vectors.

IP-7 Keep animals off the pasture while the soil is soft. An ideal mosquito habitat is created in irrigated pastures when water collects in hoof prints of livestock that were run on wet fields or left in the field during irrigation. Keeping animals off wet fields until soils stiffen also protects the roots of the forage crop and prevents soil compaction that interferes with plant growth.

IP-8 Break up pastures into smaller fields so that the animals can be rotated from one field to another. This allows fields to dry between irrigations and provides a sufficient growth period between grazings. It also prevents hoof damage (pugging), increases production from irrigated pastures, and helps improve water penetration into the soil by promoting a better root system.

b. Dairy Production Area (DPA): for the Dairy Production Area, the following are areas of concern and recommended BMPs for vector control:

Common Vector Development Areas
- Wastewater lagoons
- Animal washing areas

- Drain ditches
- Sumps/ponds
- Watering troughs

Special Concerns

Dairy and associated agricultural practices vary; however, these practices need to consider mosquito and vector control issues. The Best Management Practices for Vector Reduction below offer options to balance the requirements of the dairy operators with the need for effective vector control.

General Vector Control Principles

1. Prevent or eliminate unnecessary standing water that remains for more than 72 –96 hours during mosquito season which can start as early as March and extend through October depending on weather.
2. Maintain access for Abatement District staff to monitor and treat mosquito breeding sources.
3. Minimize emergent vegetation and surface debris on the water.
4. Contact the County Department of Environmental Health or Mosquito Abatement District for technical guidance or assistance in implementing vector reduction BMPs.

## Vector Reduction BMPs for Dairy Production Area

DA-1 All holding ponds should be surrounded by lanes of adequate width to allow safe passage of vector control equipment. This includes keeping the lanes clear of any materials or equipment (e.g. trees, calf pens, hay stacks, silage, tires, equipment, etc.).

DA-2 If fencing is used around the holding ponds, it should be placed on the outside of the lanes with gates provided for vehicle access.

DA-3 It is recommended that all interior banks of the holding ponds should have a grade of at least 2:1.

DA-4 An effective solids separation system should be utilized such as a mechanical separator or two or more solids separator ponds. If ponds are used, they should not exceed sixty feet in surface width.

DA-5 Drainage lines should not by–pass the separator ponds whenever possible, except those that provide for normal corral run–off and do not contain solids. All drain inlets must be sufficiently graded to prevent solids accumulation.

DA-6 Floating debris should be minimized in all ponds; mechanical agitators may be used to break up crusts.

DA-7 Vegetation should be controlled regularly to prevent emergent vegetation and barriers to access. This includes access lanes, interior pond embankments and any weed growth that might become established within the pond surface.

DA-8 Dairy wastewater discharged for irrigation purposes should be managed so that it does not stand for more than three days.

DA-9 All structures and water management practices should meet current California Regional Water Quality Control Board requirements.

DA-10 Tire sidewalls or other objects that will not hold water should be used to hold down tarps (e.g. on silage piles). Whole tires or other water–holding objects should be replaced.

## 3. CONTACT INFORMATION

a. Stanislaus County Department of Environmental Health
3800 Cornucopia Way, Suite C
Modesto, CA 95358
Phone: (209)525-6700

b. Turlock Mosquito Abatement District
4412 N. Washington Road
Turlock, CA 95380
Phone: (209) 634-1234

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

DAIRY FACILITY INFORMATION

**A. NAME OF DAIRY OR BUSINESS OPERATING THE DAIRY:** S&S Dairy, Inc.

Physical address of dairy:

| 348 E Monte Vista RD | Ceres | Stanislaus | 95307 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

Street and nearest cross street (if no address):

Date facility was originally placed in operation: 01/01/1968

Regional Water Quality Control Board Basin Plan designation: San Joaquin River Basin

County Assessor Parcel Number(s) for dairy facility:

0022-0026-0014-0000

**B. OPERATOR NAME:** S&S Dairy, Inc. Telephone no.: Landline (209) 606-4894 Cellular

| 5870 Crowslanding RD | Modesto | CA | 95358 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

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

**C. LEGAL OWNER NAME:** Hofman, Limited Partnership Telephone no.: Landline (209) 606-4894 Cellular

| 5870 Crowslanding RD | Modesto | CA | 95358 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

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

**D. CONTACT NAME:** Machado, Patrick Telephone no.: Landline (209) 678-6720 Cellular

Title: CCA # 385124

| 7112 Metcalf WAY | Hughson | CA | 95326 |
|---|---|---|---|
| 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

AVAILABLE NUTRIENTS

## A. HERD INFORMATION

The milk cow dairy is currently regulated under individual Waste Discharge Requirements.

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:

2,900 *milk and dry cows combined (regulatory review is required for any expansion)*

| | 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 | 2,500 | 400 | 850 | 400 | 300 | 0 |
| Maximum count | 2,500 | 400 | 850 | 400 | 300 | 0 |
| Avg live weight (lbs) | 1,400 | 1,450 | 900 | 600 | | |
| Daily hours on flush | 20 | 20 | 20 | 20 | 0 | 0 |

Predominant milk cow breed: Holstein

Average milk production: 77 *pounds per cow per day*

## B. IRRIGATION SOURCES

| Irrigation Source Name | Type | Nitrogen (mg/L) | Phosphorus (mg/L) | Potassium (mg/L) | Discharge Rate |
|---|---|---|---|---|---|
| Canal | Surface water (canal, river) | 1.03 | 0.00 | 0.00 | 15 *cfs* |

## C. NUTRIENT IMPORTS

| Nutrient Type/Name | Quantity | Moisture | Nitrogen | Phosphorus (as P2O5) | Potassium (as K2O) |
|---|---|---|---|---|---|
| UN-32 | 637.00 *gal* | 0.0% | 32.000% | 0.000% | 0.000% |

Total nitrogen imported: 1,701.04 *lbs*

Total phosphorus imported: 0.00 *lbs*

Total potassium imported: 0.00 *lbs*

## D. NUTRIENT EXPORTS

| Nutrient Type/Name | Quantity | Moisture | Nitrogen | Phosphorus (as P2O5) | Potassium (as K2O) |
|---|---|---|---|---|---|
| Manure | 6,000.00 *ton* | 65.8% | 3.300% | 1.240% | 4.990% |
| Manure | 8,700.00 *ton* | 62.8% | 2.090% | 0.870% | 0.800% |

Total nitrogen exported: 270,713.52 *lbs*

Total phosphorus exported: 46,847.69 *lbs*

Total potassium exported: 212,954.76 *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 adsorbtion/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*

APPLICATION AREA

**A. ASSESSOR PARCEL NUMBER:** 0022-0008-0008-0000
Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0008-0029-0000
Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0009-0004-0000
Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0009-0005-0000
Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0009-0006-0000
Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0009-0007-0000
Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0009-0009-0000
Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0023-0005-0000
Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0026-0003-0000
Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0026-0014-0000
Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0026-0015-0000
Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0026-0016-0000
Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0026-0017-0000
Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0026-0018-0000
Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0027-0013-0000

**ASSESSOR PARCEL NUMBER (CONTINUED):** 0022-0027-0013-0000

Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0027-0014-0000

Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0022-0028-0011-0000

Legal owner of parcel: Rayburn, LeAnn Telephone no.: (209) 606-0724 (Landline) (Cellular)

| 321 Melbourne DR | Modesto | CA | 95357 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

**ASSESSOR PARCEL NUMBER:** 0022-0035-0011-0000

Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0041-0030-0001-0000

Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0041-0030-0025-0000

Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0041-0030-0030-0000

Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0057-0002-0003-0000

Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0057-0002-0004-0000

Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0057-0002-0006-0000

Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0057-0005-0005-0000

Legal owner of parcel: Owned by Dairy

**ASSESSOR PARCEL NUMBER:** 0058-0025-0001-0000

Legal owner of parcel: Forzano, Jenny Telephone no.: (209) 634-7685 (Landline) (Cellular)

| 3201 S Morgan RD | Turlcok | CA | 95358 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

**B. FIELD NAME:** Field 1

Cropable acres: 35

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [X] Yes [ ] No

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

Tailwater management method: Returned to retention pond

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Alfalfa, hay | Early January | Late December | 35 |

**FIELD NAME:** Field 10

Cropable acres: 40

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [ ] Yes [X] No

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

Tailwater management method: Contained on Site

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Alfalfa, hay | Early January | Late December | 40 |

**FIELD NAME:** Field 11

Cropable acres: 40

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [ ] Yes [X] No

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

Tailwater management method: Contained on Site

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Oats, silage-soft dough | Middle September | Middle March | 40 |
| Corn, silage | Late April | Late August | 40 |

**FIELD NAME:** Field 12-Brad

Cropable acres: 35

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [ ] Yes [X] No

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

Tailwater management method: Bermed

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Oats, silage-soft dough | Late October | Early April | 35 |
| Corn, silage | Early May | Late September | 35 |

**FIELD NAME:** Field 12-NE

Cropable acres: 35

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [ ] Yes [X] No

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

Tailwater management method: Contained on Site

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Alfalfa, hay | Early January | Late December | 35 |

**FIELD NAME:** Field 12-NW

Cropable acres: 35

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [ ] Yes [X] No

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

Tailwater management method: Contained on Site

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Alfalfa, hay | Early January | Late December | 35 |

**FIELD NAME:** Field 12-SE

Cropable acres: 35

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [ ] Yes [X] No

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

Tailwater management method: Contained on Site

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Alfalfa, hay | Early January | Late December | 35 |

**FIELD NAME:** Field 12-SW

Cropable acres: 45

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [ ] Yes [X] No

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

Tailwater management method: Contained on Site

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Alfalfa, hay | Early January | Late December | 45 |

**FIELD NAME:** Field 13-E

Cropable acres: 40

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [ ] Yes [X] No

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

Tailwater management method: Contained on Site

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Oats, silage-soft dough | Middle September | Middle March | 40 |
| Corn, silage | Late April | Late August | 40 |

**FIELD NAME:** Field 13-N

Cropable acres: 40

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [ ] Yes [X] No

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

Tailwater management method: Contained on Site

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Oats, silage-soft dough | Middle September | Middle March | 40 |
| Corn, silage | Late April | Late August | 40 |

**FIELD NAME:** Field 13-S

Cropable acres: 40

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [ ] Yes [X] No

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

Tailwater management method: Contained on Site

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Oats, silage-soft dough | Middle September | Middle March | 40 |
| Corn, silage | Late April | Late August | 40 |

**FIELD NAME:** Field 14

Cropable acres: 15

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [X] Yes [ ] No

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

Tailwater management method: Contained on Site

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Oats, silage-soft dough | Middle September | Middle March | 15 |
| Corn, silage | Late April | Late August | 15 |

**FIELD NAME:** Field 16

Cropable acres: 10

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [ ] Yes [X] No

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

Tailwater management method: Contained on Site

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Oats, silage-soft dough | Middle September | Middle March | 10 |
| Corn, silage | Late April | Late August | 10 |

**FIELD NAME:** Field 17

Cropable acres: 13

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [ ] Yes [X] No

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

Tailwater management method: Bermed

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Almond, in shell | Early January | Early October | 13 |

**FIELD NAME:** Field 2

Cropable acres: 35

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [X] Yes [ ] No

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

Tailwater management method: Returned to retention pond

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Oats, silage-soft dough | Middle September | Middle March | 35 |
| Corn, silage | Late April | Late August | 35 |

**FIELD NAME:** Field 3

Cropable acres: 45

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [X] Yes [ ] No

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

Tailwater management method: Returned to retention pond

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Oats, silage-soft dough | Middle September | Middle March | 40 |
| Corn, silage | Late August | Late August | 40 |

**FIELD NAME:** Field 4

Cropable acres: 30

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [X] Yes [ ] No

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

Tailwater management method: Returned to retention pond

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Oats, silage-soft dough | Middle September | Middle March | 30 |
| Corn, silage | Late April | Late August | 30 |

**FIELD NAME:** Field 5

Cropable acres: 55

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [X] Yes [ ] No

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

Tailwater management method: Returned to retention pond

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Oats, silage-soft dough | Middle September | Middle March | 55 |
| Corn, silage | Late April | Late August | 55 |

**FIELD NAME:** Field 6

Cropable acres: 30

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [X] Yes [ ] No

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

Tailwater management method: Returned to retention pond

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Alfalfa, hay | Early January | Late December | 30 |

**FIELD NAME:** Field 7

Cropable acres: 21

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [X] Yes [ ] No

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

Tailwater management method: Bermed

**Crops grown and rotation:**

| Crop Type | Plant Date | Harvest Date | Acres Planted |
|---|---|---|---|
| Almond, in shell | Early January | Early October | 21 |

**FIELD NAME:** Field 9

Cropable acres: 60

Predominant soil type: Sandy loam

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

Can fresh water for irrigation purposes be delived to the field year round? [ ] Yes [X] No

Can process wastewater be delivered to the field at agronomic rates and times? [ ] Yes [X] 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 September | Middle March | 60 |
| Corn, silage | Late April | Late August | 60 |

## C. LAND APPLICATION AREA FIELDS AND PARCELS

| Field name | Cropable acres | Total harvests | Parcel number |
|---|---|---|---|
| Field 1 | 35 | 1 | 0022-0009-00040000<br>0022-0009-00050000<br>0022-0009-00090000 |
| Field 10 | 40 | 1 | 0022-0035-00110000 |
| Field 11 | 40 | 2 | 0058-0025-00010000 |
| Field 12-Brad | 35 | 2 | 0057-0002-00030000<br>0057-0002-00040000 |
| Field 12-NE | 35 | 6 | 0057-0002-00060000 |
| Field 12-NW | 35 | 6 | 0057-0002-00060000 |
| Field 12-SE | 35 | 6 | 0057-0002-00060000 |
| Field 12-SW | 45 | 6 | 0057-0002-00060000 |
| Field 13-E | 40 | 2 | 0057-0005-00050000 |
| Field 13-N | 40 | 2 | 0057-0005-00050000 |
| Field 13-S | 40 | 2 | 0057-0005-00050000 |
| Field 14 | 15 | 2 | 0022-0008-00080000 |
| Field 16 | 10 | 2 | 0022-0028-00110000 |
| Field 17 | 13 | 1 | 0022-0008-00290000 |
| Field 2 | 35 | 2 | 0022-0009-00060000<br>0022-0009-00070000 |
| Field 3 | 45 | 2 | 0022-0026-00140000 |
| Field 4 | 30 | 2 | 0022-0026-00030000<br>0022-0026-00140000 |
| Field 5 | 55 | 2 | 0022-0026-00150000<br>0022-0026-00160000<br>0022-0026-00170000<br>0022-0026-00180000 |
| Field 6 | 30 | 6 | 0022-0023-00050000 |
| Field 7 | 21 | 1 | 0022-0027-00130000<br>0022-0027-00140000 |
| Field 9 | 60 | 2 | 0041-0030-00010000<br>0041-0030-00250000<br>0041-0030-00300000 |
| Land application area totals | 1,210 | 77 | |

NUTRIENT BUDGET

**A. NUTRIENT BUDGET FOR CROP:** Field 1 / Alfalfa, hay

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content | 1 | 42.0 | 166.0 | 772.0 | 42.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| Dry manure | 1 | 150.0 | 50.0 | 300.0 | 150.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |
| In season irrigation (no fertilizer) | 8 | 0.0 | 0.0 | 0.0 | 15.9 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 2.0 | 0.0 | 0.0 | 20.0 |
| | 2.0 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 15.9 | 0.0 | 0.0 |
| Existing soil nutrient content | 42.0 | 166.0 | 772.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 150.0 | 50.0 | 300.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 14.0 | | |
| Nutrients applied | 221.9 | 216.0 | 1,072.0 |
| Potential crop nutrient removal | 540.0 | 48.6 | 378.0 |
| Nutrient balance | -318.1 | 167.4 | 694.0 |
| Applied to removal ratio | 0.41 | 4.44 | 2.84 |

Fresh water applied: 5.67 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 10 / Alfalfa, hay

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content | 1 | 0.0 | 0.1 | 0.0 | 0.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| Dry manure | 1 | 150.0 | 50.0 | 300.0 | 150.0 |
| *Nutrient source:* From dairy | | 50% | 50% | 50% | |
| *Application method:* Broadcast/incorporate | | | | | |

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 10 / Alfalfa, hay

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 8 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 16.7 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 2.1 | 0.0 | 0.0 | 24.0 |
| | 2.1 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 16.7 | 0.0 | 0.0 |
| Existing soil nutrient content | 0.0 | 0.1 | 0.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 150.0 | 50.0 | 300.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 14.0 | | |
| Nutrients applied | 180.7 | 50.1 | 300.0 |
| Potential crop nutrient removal | 540.0 | 48.6 | 378.0 |
| Nutrient balance | -359.3 | 1.5 | -78.0 |
| Applied to removal ratio | 0.33 | 1.03 | 0.79 |

Fresh water applied: 5.95 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 11 / 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<br>*Nutrient source:* Soil<br>*Application method:* Lab results | 1 | 28.0<br>50% | 98.0<br>50% | 452.0<br>50% | 28.0 |
| Dry manure<br>*Nutrient source:* From dairy<br>*Application method:* Broadcast/incorporate | 1 | 150.0<br>25% | 50.0<br>50% | 300.0<br>85% | 150.0 |
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 1 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 1.0 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.0 | 0.0 | 0.0 | 12.0 |
| | 1.0 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 1.0 | 0.0 | 0.0 |
| Existing soil nutrient content | 28.0 | 98.0 | 452.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 150.0 | 50.0 | 300.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 186.0 | 148.0 | 752.0 |
| Potential crop nutrient removal | 150.0 | 24.0 | 124.5 |
| Nutrient balance | 36.0 | 124.0 | 627.5 |
| Applied to removal ratio | 1.24 | 6.17 | 6.04 |

Fresh water applied: 0.37 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 11 / 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<br>*Nutrient source:* Soil<br>*Application method:* Lab results | 1 | 28.0<br>50% | 98.0<br>50% | 452.0<br>50% | 28.0 |
| Dry manure<br>*Nutrient source:* From dairy<br>*Application method:* Broadcast/incorporate | 1 | 250.0<br>25% | 80.0<br>50% | 500.0<br>85% | 250.0 |
| Pre-irrigation prior to planting (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 1 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 0.9 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.9 | 0.0 | 0.0 | 10.0 |
| | 0.9 | 0.0 | 0.0 | |

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 8 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 6.9 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.9 | 0.0 | 0.0 | 10.0 |
| | 0.9 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 7.8 | 0.0 | 0.0 |

| | | | |
|---|---|---|---|
| Existing soil nutrient content | 28.0 | 98.0 | 452.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 250.0 | 80.0 | 500.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 292.8 | 178.0 | 952.0 |
| Potential crop nutrient removal | 224.0 | 42.0 | 184.8 |
| Nutrient balance | 68.8 | 136.0 | 767.2 |
| Applied to removal ratio | 1.31 | 4.24 | 5.15 |

Fresh water applied: 2.79 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 12-Brad / 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<br>*Nutrient source:* Soil<br>*Application method:* Lab results | 1 | 28.0<br>50% | 98.0<br>50% | 452.0<br>50% | 28.0 |
| Dry manure<br>*Nutrient source:* From dairy<br>*Application method:* Broadcast/incorporate | 1 | 150.0<br>25% | 50.0<br>50% | 300.0<br>85% | 150.0 |
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 1 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 1.2 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.2 | 0.0 | 0.0 | 12.0 |
| | 1.2 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 1.2 | 0.0 | 0.0 |
| Existing soil nutrient content | 28.0 | 98.0 | 452.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 150.0 | 50.0 | 300.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 186.2 | 148.0 | 752.0 |
| Potential crop nutrient removal | 150.0 | 24.0 | 124.5 |
| Nutrient balance | 36.2 | 124.0 | 627.5 |

| | | | |
|---|---|---|---|
| Applied to removal ratio | 1.24 | 6.17 | 6.04 |

Fresh water applied: 0.43 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 12-Brad / 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 | 1 | 28.0 | 98.0 | 452.0 | 28.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| Dry manure | 1 | 250.0 | 80.0 | 500.0 | 250.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |
| Pre-irrigation prior to planting (no fertilizer) | 1 | 0.0 | 0.0 | 0.0 | 1.0 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.0 | 0.0 | 0.0 | 10.0 |
| | 1.0 | 0.0 | 0.0 | |

| | | | | |
|---|---|---|---|---|
| In season irrigation (no fertilizer) | 8 | 0.0 | 0.0 | 0.0 | 7.9 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.0 | 0.0 | 0.0 | 10.0 |
| | 1.0 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 8.9 | 0.0 | 0.0 |
| Existing soil nutrient content | 28.0 | 98.0 | 452.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 250.0 | 80.0 | 500.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 293.9 | 178.0 | 952.0 |
| Potential crop nutrient removal | 224.0 | 42.0 | 184.8 |
| Nutrient balance | 69.9 | 136.0 | 767.2 |
| Applied to removal ratio | 1.31 | 4.24 | 5.15 |

Fresh water applied: 3.19 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 12-NE / Alfalfa, hay

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content | 1 | 54.0 | 166.0 | 484.0 | 54.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| Dry manure | 1 | 150.0 | 50.0 | 300.0 | 150.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |
| In season irrigation (no fertilizer) | 8 | 0.0 | 0.0 | 0.0 | 15.9 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 2.0 | 0.0 | 0.0 | 20.0 |
| | 2.0 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 15.9 | 0.0 | 0.0 |
| Existing soil nutrient content | 54.0 | 166.0 | 484.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 150.0 | 50.0 | 300.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 14.0 | | |
| Nutrients applied | 233.9 | 216.0 | 784.0 |
| Potential crop nutrient removal | 540.0 | 48.6 | 378.0 |
| Nutrient balance | -306.1 | 167.4 | 406.0 |
| Applied to removal ratio | 0.43 | 4.44 | 2.07 |

Fresh water applied: 5.67 *feet* Total harvests: 6

**NUTRIENT BUDGET FOR CROP:** Field 12-NW / Alfalfa, hay

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content | 1 | 66.0 | 148.0 | 536.0 | 66.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| Dry manure | 1 | 150.0 | 50.0 | 300.0 | 150.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 12-NW / Alfalfa, hay

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 8 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 15.9 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 2.0 | 0.0 | 0.0 | 20.0 |
| | 2.0 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 15.9 | 0.0 | 0.0 |
| Existing soil nutrient content | 66.0 | 148.0 | 536.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 150.0 | 50.0 | 300.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 14.0 | | |
| Nutrients applied | 245.9 | 198.0 | 836.0 |
| Potential crop nutrient removal | 540.0 | 48.6 | 378.0 |
| Nutrient balance | -294.1 | 149.4 | 458.0 |
| Applied to removal ratio | 0.46 | 4.07 | 2.21 |

Fresh water applied: 5.67 *feet* Total harvests: 6

**NUTRIENT BUDGET FOR CROP:** Field 12-SE / Alfalfa, hay

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content<br>*Nutrient source:* Soil<br>*Application method:* Lab results | 1 | 38.0<br>50% | 152.0<br>50% | 322.0<br>50% | 38.0 |
| Dry manure<br>*Nutrient source:* From dairy<br>*Application method:* Broadcast/incorporate | 1 | 150.0<br>25% | 50.0<br>50% | 300.0<br>85% | 150.0 |
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 8 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 15.9 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 2.0 | 0.0 | 0.0 | 20.0 |
| | 2.0 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 15.9 | 0.0 | 0.0 |
| Existing soil nutrient content | 38.0 | 152.0 | 322.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 150.0 | 50.0 | 300.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 14.0 | | |
| Nutrients applied | 217.9 | 202.0 | 622.0 |
| Potential crop nutrient removal | 540.0 | 48.6 | 378.0 |
| Nutrient balance | -322.1 | 153.4 | 244.0 |
| Applied to removal ratio | 0.40 | 4.16 | 1.65 |

Fresh water applied: 5.67 *feet* Total harvests: 6

**NUTRIENT BUDGET FOR CROP:** Field 12-SW / Alfalfa, hay

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content<br>*Nutrient source:* Soil<br>*Application method:* Lab results | 1 | 32.0<br>50% | 160.0<br>50% | 284.0<br>50% | 32.0 |
| Dry manure<br>*Nutrient source:* From dairy<br>*Application method:* Broadcast/incorporate | 1 | 150.0<br>25% | 50.0<br>50% | 300.0<br>85% | 150.0 |
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 8 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 15.4 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.9 | 0.0 | 0.0 | 25.0 |
| | 1.9 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 15.4 | 0.0 | 0.0 |
| Existing soil nutrient content | 32.0 | 160.0 | 284.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 150.0 | 50.0 | 300.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 14.0 | | |

| | | | |
|---|---|---|---|
| Nutrients applied | 211.4 | 210.0 | 584.0 |
| Potential crop nutrient removal | 540.0 | 48.6 | 378.0 |
| Nutrient balance | -328.6 | 161.4 | 206.0 |
| Applied to removal ratio | 0.39 | 4.32 | 1.54 |

Fresh water applied: 5.51 *feet* Total harvests: 6

**NUTRIENT BUDGET FOR CROP:** Field 13-E / 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 | 1 | 10.0 | 52.0 | 122.0 | 10.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| Dry manure | 1 | 150.0 | 50.0 | 300.0 | 150.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |
| In season irrigation (no fertilizer) | 1 | 0.0 | 0.0 | 0.0 | 0.9 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.9 | 0.0 | 0.0 | 10.0 |
| | 0.9 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 0.9 | 0.0 | 0.0 |
| Existing soil nutrient content | 10.0 | 52.0 | 122.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 150.0 | 50.0 | 300.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 167.9 | 102.0 | 422.0 |
| Potential crop nutrient removal | 150.0 | 24.0 | 124.5 |
| Nutrient balance | 17.9 | 78.0 | 297.5 |
| Applied to removal ratio | 1.12 | 4.25 | 3.39 |

Fresh water applied: 0.31 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 13-E / Corn, silage

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 13-E / 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 | 1 | 10.0 | 52.0 | 122.0 | 10.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| Dry manure | 1 | 250.0 | 80.0 | 500.0 | 250.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |
| Pre-irrigation prior to planting (no fertilizer) | 1 | 0.0 | 0.0 | 0.0 | 1.0 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.0 | 0.0 | 0.0 | 12.0 |
| | 1.0 | 0.0 | 0.0 | |

| In season irrigation (no fertilizer) | 7 | 0.0 | 0.0 | 0.0 | 7.3 |
|---|---|---|---|---|---|
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.0 | 0.0 | 0.0 | 12.0 |
| | 1.0 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 8.3 | 0.0 | 0.0 |
| Existing soil nutrient content | 10.0 | 52.0 | 122.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 250.0 | 80.0 | 500.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 275.3 | 132.0 | 622.0 |
| Potential crop nutrient removal | 224.0 | 42.0 | 184.8 |
| Nutrient balance | 51.3 | 90.0 | 437.2 |
| Applied to removal ratio | 1.23 | 3.14 | 3.37 |

Fresh water applied: 2.98 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 13-N / Oats, silage-soft dough

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 13-N / 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 | 1 | 10.0 | 52.0 | 122.0 | 10.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| Dry manure | 1 | 150.0 | 50.0 | 300.0 | 150.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |
| In season irrigation (no fertilizer) | 1 | 0.0 | 0.0 | 0.0 | 1.0 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.0 | 0.0 | 0.0 | 12.0 |
| | 1.0 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 1.0 | 0.0 | 0.0 |
| Existing soil nutrient content | 10.0 | 52.0 | 122.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 150.0 | 50.0 | 300.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 168.0 | 102.0 | 422.0 |
| Potential crop nutrient removal | 150.0 | 24.0 | 124.5 |
| Nutrient balance | 18.0 | 78.0 | 297.5 |
| Applied to removal ratio | 1.12 | 4.25 | 3.39 |

Fresh water applied: 0.37 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 13-N / 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 | 1 | 10.0 | 52.0 | 122.0 | 10.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| Dry manure | 1 | 250.0 | 80.0 | 500.0 | 250.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 13-N / Corn, silage

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Pre-irrigation prior to planting (no fertilizer) | 1 | 0.0 | 0.0 | 0.0 | 1.0 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.0 | 0.0 | 0.0 | 12.0 |
| | 1.0 | 0.0 | 0.0 | |

| | | | | | |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer) | 7 | 0.0 | 0.0 | 0.0 | 7.3 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.0 | 0.0 | 0.0 | 12.0 |
| | 1.0 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 8.3 | 0.0 | 0.0 |
| Existing soil nutrient content | 10.0 | 52.0 | 122.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 250.0 | 80.0 | 500.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 275.3 | 132.0 | 622.0 |
| Potential crop nutrient removal | 224.0 | 42.0 | 184.8 |
| Nutrient balance | 51.3 | 90.0 | 437.2 |
| Applied to removal ratio | 1.23 | 3.14 | 3.37 |

Fresh water applied: 2.98 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 13-S / 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 | 1 | 10.0 | 52.0 | 122.0 | 10.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| Dry manure | 1 | 150.0 | 50.0 | 300.0 | 150.0 |
| *Nutrient source:* From dairy | | 50% | 50% | 50% | |
| *Application method:* Broadcast/incorporate | | | | | |

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 13-S / Oats, silage-soft dough

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 1 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 1.0 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.0 | 0.0 | 0.0 | 12.0 |
| | 1.0 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 1.0 | 0.0 | 0.0 |
| Existing soil nutrient content | 10.0 | 52.0 | 122.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 150.0 | 50.0 | 300.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 168.0 | 102.0 | 422.0 |
| Potential crop nutrient removal | 150.0 | 24.0 | 124.5 |
| Nutrient balance | 18.0 | 78.0 | 297.5 |
| Applied to removal ratio | 1.12 | 4.25 | 3.39 |

Fresh water applied: 0.37 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 13-S / 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<br>*Nutrient source:* Soil<br>*Application method:* Lab results | 1 | 10.0<br>50% | 52.0<br>50% | 122.0<br>50% | 10.0 |
| Dry manure<br>*Nutrient source:* From dairy<br>*Application method:* Broadcast/incorporate | 1 | 250.0<br>25% | 80.0<br>50% | 500.0<br>86% | 250.0 |
| Pre-irrigation prior to planting (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 1 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 1.0 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.0 | 0.0 | 0.0 | 12.0 |
| | 1.0 | 0.0 | 0.0 | |

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 13-S / Corn, silage

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 7 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 7.3 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.0 | 0.0 | 0.0 | 12.0 |
| | 1.0 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 8.3 | 0.0 | 0.0 |
| Existing soil nutrient content | 10.0 | 52.0 | 122.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 250.0 | 80.0 | 500.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 275.3 | 132.0 | 622.0 |
| Potential crop nutrient removal | 224.0 | 42.0 | 184.8 |
| Nutrient balance | 51.3 | 90.0 | 437.2 |
| Applied to removal ratio | 1.23 | 3.14 | 3.37 |

Fresh water applied: 2.98 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 14 / 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<br>*Nutrient source:* Soil<br>*Application method:* Lab results | 1 | 10.0<br>50% | 52.0<br>50% | 122.0<br>50% | 10.0 |
| Dry manure<br>*Nutrient source:* From dairy<br>*Application method:* Broadcast/incorporate | 1 | 200.0<br>25% | 85.0<br>50% | 500.0<br>85% | 200.0 |
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 1 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 0.7 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.7 | 0.0 | 0.0 | 3.0 |
| | 0.7 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 0.7 | 0.0 | 0.0 |
| Existing soil nutrient content | 10.0 | 52.0 | 122.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 200.0 | 85.0 | 500.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 217.7 | 137.0 | 622.0 |
| Potential crop nutrient removal | 160.0 | 25.6 | 132.8 |
| Nutrient balance | 57.7 | 111.4 | 489.2 |
| Applied to removal ratio | 1.36 | 5.35 | 4.68 |

Fresh water applied: 0.25 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 14 / 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<br>*Nutrient source:* Soil<br>*Application method:* Estimated | 1 | 10.0<br>50% | 52.0<br>50% | 122.0<br>50% | 10.0 |
| Dry manure<br>*Nutrient source:* From dairy<br>*Application method:* Broadcast/incorporate | 1 | 220.0<br>25% | 85.0<br>50% | 500.0<br>85% | 220.0 |
| Pre-irrigation prior to planting (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 1 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 0.9 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.9 | 0.0 | 0.0 | 4.0 |
| | 0.9 | 0.0 | 0.0 | |

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 8 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 7.4 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.9 | 0.0 | 0.0 | 4.0 |
| | 0.9 | 0.0 | 0.0 | |

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (with fertilizer)<br>*Nutrient source:* Retention pond (lagoon)<br>*Application method:* Pipeline | 1 | 50.0<br>35% | 10.0<br>50% | 100.0<br>85% | 50.9 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.9 | 0.0 | 0.0 | 4.0 |
| | 0.9 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 9.3 | 0.0 | 0.0 |
| Existing soil nutrient content | 10.0 | 52.0 | 122.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 220.0 | 85.0 | 500.0 |
| Liquid manure | 50.0 | 10.0 | 100.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 296.3 | 147.0 | 722.0 |
| Potential crop nutrient removal | 224.0 | 42.0 | 184.8 |
| Nutrient balance | 72.3 | 105.0 | 537.2 |
| Applied to removal ratio | 1.32 | 3.50 | 3.91 |

Fresh water applied: 3.31 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 16 / 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 | 1 | 60.0 | 156.0 | 574.0 | 60.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| Dry manure | 1 | 135.0 | 40.0 | 280.0 | 135.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |
| In season irrigation (no fertilizer) | 1 | 0.0 | 0.0 | 0.0 | 1.0 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.0 | 0.0 | 0.0 | 3.0 |
| | 1.0 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 1.0 | 0.0 | 0.0 |
| Existing soil nutrient content | 60.0 | 156.0 | 574.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 135.0 | 40.0 | 280.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |

| | | | |
|---|---|---|---|
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 203.0 | 196.0 | 854.0 |
| Potential crop nutrient removal | 150.0 | 24.0 | 124.5 |
| Nutrient balance | 53.0 | 172.0 | 729.5 |
| Applied to removal ratio | 1.35 | 8.17 | 6.86 |

Fresh water applied: 0.37 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 16 / 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 | 1 | 60.0 | 156.0 | 574.0 | 60.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| Dry manure | 1 | 230.0 | 80.0 | 480.0 | 230.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |
| Pre-irrigation prior to planting (no fertilizer) | 1 | 0.0 | 0.0 | 0.0 | 0.9 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.9 | 0.0 | 0.0 | 2.5 |
| | 0.9 | 0.0 | 0.0 | |

| | | | | | |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer) | 9 | 0.0 | 0.0 | 0.0 | 7.8 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.9 | 0.0 | 0.0 | 2.5 |
| | 0.9 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 8.7 | 0.0 | 0.0 |
| Existing soil nutrient content | 60.0 | 156.0 | 574.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 230.0 | 80.0 | 480.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 305.7 | 236.0 | 1,054.0 |
| Potential crop nutrient removal | 224.0 | 42.0 | 184.8 |
| Nutrient balance | 81.7 | 194.0 | 869.2 |

| | | | |
|---|---|---|---|
| Applied to removal ratio | 1.36 | 5.62 | 5.70 |

Fresh water applied: 3.10 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 17 / Almond, in shell

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content<br>*Nutrient source:* Soil<br>*Application method:* Lab results | 1 | 0.0<br>50% | 0.1<br>50% | 0.0<br>50% | 0.0 |
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 10 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 16.0 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.6 | 0.0 | 0.0 | 6.0 |
| | 1.6 | 0.0 | 0.0 | |

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (with fertilizer)<br>*Nutrient source:* Commercial fertilizer<br>*Application method:* Pipeline | 4 | 50.0<br>50% | 0.0<br>0% | 0.0<br>0% | 206.4 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.6 | 0.0 | 0.0 | 6.0 |
| | 1.6 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 22.4 | 0.0 | 0.0 |
| Existing soil nutrient content | 0.0 | 0.1 | 0.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 200.0 | 0.0 | 0.0 |
| Dry manure | 0.0 | 0.0 | 0.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 14.0 | | |
| Nutrients applied | 236.4 | 0.1 | 0.0 |
| Potential crop nutrient removal | 210.0 | 30.0 | 148.5 |
| Nutrient balance | 26.4 | -29.9 | -148.5 |
| Applied to removal ratio | 1.13 | 0.00 | 0.00 |

Fresh water applied: 8.01 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 2 / Oats, silage-soft dough

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 2 / 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 | 1 | 28.0 | 96.0 | 452.0 | 28.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| In season irrigation (with fertilizer) | 1 | 160.0 | 35.0 | 320.0 | 160.8 |
| *Nutrient source:* Retention pond (lagoon) | | 35% | 50% | 85% | |
| *Application method:* Pipeline | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.8 | 0.0 | 0.0 | 8.0 |
| | 0.8 | 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 | 28.0 | 96.0 | 452.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 0.0 | 0.0 | 0.0 |
| Liquid manure | 160.0 | 35.0 | 320.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 195.8 | 131.0 | 772.0 |
| Potential crop nutrient removal | 150.0 | 24.0 | 124.5 |
| Nutrient balance | 45.8 | 107.0 | 647.5 |
| Applied to removal ratio | 1.31 | 5.46 | 6.20 |

Fresh water applied: 0.28 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 2 / 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 | 1 | 28.0 | 96.0 | 452.0 | 28.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| Pre-irrigation prior to planting (no fertilizer) | 1 | 0.0 | 0.0 | 0.0 | 0.8 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.8 | 0.0 | 0.0 | 8.5 |
| | 0.8 | 0.0 | 0.0 | |

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 2 / Corn, silage

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer) | 4 | 0.0 | 0.0 | 0.0 | 3.4 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.8 | 0.0 | 0.0 | 8.5 |
| | 0.8 | 0.0 | 0.0 | |

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (with fertilizer) | 5 | 50.0 | 10.0 | 100.0 | 254.2 |
| *Nutrient source:* Retention pond (lagoon) | | 35% | 50% | 85% | |
| *Application method:* Pipeline | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.8 | 0.0 | 0.0 | 8.5 |
| | 0.8 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 8.4 | 0.0 | 0.0 |
| Existing soil nutrient content | 28.0 | 96.0 | 452.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 0.0 | 0.0 | 0.0 |
| Liquid manure | 250.0 | 50.0 | 500.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 293.4 | 146.0 | 952.0 |
| Potential crop nutrient removal | 224.0 | 42.0 | 184.8 |
| Nutrient balance | 69.4 | 104.0 | 767.2 |
| Applied to removal ratio | 1.31 | 3.48 | 5.15 |

Fresh water applied: 3.01 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 3 / 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 | 1 | 28.0 | 514.0 | 648.0 | 28.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 3 / Oats, silage-soft dough

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer) | 1 | 0.0 | 0.0 | 0.0 | 0.9 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.9 | 0.0 | 0.0 | 10.0 |
| | 0.9 | 0.0 | 0.0 | |

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (with fertilizer) | 1 | 160.0 | 35.0 | 320.0 | 160.9 |
| *Nutrient source:* Retention pond (lagoon) | | 35% | 50% | 85% | |
| *Application method:* Pipeline | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.9 | 0.0 | 0.0 | 10.0 |
| | 0.9 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 1.7 | 0.0 | 0.0 |
| Existing soil nutrient content | 28.0 | 514.0 | 648.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 0.0 | 0.0 | 0.0 |
| Liquid manure | 160.0 | 35.0 | 320.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 196.7 | 549.0 | 968.0 |
| Potential crop nutrient removal | 150.0 | 24.0 | 124.5 |
| Nutrient balance | 46.7 | 525.0 | 843.5 |
| Applied to removal ratio | 1.31 | 22.88 | 7.78 |

Fresh water applied: 0.62 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 3 / 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 | 1 | 28.0 | 514.0 | 648.0 | 28.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 3 / Corn, silage

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Pre-irrigation prior to planting (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 1 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 0.8 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.8 | 0.0 | 0.0 | 9.0 |
| | 0.8 | 0.0 | 0.0 | |

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 4 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 3.1 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.8 | 0.0 | 0.0 | 9.0 |
| | 0.8 | 0.0 | 0.0 | |

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (with fertilizer)<br>*Nutrient source:* Retention pond (lagoon)<br>*Application method:* Pipeline | 5 | 50.0<br>35% | 10.0<br>50% | 100.0<br>85% | 253.9 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.8 | 0.0 | 0.0 | 9.0 |
| | 0.8 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 7.8 | 0.0 | 0.0 |
| Existing soil nutrient content | 28.0 | 514.0 | 648.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 0.0 | 0.0 | 0.0 |
| Liquid manure | 250.0 | 50.0 | 500.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 292.8 | 564.0 | 1,148.0 |
| Potential crop nutrient removal | 224.0 | 42.0 | 184.8 |
| Nutrient balance | 68.8 | 522.0 | 963.2 |
| Applied to removal ratio | 1.31 | 13.43 | 6.21 |

Fresh water applied: 2.79 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 4 / Oats, silage-soft dough

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 4 / 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 | 1 | 28.0 | 386.0 | 388.0 | 28.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| In season irrigation (no fertilizer) | 1 | 0.0 | 0.0 | 0.0 | 2.3 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 2.3 | 0.0 | 0.0 | 20.0 |
| | 2.3 | 0.0 | 0.0 | |

| In season irrigation (with fertilizer) | 1 | 160.0 | 35.0 | 320.0 | 162.3 |
|---|---|---|---|---|---|
| *Nutrient source:* Retention pond (lagoon) | | 35% | 50% | 85% | |
| *Application method:* Pipeline | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 2.3 | 0.0 | 0.0 | 20.0 |
| | 2.3 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 4.6 | 0.0 | 0.0 |
| Existing soil nutrient content | 28.0 | 386.0 | 388.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 0.0 | 0.0 | 0.0 |
| Liquid manure | 160.0 | 35.0 | 320.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 199.6 | 421.0 | 708.0 |
| Potential crop nutrient removal | 150.0 | 24.0 | 124.5 |
| Nutrient balance | 49.6 | 397.0 | 583.5 |
| Applied to removal ratio | 1.33 | 17.54 | 5.69 |

Fresh water applied: 1.65 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 4 / 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 | 1 | 28.0 | 386.0 | 388.0 | 28.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 4 / Corn, silage

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Pre-irrigation prior to planting (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 1 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 0.8 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.8 | 0.0 | 0.0 | 7.0 |
| | 0.8 | 0.0 | 0.0 | |

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 4 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 3.2 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.8 | 0.0 | 0.0 | 7.0 |
| | 0.8 | 0.0 | 0.0 | |

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (with fertilizer)<br>*Nutrient source:* Retention pond (lagoon)<br>*Application method:* Pipeline | 5 | 50.0<br>35% | 10.0<br>50% | 100.0<br>85% | 254.1 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.8 | 0.0 | 0.0 | 7.0 |
| | 0.8 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 8.1 | 0.0 | 0.0 |
| Existing soil nutrient content | 28.0 | 386.0 | 388.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 0.0 | 0.0 | 0.0 |
| Liquid manure | 250.0 | 50.0 | 500.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 293.1 | 436.0 | 888.0 |
| Potential crop nutrient removal | 224.0 | 42.0 | 184.8 |
| Nutrient balance | 69.1 | 394.0 | 703.2 |
| Applied to removal ratio | 1.31 | 10.38 | 4.81 |

Fresh water applied: 2.89 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 5 / Oats, silage-soft dough

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 5 / 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 | 1 | 28.0 | 386.0 | 388.0 | 28.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| In season irrigation (with fertilizer) | 1 | 160.0 | 35.0 | 320.0 | 160.6 |
| *Nutrient source:* Retention pond (lagoon) | | 35% | 50% | 85% | |
| *Application method:* Pipeline | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.6 | 0.0 | 0.0 | 10.0 |
| | 0.6 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 0.6 | 0.0 | 0.0 |
| Existing soil nutrient content | 28.0 | 386.0 | 388.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 0.0 | 0.0 | 0.0 |
| Liquid manure | 160.0 | 35.0 | 320.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 195.6 | 421.0 | 708.0 |
| Potential crop nutrient removal | 180.0 | 27.0 | 149.4 |
| Nutrient balance | 15.6 | 394.0 | 558.6 |
| Applied to removal ratio | 1.09 | 15.59 | 4.74 |

Fresh water applied: 0.23 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 5 / 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 | 1 | 28.0 | 386.0 | 388.0 | 28.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| Pre-irrigation prior to planting (no fertilizer) | 1 | 0.0 | 0.0 | 0.0 | 0.8 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.8 | 0.0 | 0.0 | 12.5 |
| | 0.8 | 0.0 | 0.0 | |

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 5 / Corn, silage

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 4 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 3.2 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.8 | 0.0 | 0.0 | 12.5 |
| | 0.8 | 0.0 | 0.0 | |

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (with fertilizer)<br>*Nutrient source:* Retention pond (lagoon)<br>*Application method:* Pipeline | 5 | 50.0<br>35% | 10.0<br>50% | 100.0<br>85% | 253.9 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.8 | 0.0 | 0.0 | 12.5 |
| | 0.8 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 7.9 | 0.0 | 0.0 |
| Existing soil nutrient content | 28.0 | 386.0 | 388.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 0.0 | 0.0 | 0.0 |
| Liquid manure | 250.0 | 50.0 | 500.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 292.9 | 436.0 | 888.0 |
| Potential crop nutrient removal | 224.0 | 42.0 | 184.8 |
| Nutrient balance | 68.9 | 394.0 | 703.2 |
| Applied to removal ratio | 1.31 | 10.38 | 4.81 |

Fresh water applied: 2.82 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 6 / Alfalfa, hay

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content<br>*Nutrient source:* Soil<br>*Application method:* Lab results | 1 | 0.0<br>50% | 0.1<br>50% | 0.0<br>50% | 0.0 |

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 6 / Alfalfa, hay

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 8 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 15.7 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 2.0 | 0.0 | 0.0 | 17.0 |
| | 2.0 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 15.7 | 0.0 | 0.0 |
| Existing soil nutrient content | 0.0 | 0.1 | 0.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 0.0 | 0.0 | 0.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 14.0 | | |
| Nutrients applied | 29.7 | 0.1 | 0.0 |
| Potential crop nutrient removal | 540.0 | 48.6 | 378.0 |
| Nutrient balance | -510.3 | -48.5 | -378.0 |
| Applied to removal ratio | 0.06 | 0.00 | 0.00 |

Fresh water applied: 5.62 *feet* Total harvests: 6

**NUTRIENT BUDGET FOR CROP:** Field 7 / Almond, in shell

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| Existing soil nutrient content<br>*Nutrient source:* Soil<br>*Application method:* Lab results | 1 | 0.0<br>50% | 0.1<br>50% | 0.0<br>50% | 0.0 |
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 10 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 9.9 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.0 | 0.0 | 0.0 | 6.0 |
| | 1.0 | 0.0 | 0.0 | |

**NUTRIENT BUDGET FOR CROP (CONTINUED):** Field 7 / Almond, in shell

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (with fertilizer) | 4 | 50.0 | 0.0 | 0.0 | 204.0 |
| *Nutrient source:* Commercial fertilizer | | 50% | 0% | 0% | |
| *Application method:* Pipeline | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.0 | 0.0 | 0.0 | 6.0 |
| | 1.0 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 13.9 | 0.0 | 0.0 |
| Existing soil nutrient content | 0.0 | 0.1 | 0.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 200.0 | 0.0 | 0.0 |
| Dry manure | 0.0 | 0.0 | 0.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 14.0 | | |
| Nutrients applied | 227.9 | 0.1 | 0.0 |
| Potential crop nutrient removal | 210.0 | 30.0 | 148.5 |
| Nutrient balance | 17.9 | -29.9 | -148.5 |
| Applied to removal ratio | 1.09 | 0.00 | 0.00 |

Fresh water applied: 4.96 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 9 / 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 | 1 | 36.0 | 308.0 | 912.0 | 36.0 |
| *Nutrient source:* Soil | | 50% | 50% | 50% | |
| *Application method:* Lab results | | | | | |
| Dry manure | 1 | 150.0 | 50.0 | 300.0 | 150.0 |
| *Nutrient source:* From dairy | | 25% | 50% | 85% | |
| *Application method:* Broadcast/incorporate | | | | | |
| In season irrigation (no fertilizer) | 2 | 0.0 | 0.0 | 0.0 | 2.9 |
| *Nutrient source:* Water only | | 0% | 0% | 0% | |
| *Application method:* Surface | | | | | |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 1.4 | 0.0 | 0.0 | 25.0 |
| | 1.4 | 0.0 | 0.0 | |

| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 2.9 | 0.0 | 0.0 |
| Existing soil nutrient content | 36.0 | 308.0 | 912.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 150.0 | 50.0 | 300.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 195.9 | 358.0 | 1,212.0 |
| Potential crop nutrient removal | 150.0 | 24.0 | 124.5 |
| Nutrient balance | 45.9 | 334.0 | 1,087.5 |
| Applied to removal ratio | 1.31 | 14.92 | 9.73 |

Fresh water applied: 1.03 *feet* Total harvests: 1

**NUTRIENT BUDGET FOR CROP:** Field 9 / 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<br>*Nutrient source:* Soil<br>*Application method:* Lab results | 1 | 36.0<br>50% | 308.0<br>50% | 912.0<br>50% | 36.0 |
| Dry manure<br>*Nutrient source:* From dairy<br>*Application method:* Broadcast/incorporate | 1 | 250.0<br>25% | 85.0<br>50% | 500.0<br>85% | 250.0 |
| Pre-irrigation prior to planting (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 1 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 0.8 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.8 | 0.0 | 0.0 | 14.0 |
| | 0.8 | 0.0 | 0.0 | |

| Activity / Event | # of Events | N (lbs/acre) % avail. | P (lbs/acre) % avail. | K (lbs/acre) % avail. | Total N (lbs/acre) |
|---|---|---|---|---|---|
| In season irrigation (no fertilizer)<br>*Nutrient source:* Water only<br>*Application method:* Surface | 9 | 0.0<br>0% | 0.0<br>0% | 0.0<br>0% | 7.3 |

| Irrigation Source | N (lbs/acre) | P (lbs/acre) | K (lbs/acre) | Runtime (hrs) |
|---|---|---|---|---|
| Canal | 0.8 | 0.0 | 0.0 | 14.0 |
| | 0.8 | 0.0 | 0.0 | |

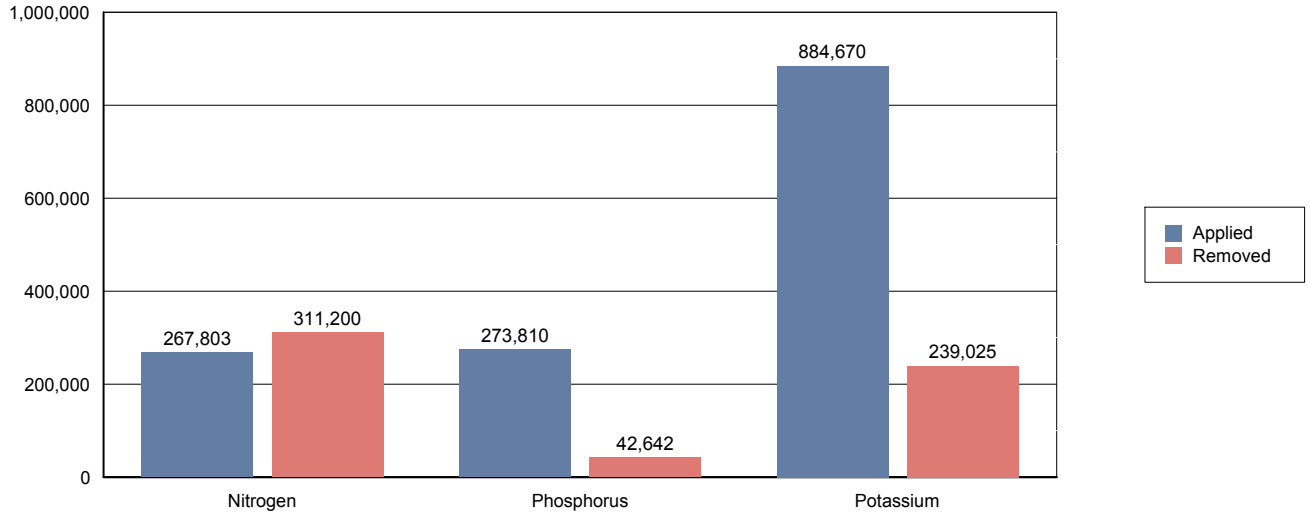
| | Total N (lbs/acre) | Total P (lbs/acre) | Total K (lbs/acre) |
|---|---|---|---|
| Irrigation sources | 8.1 | 0.0 | 0.0 |

| | | | |
|---|---|---|---|
| Existing soil nutrient content | 36.0 | 308.0 | 912.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 0.0 | 0.0 | 0.0 |
| Dry manure | 250.0 | 85.0 | 500.0 |
| Liquid manure | 0.0 | 0.0 | 0.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 7.0 | | |
| Nutrients applied | 301.1 | 393.0 | 1,412.0 |
| Potential crop nutrient removal | 224.0 | 42.0 | 184.8 |
| Nutrient balance | 77.1 | 351.0 | 1,227.2 |
| Applied to removal ratio | 1.34 | 9.36 | 7.64 |

Fresh water applied: 2.89 *feet* Total harvests: 1

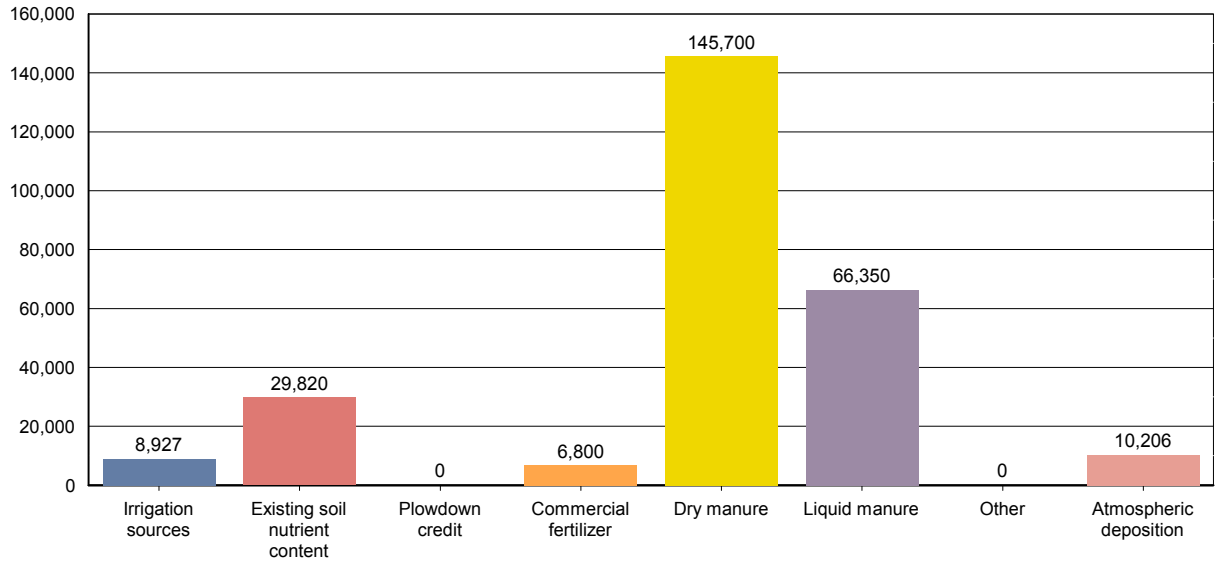
NUTRIENT APPLICATIONS, POTENTIAL REMOVAL, AND BALANCE

## A. POUNDS OF NUTRIENT APPLIED VS. CROP REMOVAL POTENTIAL




| | Total N (lbs) | Total P (lbs) | Total K (lbs) |
|---|---|---|---|
| Irrigation sources | 8,926.7 | 0.0 | 0.0 |
| Existing soil nutrient content | 29,820.0 | 211,610.4 | 457,870.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 6,800.0 | 0.0 | 0.0 |
| Dry manure | 145,700.0 | 48,450.0 | 294,100.0 |
| Liquid manure | 66,350.0 | 13,750.0 | 132,700.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 10,206.0 | | |
| Nutrients applied to all crops | 267,802.7 | 273,810.4 | 884,670.0 |
| Potential crop nutrient removal | 311,200.0 | 42,642.0 | 239,025.0 |
| Nutrient balance | -43,397.3 | 231,168.4 | 645,645.0 |
| Applied to removal ratio | 0.86 | 6.42 | 3.70 |

## B. POUNDS OF NITROGEN APPLIED BY NUTRIENT SOURCE




| | Total N (lbs) | Total P (lbs) | Total K (lbs) |
|---|---|---|---|
| Irrigation sources | 8,926.7 | 0.0 | 0.0 |
| Existing soil nutrient content | 29,820.0 | 211,610.4 | 457,870.0 |
| Plowdown credit | 0.0 | 0.0 | 0.0 |
| Commercial fertilizer | 6,800.0 | 0.0 | 0.0 |
| Dry manure | 145,700.0 | 48,450.0 | 294,100.0 |
| Liquid manure | 66,350.0 | 13,750.0 | 132,700.0 |
| Other | 0.0 | 0.0 | 0.0 |
| Atmospheric deposition | 10,206.0 | | |
| Nutrients applied to all crops | 267,802.7 | 273,810.4 | 884,670.0 |
| Potential crop nutrient removal | 311,200.0 | 42,642.0 | 239,025.0 |
| Nutrient balance | -43,397.3 | 231,168.4 | 645,645.0 |
| Applied to removal ratio | 0.86 | 6.42 | 3.70 |

NUTRIENT BALANCE

**A. WHOLE FARM BALANCE**

| | Total N (lbs) | Total P (lbs) | Total K (lbs) |
|---|---|---|---|
| Nutrients in storage from herd* | | | |
| Daily gross | 2,937.7 | 486.8 | 1,343.2 |
| Annual gross | 1,072,258.3 | 177,677.2 | 490,270.6 |
| Net to pond storage after ammonia losses (30% loss applied) | 616,541.5 | 147,160.9 | 408,558.8 |
| Net to drylot storage after ammonia losses (30% loss applied) | 134,039.3 | 30,516.2 | 81,711.8 |
| Net in storage (30% loss applied) | 750,580.8 | 177,677.2 | 490,270.6 |
| Irrigation sources | 8,926.7 | 0.0 | 0.0 |
| Atmospheric deposition | 10,206.0 | | |
| Imports | 1,701.0 | 0.0 | 0.0 |
| Exports | 270,713.5 | 46,847.7 | 212,954.8 |
| Potential crop nutrient removal | 311,200.0 | 42,642.0 | 239,025.0 |
| Nutrient balance | 189,501.0 | 88,187.5 | 38,290.8 |
| Nutrient balance ratio | 1.61 | 3.07 | 1.16 |

* Potassium excretion from milk cows and dry cows only.

SAMPLING AND ANALYSIS PLAN

## A. MANURE SAMPLING AND ANALYSIS PLAN

| | | | Minimum data collection requirements | |
|---|---|---|---|---|
| Frequency | Sampling Methods | Source | 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.<br><br>For each applied manure source, a scaled weight by truckload will be recorded. | Settling basin solids | Date applied and total weight (tons) applied | Percent moisture |
| Each offsite export of manure | For each manure source exported, a composite sample “Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies” will be collected.<br><br>For each manure source exported, a scaled weight by truckload will be recorded. | Settling basin solids | Date exported and total weight (tons) exported | Percent moisture |

**A. MANURE SAMPLING AND ANALYSIS PLAN (CONTINUED)**

| | | | Minimum data collection requirements | |
|---|---|---|---|---|
| Frequency | Sampling Methods | Source | Field Analytes | Lab Analytes |
| Annually | Annual estimation for total manure dry weight applied to each field will be quantified using the following:<br><br>Dry weight applied from a source to a crop per application event = weight applied * (1 - (percent moisture / 100))<br>Dry weight applied to crop per application event = sum of dry weights applied from each source<br>Dry weight applied to a crop = sum of dry weights applied during each application<br>Dry weight applied to a field = sum of dry weights applied to each crop<br><br>Annual estimation for total manure dry weight exported will be quantified using the following:<br><br>Dry weight exported from a source per event = weight exported * (1 - (percent moisture / 100))<br>Dry weight exported per event = sum of dry weights exported from each source<br>Dry weight exported to any offsite destination = sum of dry weights exported per event | Settling basin solids | Total dry weight (tons) manure applied annually to each land application area, and total dry weight (tons) manure exported offsite annually | None required |

**A. MANURE SAMPLING AND ANALYSIS PLAN (CONTINUED)**

| | | | Minimum data collection requirements | |
|---|---|---|---|---|
| Frequency | Sampling Methods | Source | Field Analytes | Lab Analytes |
| 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<br>Settling basin solids<br>Freestall scrapings | None required | Total nitrogen, total phosphorus, total potassium, and 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<br>Settling basin solids<br>Freestall scrapings | None required | General minerals, including:<br>calcium, magnesium, sodium, sulfate, chloride<br><br>Fixed solids (ash) |

**B. PROCESS WASTEWATER SAMPLING AND ANALYSIS PLAN**

| | | | Minimum data collection requirements | |
|---|---|---|---|---|
| Frequency | Sampling Methods | Source | 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. | WW1<br>WW2<br>WW3 | Date applied and volume (gallons or acre-inches) applied | None required |
| 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. | WW1<br>WW2<br>WW3 | None required | pH, total dissolved solids, electrical conductivity, nitrate-nitrogen, ammonion-nitrogen, total Kjeldahl nitrogen, total phosphorus, and total potassium |

**B. PROCESS WASTEWATER SAMPLING AND ANALYSIS PLAN (CONTINUED)**

| | | | Minimum data collection requirements | |
|---|---|---|---|---|
| Frequency | Sampling Methods | Source | Field Analytes | Lab Analytes |
| 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. | WW1<br>WW2<br>WW3 | None required | General minerals, including:<br>calcium, magnesium, sodium, bicarbonate, carbonate, sulfate, and chloride |
| Quarterly during one application event | For field measurement:<br>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.<br><br>For laboratory analyses:<br>For each pond, a composite or grab sample per the "Approved Sampling Procedures for | WW1<br>WW2<br>WW3 | Date applied and electrical conductivity | Nitrate-nitrogen (only when pond is aerated), un-ionized ammonia-nitrogen, total Kjeldahl nitrogen, total phosphorus, total potassium, and total dissolved solids |

**C. SOIL SAMPLING AND ANALYSIS PLAN**

| | | | Minimum data collection requirements | |
|---|---|---|---|---|
| Frequency | Sampling Methods | Source | 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. | See WMP Exhibit Sheets 3-8 | None required | Soluble phosphorus |

**D. PLANT TISSUE SAMPLING AND ANALYSIS PLAN**

| | | | Minimum data collection requirements | |
|---|---|---|---|---|
| Frequency | Sampling Methods | Source | 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.<br><br>For each field and crop, a scaled weight by truckload will be recorded. | See WMP Exhibit Sheets 3-8 | Date harvested and total weight (tons) of harvested material removed from each land application area | Percent wet weight of harvested plant removed<br><br>Laboratory analyses for 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. | See WMP Exhibit Sheets 3-8 | None required | Total nitrogen, expressed on a dry weight basis |

**E. IRRIGATION WATER SAMPLING AND ANALYSIS PLAN**

| | | | Minimum data collection requirements | |
|---|---|---|---|---|
| Frequency | Sampling Methods | Source | Field Analytes | Lab Analytes |
| Each fresh water irrigation event for each land application area | Canal - flow rate multiplied by runtime | Canal | Date applied and volume (gallons or acre-inches) applied | None required |

**E. IRRIGATION WATER SAMPLING AND ANALYSIS PLAN (CONTINUED)**

| | | | Minimum data collection requirements | |
|---|---|---|---|---|
| Frequency | Sampling Methods | Source | Field Analytes | Lab Analytes |
| One irrigation event during each irrigation season during actual irrigation events – for each irrigation water source (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 | Canal | None required | Electrical conductivity, total dissolved solids, and total nitrogen |

## NUTRIENT MANAGEMENT PLAN REVIEW

**A. NUTRIENT MANAGEMENT PLAN REVIEW**

Person who created the NMP: Machado, Patrick *See above for contact information.*
Date the NMP was drafted: 05/18/2018
Person who approved the final NMP: Machado, Patrick *See above for contact information.*
Date of NMP implementation: 05/18/2018

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: Exhibit Sheets 3-8

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: n/a

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: Exhibit Sheets 3-8

**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: S&S Dairy, Inc.

Physical address of dairy:

| 348 E Monte Vista RD | Ceres | Stanislaus | 95307 |
|---|---|---|---|
| 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.*

CCA # 385124
TITLE/QUALIFICATIONS OF CERTIFIED NUTRIENT MANAGEMENT SPECIALIST

Patt Machado 5/24/18
SIGNATURE OF TRAINED PROFESSIONAL DATE

Patrick Machado
PRINT OR TYPE NAME

7112 Metcalf WAY; Hughson, CA 95326
MAILING ADDRESS

(209) 678-6720
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 | SIGNATURE OF OPERATOR OF FACILITY |
| Limited Partnership Hofman | Inc. S&S Dairy |
| PRINT OR TYPE NAME | PRINT OR TYPE NAME |
| 5-25-18 | 5-25-18 |
| DATE | 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: S&S Dairy, Inc.

Physical address of dairy:

| 348 E Monte Vista RD | Ceres | Stanislaus | 95307 |
|---|---|---|---|
| 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.*

CCA # 385124
TITLE/QUALIFICATIONS OF CERTIFIED NUTRIENT MANAGEMENT SPECIALIST

Patrick Machado 5/24/18
SIGNATURE OF TRAINED PROFESSIONAL DATE

Patrick Machado
PRINT OR TYPE NAME

7112 Metcalf WAY; Hughson, CA 95326
MAILING ADDRESS

(209) 678-6720
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 | SIGNATURE OF OPERATOR OF FACILITY |
| Limited Partnership Hofman | Inc. S&S Dairy |
| PRINT OR TYPE NAME | PRINT OR TYPE NAME |
| 5-25-18 | 5-25-18 |
| DATE | DATE |

**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: S&S Dairy, Inc.

| 348 E Monte Vista RD | Ceres | Stanislaus | 95307 |
|---|---|---|---|
| Number and Street | City | County | Zip Code |

Street and nearest cross street (if no address):

Operator name: S&S Dairy, Inc. Telephone no.: Landline (209) 606-4894 Cellular

| 5870 Crowslanding RD | Modesto | CA | 95358 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

Legal owner name: Hofman, Limited Partnership Telephone no.: Landline (209) 606-4894 Cellular

| 5870 Crowslanding RD | Modesto | CA | 95358 |
|---|---|---|---|
| Mailing Address Number and Street | City | State | Zip Code |

## 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

**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.*

| | |
|---|---|
| SIGNATURE OF OWNER OF FACILITY | SIGNATURE OF OPERATOR OF FACILITY |
| Limited Partnership Hofman | Inc. S&S Dairy |
| PRINT OR TYPE NAME | PRINT OR TYPE NAME |
| 5-25-18 | 5-25-18 |
| DATE | DATE |

# HEALTH RISK ASSESSMENT
## S&S Dairy Expansion

**5870 Crows Landing Road**
**Modesto, CA 95358**
**Stanislaus County**


Prepared By:

Matt Daniel – Senior Consultant

**INSIGHT ENVIRONMENTAL CONSULTANTS, INC.**
5500 Ming Avenue, Suite 140
Bakersfield, CA 93309
661-282-2200



July 2019

Project 190505.0128


Insight Environmental Consultants | Trinity Consultants

# TABLE OF CONTENTS

# LIST OF FIGURES

# LIST OF TABLES

# 1. EXECUTIVE SUMMARY

This document contains the health risk assessment performed on behalf of Environmental Planning Partners, Inc. for an expansion of the existing S&S Dairy operation in Stanislaus County, California. As part of the development requirements for the project, an assessment is required of the potential risk to the population attributable to emissions of hazardous air pollutants from the proposed dairy expansion.

Emissions of hazardous air pollutants attributable to proposed increases in construction activities, animal movement, manure management and on-site mobile sources were calculated using generally accepted emission factors and the California Emissions Estimator Model version 2016.3.2 (CalEEMod). Ambient air concentrations were predicted with dispersion modeling to arrive at a conservative estimate of increased individual carcinogenic risk that might occur as a result of continuous exposure over a 70-year lifetime. Similarly, concentrations of compounds with non-cancer adverse health effects were used to calculate hazard indices (HIs), which are the ratio of expected exposure to acceptable exposure.

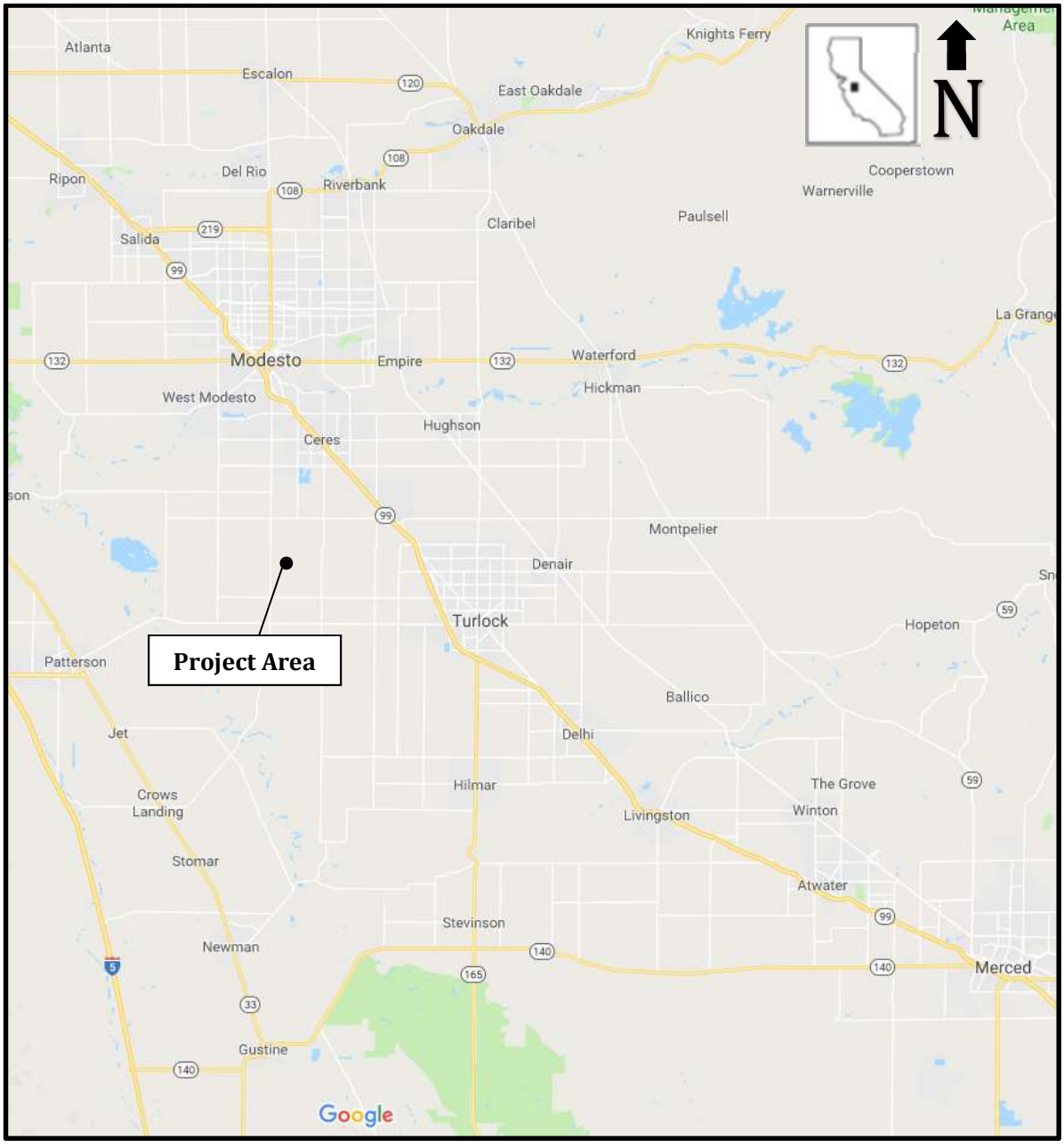
The San Joaquin Valley Air Pollution Control District (SJVAPCD) has set the level of significance for carcinogenic risk to twenty in one million ($20 \times 10^{-6}$), which is understood as the possibility of causing twenty additional cancer cases in a population of one million people. The level of significance for acute and chronic non-cancer risk is a hazard index of 1.0. The maximum predicted cancer risk among the modeled receptors is 15.4 in one million, which is below the significance level of twenty in one million. The maximum predicted acute and chronic non-cancer hazard indices among the modeled receptors are 0.286 and 0.087, respectively, which is below the significance level for chronic and acute significance level.

In accordance with the SJVAPCD's *Guide for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015a) and polices (SJVAPCD 2015b; SJVAPCD 2015c) the potential health risk attributable to the proposed project is determined to be less than significant.

# 2. INTRODUCTION

This Health Risk Assessment (HRA) is provided as a service of Insight Environmental Consultants, Inc., a Trinity Consultants company, performed on behalf of Environmental Planning Partners, Inc. for an expansion of the existing S&S Dairy operation in Stanislaus County, California (**Figure 2-1**). As part of the development requirements for the property, an HRA is required.

**Figure 2-1. Location Map**



## 2.1. PROJECT DESCRIPTION

The existing dairy is located at 5870 Crows Landing Road in Modesto, California, which is in the County of Stanislaus. The facility will not be located within 1,000 feet of a K-12 school.

The proposed structure construction would occur over two phases. Phase 1 construction would consist of a new 38,850 square foot animal structure which would take approximately 2 months of construction time within the two years after application approval. Phase 2 construction would consist of new animal shelters totaling 136,500 square feet sometime between 5 and 10 years after application approval totaling six months of actual construction activities. All proposed construction would occur within the existing facility footprint.

After modification, the dairy will house approximately 4,450 head of cattle. The existing and proposed herd configuration is provided in Table 2-1. The dairy will continue to operate 24 hours per day and 365 days per year.

**Table 2-1. Herd Configuration – Existing and Proposed**

| | Current | Proposed | Increment |
|---|---|---|---|
| Milk Cows | 1,400 | 2,500 | 1,100 |
| Dry Cows | 200 | 400 | 200 |
| Bred Heifers 15-24 mos. | 500 | 850 | 350 |
| Heifers 7-14 mos. | 500 | 400 | -100 |
| Heifers 4-6 mos. | 200 | 300 | 100 |
| Calves 0-3 mos. | 200 | 0 | -200 |
| Bulls | 0 | 0 | 0 |
| **TOTAL** | **3,000** | **4,450** | **1,450** |

The proposed structure construction would consist of five new freestall barns. The proposed expansion would include construction of 175,350 square feet of new buildings.

This section describes the methodology used to predict the potential health risk to the population attributable to emissions of hazardous air pollutants from the proposed expansion of the dairy operation.

## 3.1. HAZARD IDENTIFICATION

The basis for evaluating potential health risk is the identification of sources of hazardous air pollutants (HAPs). The proposed dairy will include sources with the potential to emit HAPs. Pursuant to guidance by the San Joaquin Valley Air Pollution Control District[1] (SJVAPCD), emissions based on the current configuration of the dairy are considered to be existing emissions. Based on this fact, the facility's existing emissions are not included in the emissions proposed for the subject project. Therefore, emissions from the dairy modifications will be restricted to incremental emissions attributable to construction activities, animal movement, manure management, and land application of wastewater based on the proposed increase in the number of cattle (**Table 2-1**) and the additional on-site mobile sources required for the expansion.

Construction equipment sources include diesel-fueled dozers, loaders, backhoes, excavators, graders, cranes, forklifts, generator sets, concrete/industrial saws, and welders. CalEEMod default equipment listing for general light industrial usages were utilized. Default horsepower, daily operating hours, and load factors were also used. Operational mobile sources include a diesel-fueled feed loading tractor, a manure loading tractor, a feed delivery tractor, a bedding delivery tractor, milk tankers, and commodity delivery trucks. The increased herd size will require additional tractor use for feed loading and delivery, bedding delivery, and solid manure loading. Additional truck trips will be required for milk tankers and commodity delivery trucks. There will also be emission increases from the new freestalls, shade barn, milk barn, lagoons, solid manure storage and land application areas associated with increased herd size. HRA emission sources HRA are listed in **Table 3-1**.

**Table 3-1. Sources of Potential Emissions**

| Source ID | Description |
|---|---|
| STCK1 | Milk Truck Idling |
| STCK2 | Commodity Delivery Idling |
| STCK3 | Feed Loading |
| STCK4 | Solids Removal (Loader) |
| SLINE1 | Milk Delivery Truck Travel |
| SLINE2 | Commodity Delivery |
| SLINE3-7 | Feed and Bedding Delivery |
| SHADE1 | Shade Barn |
| FSB1-7 | Freestall Barns |
| SMS | Solid Manure Storage |
| MILK1 | Milk Barn |
| SLA | Solids Land Application |
| LLA | Liquid Land Application |
| LAGOON | Lagoons |
| PAREA1 | Phase 1 Construction Activities |
| PAREA2 | Phase 2 Construction Activities |
| PAREA3 | Phase 2 Construction Activities |

[1] Personal Communication with Leland Villalvazo, San Joaquin Valley Air Pollution Control District, June 15, 2007.

**Table 3-2** lists the toxic substances emitted from each of these activities and also presents the classification of these species as to their potential for producing carcinogenic and non-cancer acute or chronic health impacts, if any.

**Table 3-2. Chemicals of Potential Concern**

| CAS | Pollutant | Source | Cancer | Non-Cancer | |
|---|---|---|---|---|---|
| | | | | Acute | Chronic |
| 9901 | Diesel Exhaust, Particulate Matter | Tractors, Diesel Trucks | X | | X |
| 9960 | Sulfates | Animal Movement | | X | X |
| 50000 | Formaldehyde | Animal Movement | X | X | X |
| 56235 | Carbon tetrachloride | Animal Movement, Lagoons | X | X | X |
| 67630 | Isopropyl Alcohol | Animal Movement | | X | X |
| 67663 | Chloroform | Animal Movement, Lagoons | X | X | X |
| 71432 | Benzene | Animal Movement, Lagoons | X | X | X |
| 71556 | 1,1,1-trichloroethane | Lagoons | | X | X |
| 74873 | Methyl Chloride | Animal Movement | X | X | X |
| 75003 | Ethyl Chloride | Animal Movement | | | X |
| 75070 | Acetaldehyde | Animal Movement | X | | X |
| 75150 | Carbon disulfide | Animal Movement | | X | X |
| 75252 | Tribromomethane * | Lagoons | | | |
| 75694 | Trichloromonofluoromethane * | Lagoons | | | |
| 76131 | 1,1,2-Trichloro-1,2,2-trifluoroethane | Lagoons | | | X |
| 78933 | Methyl Ethyl Ketone (MEK) | Animal Movement, Lagoons | | X | X |
| 79005 | 1,1,2-Trichloroethane | Animal Movement | X | | |
| 79016 | Trichloroethylene | Animal Movement, Lagoons | X | | X |
| 79345 | 1,1,2,2-Tetrachloroethane | Animal Movement | X | | |
| 91203 | Naphthalene | Animal Movement | X | | X |
| 95501 | 1,2-Dichlorobenzene * | Animal Movement, Lagoons | | | |
| 95636 | 1,2,4-Trichlorobenzene * | Lagoons | | | |
| 96128 | 1,2-Dibromo-3-chloropropane | Animal Movement | X | | X |
| 96184 | 1,2,3-Trichloropropane * | Animal Movement | | | |
| 98828 | Cumene * | Animal Movement | | | |
| 100414 | Ethylbenzene | Animal Movement | | | X |
| 100425 | Styrene | Animal Movement, Lagoons | | X | X |
| 100447 | Benzyl chloride | Animal Movement | X | X | X |
| 106467 | 1,4-Dichlorobenzene | Animal Movement, Lagoons | X | | X |
| 106934 | 1,2-Dibromoethane (EDB) | Animal Movement | X | | X |
| 106990 | 1,3-Butadiene | Lagoons | X | | X |
| 107062 | 1,2-Dichloroethane (EDC) | Animal Movement | X | | X |
| 107131 | Acrylonitrile | Animal Movement | X | | X |
| 108054 | Vinyl acetate | Animal Movement, Lagoons | | | X |
| 108101 | Methyl Isobutyl Ketone * | Animal Movement, Lagoons | | | |
| 108883 | Toluene | Animal Movement, Lagoons | | X | X |

| CAS | Pollutant | Source | Cancer | Non-Cancer | |
|---|---|---|---|---|---|
| | | | | Acute | Chronic |
| 108907 | Chlorobenzene | Animal Movement | | | X |
| 110543 | Hexane | Animal Movement | | | X |
| 110827 | Cyclohexane * | Animal Movement, Lagoons | | | |
| 115071 | Propylene | Lagoons | | | X |
| 120821 | 1,2,4-Trichlorobenzene * | Animal Movement | | | |
| 123728 | Butyraldehyde * | Animal Movement | | | |
| 123911 | 1,4 Dioxane | Animal Movement | X | X | X |
| 127184 | Tetrachloroethene | Animal Movement | X | X | X |
| 541731 | 1,3-Dichlorobenzene * | Animal Movement, Lagoons | | | |
| 764410 | t-1,4-Dichloro-2-butene * | Animal Movement | | | |
| 1330207 | Xylene Isomers | Animal Movement, Lagoons | | X | X |
| 4170303 | Crotonaldehyde * | Animal Movement | | | |
| 7429905 | Aluminum * | Animal Movement | | | |
| 7439921 | Lead | Animal Movement | X | | |
| 7439965 | Manganese | Animal Movement | | | X |
| 7439976 | Mercury | Animal Movement | | X | X |
| 7440020 | Nickel | Animal Movement | X | X | X |
| 7440360 | Antimony * | Animal Movement | | | |
| 7440382 | Arsenic | Animal Movement | X | X | X |
| 7440393 | Barium * | Animal Movement | | | |
| 7440439 | Cadmium | Animal Movement | X | | X |
| 7440473 | Chromium * | Animal Movement | | | |
| 7440508 | Copper | Animal Movement | | X | X |
| 7440622 | Vanadium | Animal Movement | X | | |
| 7440666 | Zinc | Animal Movement | | | X |
| 7664417 | Ammonia | Animal Movement, Lagoons Wastewater Application | | X | X |
| 7723140 | Phosphorus * | Animal Movement | | | |
| 7726956 | Bromine | Animal Movement | | | X |
| 7782492 | Selenium | Animal Movement | | | X |
| 7782505 | Chlorine | Animal Movement | | X | X |
| 18540299 | Hexavalent Chromium | Animal Movement | X | X | X |

*Health risk assessment values have not yet been assigned for this chemical.

## 3.2. EXPOSURE ASSESSMENT

### 3.2.1. Source Emissions and Characterization

Peak one-hour emission rates and annual-averaged emission rates were calculated for all pollutants for each modeled source. Emissions attribute to animal movement and manure management were estimated by the SJVAPCD using $PM_{10}$ emission factors and HAPs speciation spreadsheets. The incremental increase in emissions attributable to cattle were calculated by comparing the emissions from each source based on the number and type of cattle pre and post project. The project applicant provided pre and post cattle numbers. Emissions for tractors were calculated using the EPA's *Nonroad Compression-Ignition Engines - Exhaust Emission Standards* for

the appropriate engine horsepower (HP) and year and load factors for the appropriate engine horsepower from California Emissions Estimator Model (CalEEMod) Appendix D, Tables 3.3 and 3.4. Diesel truck running and idling emissions are based on EMFAC2017 emission factors specific to Stanislaus County for vehicle category "T7 Ag." Diesel trucks were assumed to have 15 minutes of idling per visit. There will be no increases in 1-hour emissions because additional truck and tractor usage will not occur in the same 1-hour period as the existing equipment. In order to have a possible increase in the worst case one-hour emissions from the S&S Dairy, one of the three following scenarios would need to occur and be evaluated:

- New equipment must operate at the facility as a result of the project.
- An existing on-site piece of equipment must operate less than one hour during the worst-case 1-hour period pre-project and then must increase the operational time during the worst-case 1-hour period post-project.
- The project must increase the number trucks entering and exiting the facility over the number of pre-project trucks entering and exiting the facility during the worst-case 1-hour period.

The S&S Dairy Expansion Project does not propose any new pieces of equipment and all existing equipment currently operates the full hour during the worst-case hour. The project also does not propose an increase over the current worst-case 1-hour period of trucks entering or exiting the facility. The same methodology principals as applied to 1-hour emissions above also result in no max 3 and 8-hour emissions increases and daily emission increases from manure loading.

The SJVAPCD's *Dairy $H_2S$ AERMOD Hourly Emission File Generator* states that $H_2S$ emissions are only generated at dairies in lagoons used to store or treat collected waste material. The generator calculates emissions based on the surface area of the lagoon. As there will be no increase in the surface area of the existing lagoons, there will be no increase in $H_2S$ emission associated with the proposed expansion.

The actual total construction activities of both Phase 1 and Phase 2 was estimated to be 8 months based on other dairy expansion projects. Therefore, a one-year exposure HRA was conducted and added to the operational HRA results. Phase 2 emissions were divided between two sources based on the square footage of each source. Construction emissions will be restricted to occur between the hours of 6am and 8pm.

The calculation worksheets and CalEEMod output files for the emissions are provided in **Appendix A**. Hourly and annual emissions for each source are also provided in the HARP output files, electronic copies of which are provided on a CD in **Appendix B**.

### 3.2.2. Dispersion Modeling

A version of EPA's AMS/EPA Regulatory Model - AERMOD (recompiled for the Lakes ISC-AERMOD View interface) was used to predict the dispersion of emissions from the proposed dairy expansion. The construction activities, animal housing areas, milk barn, lagoon, solid manure storage and land application areas were modeled as area sources. Unit emission rates for the area sources of 1 g/sec divided by the area of the source were input into AERMOD. The travel route for the feed and bedding delivery tractors, milk trucks, and commodity trucks were modeled as line sources, which represents a series of volume sources, with a unit emission rate of 1 g/sec. The feed loading tractor, manure loading tractor, milk truck idling, and commodity truck idling were modeled as point sources, with a unit emission rate of 1 g/sec. Modeled sources are identified in **Table 3-1**.

All of the AERMOD regulatory default parameters were employed. Rural dispersion parameters were used because the facility and surrounding land are considered "rural" under the Auer land use classification method. The AERMOD files are provided in electronic format on a CD in **Appendix B.**

#### *3.2.2.1. Meteorological Data*

The SJVAPCD provided meteorological data for Stanislaus County, California to be used for projects within Stanislaus County. SJVAPCD-approved, AERMET processed meteorological datasets for calendar years 2013 through 2017[2] was input into AERMOD. This was the most recent available dataset available at the time the modeling runs were conducted.

#### *3.2.2.2. Receptors*

Existing land uses in the area where the proposed dairy will be located are predominantly agriculture. There are scattered rural residences in the general area of the project; most of which are associated with local agricultural operations. A total of 113 off-site receptors of residences, 1 on-site receptor, 175 potential agricultural workers and 36 workers were assessed during the preparation of this HRA. There is currently one other on-site residence, however, this residence is occupied by the dairy owner. Therefore, the owner's residence is exempt from being modeled.[3] Coordinates for the point of maximum impact (PMI) receptors are provided in **Table 2-3**.

### 3.2.3. HARP Post-Processing

Plot files generated by AERMOD were imported to HARP CONVERSION software (Villalvazo 2015). HARP CONVERSION was used to adjust the AERMOD-predicted air concentrations calculated with unit emission rates to pollutant-specific emission rates and to generate source, X/Q and emission import files for HARP.

The files generated in HARP CONVERSION were then uploaded into the HARP to HARP 2 Converter (Villalvazo 2015), then to the Air Dispersion Modeling and Risk Assessment Tool (ADMRT) program in the Hotspots Analysis and Reporting Program Version 2 (HARP 2) (CARB 2015). ADMRT post-processing was used to assess the potential for excess cancer risk and chronic non-cancer effects using the most recent health effects data from the California EPA Office of Environmental Health Hazard Assessment (OEHHA). ADMRT site parameters were set for mandatory minimum exposure pathways for carcinogenic risk. The deposition rate was set to 0.02 m/s. Risk reports were generated for carcinogenic risk, non-carcinogenic chronic risk and non-carcinogenic acute risk. Site parameters are included in the HARP output files.

## 3.3. RISK CHARACTERIZATION

For permitting and CEQA purposes, SJVAPCD has set the level of significance for carcinogenic risk at 20 in one million, which is understood as the possibility of causing twenty additional cancer cases in a population of one million people (SJVAPCD 2015b). The level of significance for chronic and acute non-cancer risk is a hazard index of one (SJVAPCD 2015c).

HARP 2 post-processing was used to assess the potential for the following: excess cancer risk, acute non-cancer effects, and chronic non-cancer effects. Total cancer risk was predicted for inhalation and non-inhalation

[2] Provided via website, San Joaquin Valley Air Pollution Control District (SJVAPCD), ftp://12.219.204.27/public/Modeling/Meteorological_Data/AERMET_v16216/Modesto_23258/
[3] Personal communication with Leland Villalvazo, SJVAPCD, November 1, 2012.

pathways at each receptor. The hazard index is computed by endpoint as the sum of the hazard indices for all relevant pollutants, the highest of which is designated as the total hazard index.

The carcinogenic risk predicted at the potentially impacted receptors does not exceed the significance level of twenty in one million ($20 \times 10^{-6}$). The health hazard index (HI) for chronic and acute non-cancer risk is below the significance level of 1.0 at all modeled receptors. The excess cancer risk, acute non-cancer HI, and chronic non-cancer HI for the maximum modeled receptor are provided in **Table 3-3**. The HARP2 output files for cancer, acute, and chronic risks are provided in electronic format on a CD in **Appendix B.**

As shown below in **Table 3-3,** the maximum predicted cancer risk is 15.47E-06. Cancer risks are primarily attributable to emissions of diesel particulate matter (DPM) through the inhalation pathway. Carcinogenic risks are tabulated by pollutant in **Table 3-4**.

The maximum predicted acute non-cancer hazard index is 0.286. Acute risks are primarily attributable to emissions of ammonia, which affects the respiratory system and eyes. Acute risks are tabulated by pollutant in **Table 3-5**.

The maximum predicted chronic non-cancer hazard index is 0.087. Chronic risks, tabulated by pollutant in **Table 3-6**, are primarily attributable to emissions of arsenic and ammonia which affect the respiratory system.

**Table 3-3. Risk Predicted By HARP**

| | Maximum Lifetime Excess Cancer Risk | Maximum Non-Cancer Chronic Hazard Index | Maximum Non-Cancer Acute Hazard Index |
|---|---|---|---|
| **Construction** | 8.98E-06 | 9.71E-03 | 0.00E+00 |
| **Operational** | 6.46E-06 | 7.77E-02 | 2.86E-01 |
| **Total** | 15.4E-06 | 8.74E-02 | 2.86E-01 |
| **Receptor #, Name** | 114, On-Site Residence | 12, Off-Site Residence | 114, On-Site Residence |
| **UTM Easting (m)** | 677822.88 | 677677.40 | 677822.88 |
| **UTM Northing (m)** | 4154683.35 | 4154726.26 | 4154683.35 |

## Table 3-4. Risk by Pollutant – Maximum Cancer Risk at Receptor #114

| CHEM | INHAL | SOIL | DERM | MOTHER | WATER | FISH | CROP | BEEF | DAIRY | PIG | CHICK | EGG | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DieselExhPM | 1.12E-05 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.12E-05 |
| DBCP | 1.19E-06 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.19E-06 |
| Acrylonitrile | 8.39E-07 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 8.39E-07 |
| Arsenic | 8.45E-08 | 4.56E-07 | 1.95E-08 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 5.60E-07 |
| Naphthalene | 4.81E-07 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.81E-07 |
| EDB | 2.64E-07 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.64E-07 |
| Benzyl Chloride | 1.69E-07 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.69E-07 |
| Cr(VI) | 1.57E-07 | 6.66E-09 | 9.46E-11 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.64E-07 |
| 1,4-Dioxane | 1.32E-07 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.32E-07 |
| Benzene | 1.10E-07 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.10E-07 |
| Acetaldehyde | 8.33E-08 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 8.33E-08 |
| p-DiClBenzene | 7.17E-08 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.17E-08 |
| Perc | 4.72E-08 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.72E-08 |
| 1,1,2TriClEthan | 4.45E-08 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.45E-08 |
| CCl4 | 3.04E-08 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.04E-08 |
| Formaldehyde | 2.89E-08 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.89E-08 |
| EDC | 1.46E-08 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.46E-08 |
| Ethyl Benzene | 1.04E-08 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.04E-08 |
| Chloroform | 8.59E-09 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 8.59E-09 |
| Lead | 6.47E-10 | 5.66E-09 | 1.21E-10 | 6.20E-11 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.49E-09 |
| TetraClEthane | 6.03E-09 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.03E-09 |
| Nickel | 2.81E-09 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.81E-09 |
| SUM | 1.13E-05 | 4.69E-07 | 1.97E-08 | 6.20E-11 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 15.4E-05 |

## Table 3-5. Risk by Pollutant – Maximum Acute Noncancer Risk at Receptor #114

| CHEM | CV | CNS | IMMUN | KIDNEY | GILV | REPRO /DEVEL | RESP | SKIN | EYE | BONE /TEETH | ENDO | BLOOD | ODOR | GENERAL | MAX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Formaldehyde | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 3.42E-03 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.42E-03 |
| CCl4 | 0.00E+0 | 1.46E-05 | 0.00E+00 | 0.00E+00 | 1.46E-05 | 1.46E-05 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.46E-05 |
| Isopropyl Alcoh | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.39E-04 | 0.00E+0 | 2.39E-04 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.39E-04 |
| Chloroform | 0.00E+0 | 4.13E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.13E-04 | 4.13E-04 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.13E-04 |
| Benzene | 0.00E+0 | 0.00E+00 | 5.59E-03 | 0.00E+00 | 0.00E+00 | 5.59E-03 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 5.59E-03 | 0.00E+00 | 0.00E+00 | 5.59E-03 |
| Acetaldehyde | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.42E-03 | 0.00E+0 | 2.42E-03 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.42E-03 |
| CS2 | 0.00E+0 | 1.90E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.90E-04 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.90E-04 |
| MEK | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.31E-04 | 0.00E+0 | 5.31E-04 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.31E-04 |
| Styrene | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.08E-06 | 8.08E-06 | 0.00E+0 | 8.08E-06 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.08E-06 |
| Benzyl Chloride | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.69E-04 | 0.00E+0 | 5.69E-04 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.69E-04 |
| Toluene | 0.00E+0 | 1.37E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.37E-05 | 1.37E-05 | 0.00E+0 | 1.37E-05 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.37E-05 |
| 1,4-Dioxane | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.22E-04 | 0.00E+0 | 2.22E-04 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.22E-04 |
| Perc | 0.00E+0 | 1.54E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.54E-05 | 0.00E+0 | 1.54E-05 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.54E-05 |
| Xylenes | 0.00E+0 | 3.87E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.87E-05 | 0.00E+0 | 3.87E-05 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.87E-05 |
| NH3 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.78E-01 | 0.00E+0 | 2.78E-01 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.78E-01 |
| SULFATES | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.41E-03 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.41E-03 |
| Mercury | 0.00E+0 | 3.74E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.74E-04 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.74E-04 |
| Nickel | 0.00E+0 | 0.00E+00 | 1.97E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.97E-03 |
| Arsenic | 4.49E-03 | 4.49E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.49E-03 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.49E-03 |
| Copper | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.41E-05 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.41E-05 |
| Vanadium | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.63E-05 | 0.00E+0 | 5.63E-05 | 0.00E+00 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.63E-05 |
| SUM | 4.49E-03 | 5.55E-03 | 7.55E-03 | 0.00E+00 | 1.46E-05 | 1.11E-02 | 2.86E-01 | 0.00E+0 | 2.85E-01 | 0.00E+00 | 0.00E+0 | 5.59E-03 | 0.00E+00 | 0.00E+00 | 2.86E-01 |

## Table 3-6. Risk by Pollutant – Maximum Chronic Noncancer Risk at Receptor #12

| CHEM | CV | CNS | IMMUN | KIDNEY | GILV | REPRO/ DEVEL | RESP | SKIN | EYE | BONE/ TEETH | ENDO | BLOOD | ODOR | GENERAL | MAX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NH3 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 4.82E-02 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.82E-02 |
| Arsenic | 2.76E-02 | 2.76E-02 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 2.76E-02 | 2.76E-02 | 2.76E-02 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.76E-02 |
| DieselExhPM | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 9.98E-03 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.98E-03 |
| Manganese | 0.00E+00 | 4.94E-03 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.94E-03 |
| EDB | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 2.12E-03 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.12E-03 |
| Naphthalene | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 7.16E-04 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.16E-04 |
| Benzene | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 5.90E-04 | 0.00E+00 | 0.00E+00 | 5.90E-04 |
| Nickel | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 3.50E-06 | 2.93E-04 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.93E-04 | 0.00E+00 | 0.00E+00 | 2.93E-04 |
| Acrylonitrile | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 2.70E-04 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.70E-04 |
| Formaldehyde | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 2.46E-04 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.46E-04 |
| Mercury | 0.00E+00 | 2.21E-04 | 0.00E+0 | 2.21E-04 | 0.00E+00 | 2.21E-04 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.21E-04 |
| Perc | 0.00E+00 | 0.00E+0 | 0.00E+0 | 1.03E-04 | 1.03E-04 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.03E-04 |
| Acetaldehyde | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 9.56E-05 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.56E-05 |
| Vinyl Acetate | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 5.47E-05 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.47E-05 |
| Toluene | 0.00E+00 | 1.98E-05 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 1.98E-05 | 1.98E-05 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.98E-05 |
| CS2 | 0.00E+00 | 1.73E-05 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 1.73E-05 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.73E-05 |
| Xylenes | 0.00E+00 | 1.43E-05 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 1.43E-05 | 0.00E+00 | 1.43E-05 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.43E-05 |
| CCl4 | 0.00E+00 | 8.15E-06 | 0.00E+0 | 0.00E+0 | 8.15E-06 | 8.15E-06 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.15E-06 |
| p-DiClBenzene | 0.00E+00 | 3.60E-06 | 0.00E+0 | 3.60E-06 | 3.60E-06 | 0.00E+0 | 3.60E-06 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.60E-06 |
| 1,4-Dioxane | 2.61E-06 | 0.00E+0 | 0.00E+0 | 2.61E-06 | 2.61E-06 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.61E-06 |
| Chloroform | 0.00E+00 | 0.00E+0 | 0.00E+0 | 2.42E-06 | 2.42E-06 | 2.42E-06 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.42E-06 |
| Styrene | 0.00E+00 | 2.21E-06 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.21E-06 |
| Cr(VI) | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 2.05E-06 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.92E-07 | 0.00E+00 | 0.00E+00 | 2.05E-06 |
| Chlorobenzn | 0.00E+00 | 0.00E+0 | 0.00E+0 | 1.51E-06 | 1.51E-06 | 1.51E-06 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.51E-06 |
| Isopropyl Alcoh | 0.00E+00 | 0.00E+0 | 0.00E+0 | 1.29E-06 | 0.00E+00 | 1.29E-06 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.29E-06 |
| Selenium | 1.15E-06 | 1.15E-06 | 0.00E+0 | 0.00E+0 | 1.15E-06 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.15E-06 |
| Ethyl Benzene | 0.00E+00 | 0.00E+0 | 0.00E+0 | 9.63E-07 | 9.63E-07 | 9.63E-07 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 9.63E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.63E-07 |
| EDC | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 8.18E-07 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.18E-07 |
| Hexane | 0.00E+00 | 6.44E-07 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.44E-07 |
| Ethyl Chloride | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.42E-08 | 4.42E-08 | 0.00E+0 | 0.00E+00 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.42E-08 |
| SUM | 2.76E-02 | 3.28E-02 | 0.00E+0 | 3.37E-04 | 1.25E-04 | 3.00E-02 | 8.74E-02 | 2.76E-02 | 1.43E-05 | 0.00E+0 | 9.63E-07 | 8.84E-04 | 0.00E+00 | 0.00E+00 | 8.74E-02 |

# 4. CONCLUSIONS

In accordance with the *Guide for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015a) and San Joaquin Valley Air Pollution Control District policies (SJVAPCD 2015b; SJVAPCD 2016c), the unmitigated potential health risk attributable to the S&S Dairy expansion for chronic and acute carcinogenic and non- carcinogenic risk is determined to be less than significant based on the following conclusion:

- Potential chronic carcinogenic risk from the proposed facility is *below* the significance level of twenty in one million at each of the modeled receptors;
- The hazard index for the potential chronic non-cancer risk from the proposed facility is *below* the significance level of 1.0 at each of the modeled receptors.
- The hazard index for the potential acute non-cancer risk from the proposed facility is *below* the significance level of 1.0 at each of the modeled receptors.

# 5. REFERENCES


Auer, Jr., A.H., 1978. Correlation of Land Use and Cover with Meteorological Anomalies. Journal of Applied Meteorology, 17(5): 636-643, 1978.

California Air Pollution Control Officers Association (CAPCOA). 2017. California Emissions Estimator Model tm (CalEEMod), version 2016.3.2, released October 2017. Available online at: http://caleemod.com/

California Environmental Protection Agency Air Resources Board (CARB). 2003. *HARP User Guide*. Released December 2003.

----------. 2015. *Air Dispersion Modeling and Risk Tool*. Version 15197. July 16, 2015. Downloaded from http://www.arb.ca.gov/toxics/harp/harp.htm

California Environmental Quality Act, *Appendix G – Environmental Checklist Form, Final Text.* October 26, 1998.

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines, Appendix H, Accessed January 7, 2016. <http://www.oehha.ca.gov/air/hot_spots/2015/2015GMAppendicesG_J.pdf>

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2000. *Environmental Review Guidelines Procedures for Implementing the California Environmental Quality Act*. August 2000.

----------. 2007. *Guidance for Air Dispersion Modeling (Working Draft).* January 2007.

----------. 2012. *Dairy $H_2S$ AERMOD Hourly Emission File Generator, Version 1.0.* September 2012.

----------. 2015a. Guide for Assessing and Mitigating Air Quality Impacts. March 19, 2015.

----------. 2015b. APR -1906 Framework for Performing Health Risk Assessments. June 30, 2015.

----------. 2015c. APR -1905 Risk Management Policy for Permitting New and Modified Sources. May 28, 2015.

SCAQMD. 2006. Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds. October 2006. <http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/particulate-matter-(pm)-2.5-significance-thresholds-and-calculation-methodology/final_pm2_5methodology.pdf?sfvrsn=2

Villalvazo, Leland. 2015. Supervising Atmospheric Modeler, SJVAPCD. Email to Kathy Parker at Insight Environmental Consultants, August 3, 2015.

# APPENDIX A: EMISSION ESTIMATION WORKSHEETS

**Table 1. Truck Travel: Diesel Particulate Matter Increased Emissions**

| Type of Vehicles | Source | Round Trip Distance (mi) | Emission Factor (g/mi) | Increase in Trucks/Year | Emissions (lb/yr) | Emissions (lb/Max 24-hr) | |
|---|---|---|---|---|---|---|---|
| Milk Tankers | SLINE1 | 0.12 | 2.90 | 260 | 2.08E-01 | 7.99E-04 | |
| Commodity Delivery | SLINE2 | 0.13 | 2.90 | 468 | 3.75E-01 | 1.60E-03 | |
| Solid Manure | | 0.00 | 2.90 | 0 | 0.00E+00 | 0.00E+00 | *No expected increase |
| Rendering Service | | 0.00 | 2.90 | 0 | 0.00E+00 | 0.00E+00 | *No expected increase |

Note 1: Running emission factors for vehicle category "T7 Ag" were obtained from the EMFAC2017 Web Database for Stanislaus County (2019) with an Aggregate Fleet Mix Traveling 5 MPH.
Note 2: Increases in trucks/yr is from the Initial Study, page 18

**Table 2. Truck Idling: Diesel Particulate Matter Increased Emissions**

| Type of Vehicles | Source | Emission Factor (g/hr-vehicle) | Minutes Idling/Truck | Increase in Trucks/Year | Emissions (lb/yr) | Emissions (lb/Max 24-hr) | |
|---|---|---|---|---|---|---|---|
| Milk Tankers | STCK1 | 0.53 | 15 | 260 | 7.56E-02 | 2.91E-04 | |
| Commodity Delivery | STCK2 | 0.53 | 15 | 468 | 1.36E-01 | 5.81E-04 | |
| Solid Manure | | 0.53 | 15 | 0 | 0.00E+00 | 0.00E+00 | *No expected increase |
| Rendering Service | | 0.53 | 15 | 0 | 0.00E+00 | 0.00E+00 | *No expected increase |

Note 1: Running emission factors for vehicle category "T7 Ag" were obtained from the EMFAC2017 Web Database for Stanislaus County (2019) with an Aggregate Fleet Mix Idling.
Note 2: Increases in trucks/yr is from the Initial Study, page 18

**Table 3. Tractors: Diesel Particulate Matter Increased Emissions**

| | Source (# Volume Sources) | HP | Load Factor | Hours/day | Days/Year | Emission Factor (g/hp-hr) | Emissions (lb/yr) | Emissions (lb/Max 24-hr) | |
|---|---|---|---|---|---|---|---|---|---|
| Feed Loading | STCK3 | 170 | 0.37 | 1 | 365 | 1.49E-02 | 7.55E-01 | 2.07E-03 | |
| Bedding Delivery | SLINE3-7 | 130 | 0.37 | 2 | 10 | 2.24E-02 | 4.74E-02 | 4.74E-03 | |
| Manure Scraping | | 130 | 0.37 | 0 | 0 | 2.24E-02 | 0.00E+00 | 0.00E+00 | *No increase is expected |
| Manure Loading | STCK4 | 200 | 0.37 | 6 | 2 | 1.49E-02 | 2.92E-02 | 0.00E+00 | *No increase in max daily emissions. |
| Feed Delivery | SLINE3-7 | 400 | 0.37 | 1 | 365 | 1.49E-02 | 1.78E+00 | 4.87E-03 | |

Note1 : Emissions based on EPA's *Nonroad Compression-Ignition* Engines - Exhaust Emission Standards for the appropriate year and HP
https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100OA05.pdf
Note 2: Increase in hours/day was provided by the project applicant

| Name | Cow Housing Summary | | | | |
|---|---|---|---|---|---|
| **Applicability** | Use this spreadsheet to enter data from the Engineer's Dairy Calculator.Entries here will be linked to other worksheets. After completion, proceed to RMR worksheet for further entries. | | | | |
| *Author or updater* | Matthew Cegielski | *Last Update* | September 24, 2018 | | |
| **Facility:** | S & S Dairy | | 0 | Not Set | |
| **ID#:** | N-7321 | | | | |
| **Project #:** | N1182555 | | | | |

Copy and paste the SSIPE - Cow Housing table (rows under header) from the RMR Summary worksheet in the Engineer's Dairy Calculator. Zero and null entries will be highlighted in red after entry.

**Potential to Emit - Cow Housing**

| Housing Name(s) or #(s) | Type of Cow | # of Cows | VOC (lb/hr) | VOC (lb/yr) | $NH_3$ (lb/hr) | $NH_3$ (lb/yr) | $PM_{10}$ (lb/hr) | $PM_{10}$ (lb/yr) |
|---|---|---|---|---|---|---|---|---|
| Freestall Barn #5 | milk cows | 300 | 0.3375 | 2,958 | 0.7250 | 6,338 | 0.0083 | 57 |
| Freestall Barn #6 | milk cows | 200 | 0.2250 | 1,972 | 0.4833 | 4,226 | 0.0000 | 16 |
| Freestall Barn #7 | support stock | 75 | 0.0375 | 321 | 0.0458 | 415 | -0.9417 | -8,235 |
| Shade Barn #1 | support stock | 100 | 0.0500 | 427 | 0.0667 | 554 | 0.0042 | 40 |
| Freestall Barn #1 | dry cows | 100 | 0.0667 | 557 | 0.1250 | 1,071 | -0.0250 | -245 |
| Freestall Barn #2-A | dry cows | 0 | 0.0000 | 0 | 0.0000 | 0 | -0.0375 | -350 |
| Freesatll Barn #2-B | dry cows | -25 | 0.0000 | 23 | 0.0417 | 379 | -0.1250 | -1,104 |
| Freestall Barn #3 | support stock | 300 | 0.1458 | 1,281 | 0.1917 | 1,661 | 0.0375 | 314 |
| Freestall Barn #4 | milk cows | 600 | 0.6750 | 5,916 | 1.4458 | 12,677 | 0.0708 | 629 |

Copy and paste values from the corresponding table in the Engineer Dairy Calculator's RMR Summary worksheet. Paste values only with matched destination formatting. Ensure the same names are lined up by row number. Zero and null entries will be highlighted in red after entry.

| SSIPE RMR Summary | | | | | | | |
|---|---|---|---|---|---|---|---|
| | PM10 lb/hr | PM10 lb/yr | VOC lb/hr | VOC lb/yr | NH3 lb/hr | NH3 lb/yr | H2S lb/yr |
| Milking Parlor | - | - | 0 | 440 | 0.017 | 150 | - |
| Cow Housing | -1 | -8,947 | 2 | 13,299 | 3.098 | 27,140 | - |
| Liquid Manure | - | - | 0 | -185 | 0.123 | 1,074 | - |
| Solid Manure | - | - | 0 | 194 | 0.401 | 3,512 | - |
| Feed Handling | - | - | 1 | 5,658 | - | - | - |
| Lagoon/Storage Pond | - | - | 0 | -146 | 0.171 | 1,497 | 0 |
| Land Application (Liquid) | - | - | 0 | -73 | -0.046 | -402 | - |
| Land Application (Solid) | - | - | 0 | -37 | 0.213 | 1,862 | - |
| Solid Manure Storage | - | - | 0 | 183 | 0.188 | 1,643 | - |

| SSIPE Total Herd Summary | |
|---|---|
| Change in Milk Cows | 1,100 |
| Change in Dairy Head | 1,450 |
| Change in Dairy Head (Flushed) | 1,450 |

## $PM_{10}$ based Agricultural Emissions from Operations generating Dust from Livestock Soil

Use this spreadsheet when the emissions are from a Feedlot Soil sources or Cow Housing and the $PM_{10}$ rates are known (e.g. Dairy operations). Ammonia and $PM_{10}$ Emission rates linked to Cow Housing worksheet. No entries required on this worksheet. Zero and null entries will be highlighted in red after entry.

| | |
|---|---|
| *Author or updater* | Matthew Cegielski |
| *Last Update* | September 24, 2018 |
| **Facility:** | S & S Dairy |
| **ID#:** | N-7321 |
| **Project #:** | N1182555 |

**Formula**

Emission are calculated by the multiplication of the $PM_{10}$ Rates and the Emission Factors.

| | | | Freestall Barn #5 | | Freestall Barn #6 | | Freestall Barn #7 | | Shade Barn #1 | | Freestall Barn #1 | | Freestall Barn #2-A | | Freesatll Barn #2-B | | Freestall Barn #3 | | Freestall Barn #4 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr |
| **$PM_{10}$ Emissions Rates** | | | 8.33E-03 | 5.70E+01 | 0.00E+00 | 1.60E+01 | 0.00E+00 | 0.00E+00 | 4.17E-03 | 4.00E+01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.75E-02 | 3.14E+02 | 7.08E-02 | 6.29E+02 |
| **Substances** | **CAS#** | **Dust* lb/lb $PM_{10}$** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** |
| **Aluminum** | **7429905** | 4.66E-02 | 3.88E-04 | 2.66E+00 | 0.00E+00 | 7.46E-01 | 0.00E+00 | 0.00E+00 | 1.94E-04 | 1.86E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.75E-03 | 1.46E+01 | 3.30E-03 | 2.93E+01 |
| **Antimony** | **7440360** | 1.90E-05 | 1.58E-07 | 1.08E-03 | 0.00E+00 | 3.04E-04 | 0.00E+00 | 0.00E+00 | 7.92E-08 | 7.60E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.13E-07 | 5.97E-03 | 1.35E-06 | 1.20E-02 |
| **Arsenic** | **7440382** | 1.60E-05 | 1.33E-07 | 9.12E-04 | 0.00E+00 | 2.56E-04 | 0.00E+00 | 0.00E+00 | 6.67E-08 | 6.40E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.00E-07 | 5.02E-03 | 1.13E-06 | 1.01E-02 |
| **Barium** | **7440393** | 4.69E-04 | 3.91E-06 | 2.67E-02 | 0.00E+00 | 7.50E-03 | 0.00E+00 | 0.00E+00 | 1.95E-06 | 1.88E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.76E-05 | 1.47E-01 | 3.32E-05 | 2.95E-01 |
| **Bromine** | **7726956** | 4.40E-05 | 3.67E-07 | 2.51E-03 | 0.00E+00 | 7.04E-04 | 0.00E+00 | 0.00E+00 | 1.83E-07 | 1.76E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.65E-06 | 1.38E-02 | 3.12E-06 | 2.77E-02 |
| **Chromium** | **7440473** | 1.40E-05 | 1.17E-07 | 7.98E-04 | 0.00E+00 | 2.24E-04 | 0.00E+00 | 0.00E+00 | 5.83E-08 | 5.60E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.25E-07 | 4.40E-03 | 9.92E-07 | 8.81E-03 |
| **Copper** | **7440508** | 1.32E-04 | 1.10E-06 | 7.52E-03 | 0.00E+00 | 2.11E-03 | 0.00E+00 | 0.00E+00 | 5.50E-07 | 5.28E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.95E-06 | 4.14E-02 | 9.35E-06 | 8.30E-02 |
| **Hexavalent Chromium**** | **18540299** | 7.00E-07 | 5.83E-09 | 3.99E-05 | 0.00E+00 | 1.12E-05 | 0.00E+00 | 0.00E+00 | 2.92E-09 | 2.80E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.63E-08 | 2.20E-04 | 4.96E-08 | 4.40E-04 |
| **Lead** | **7439921** | 3.50E-05 | 2.92E-07 | 2.00E-03 | 0.00E+00 | 5.60E-04 | 0.00E+00 | 0.00E+00 | 1.46E-07 | 1.40E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.31E-06 | 1.10E-02 | 2.48E-06 | 2.20E-02 |
| **Manganese** | **7439965** | 7.59E-04 | 6.33E-06 | 4.33E-02 | 0.00E+00 | 1.21E-02 | 0.00E+00 | 0.00E+00 | 3.16E-06 | 3.04E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.85E-05 | 2.38E-01 | 5.38E-05 | 4.77E-01 |
| **Mercury** | **7439976** | 4.00E-06 | 3.33E-08 | 2.28E-04 | 0.00E+00 | 6.40E-05 | 0.00E+00 | 0.00E+00 | 1.67E-08 | 1.60E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.50E-07 | 1.26E-03 | 2.83E-07 | 2.52E-03 |
| **Nickel** | **7440020** | 7.00E-06 | 5.83E-08 | 3.99E-04 | 0.00E+00 | 1.12E-04 | 0.00E+00 | 0.00E+00 | 2.92E-08 | 2.80E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.63E-07 | 2.20E-03 | 4.96E-07 | 4.40E-03 |
| **Phosphorus** | **7723140** | 4.01E-02 | 3.35E-04 | 2.29E+00 | 0.00E+00 | 6.42E-01 | 0.00E+00 | 0.00E+00 | 1.67E-04 | 1.61E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.51E-03 | 1.26E+01 | 2.84E-03 | 2.52E+01 |
| **Selenium** | **7782492** | 1.00E-06 | 8.33E-09 | 5.70E-05 | 0.00E+00 | 1.60E-05 | 0.00E+00 | 0.00E+00 | 4.17E-09 | 4.00E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.75E-08 | 3.14E-04 | 7.08E-08 | 6.29E-04 |
| **Sulfates** | **9960** | 7.28E-03 | 6.07E-05 | 4.15E-01 | 0.00E+00 | 1.17E-01 | 0.00E+00 | 0.00E+00 | 3.03E-05 | 2.91E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.73E-04 | 2.29E+00 | 5.16E-04 | 4.58E+00 |
| **Vanadium** | **7440622** | 3.00E-05 | 2.50E-07 | 1.71E-03 | 0.00E+00 | 4.80E-04 | 0.00E+00 | 0.00E+00 | 1.25E-07 | 1.20E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.13E-06 | 9.42E-03 | 2.13E-06 | 1.89E-02 |
| **Zinc** | **7440666** | 3.42E-04 | 2.85E-06 | 1.95E-02 | 0.00E+00 | 5.47E-03 | 0.00E+00 | 0.00E+00 | 1.43E-06 | 1.37E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.28E-05 | 1.07E-01 | 2.42E-05 | 2.15E-01 |
| **Ammonia** | **7664417** | | 7.25E-01 | 6.34E+03 | 4.83E-01 | 4.23E+03 | 4.58E-02 | 4.15E+02 | 6.67E-02 | 5.54E+02 | 1.25E-01 | 1.07E+03 | 0.00E+00 | 0.00E+00 | 4.17E-02 | 3.79E+02 | 1.92E-01 | 1.66E+03 | 1.45E+00 | 1.27E+04 |

## Agricultural Miscellaneous Emissions from Dairy Operations (Cow Housing)

Use this spreadsheet to characterize the miscellanous emissions from Dairy sources when VOC rates are known. VOC emission rates linked to Cow Housing worksheet. No entries required on this worksheet. Zero and null entries will be highlighted in red after entry.

| | |
|---|---|
| *Author or updater* | Matthew Cegielski |
| *Last Update* | September 24, 2018 |
| **Facility:** | S & S Dairy |
| **ID#:** | N-7321 |
| **Project #:** | N1182555 |

**Formula**

Emissions are calculated by the multiplication of the VOC Rates, and Emission Factors.

| | | | Freestall Barn #5 | | Freestall Barn #6 | | Freestall Barn #7 | | Shade Barn #1 | | Freestall Barn #1 | | Freestall Barn #2-A | | Freesatll Barn #2-B | | Freestall Barn #3 | | Freestall Barn #4 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr |
| **VOC Emission Rates** | | | **3.38E-01** | **2,958.0** | **2.25E-01** | **1,972.0** | **3.75E-02** | **321.0** | **5.00E-02** | **427.0** | **6.67E-02** | **557.0** | **0.00E+00** | **0.0** | **0.00E+00** | **23.0** | **1.46E-01** | **1,281.0** | **6.75E-01** | **5,916.0** |
| **Substances** | **CAS#** | **Volatiles (lb/lb VOC)*** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** | **LB/HR** | **LB/YR** |
| **1,1,2,2-Tetrachloroethane** | **79345** | 8.73E-06 | 2.95E-06 | 2.58E-02 | 1.96E-06 | 1.72E-02 | 3.27E-07 | 2.80E-03 | 4.37E-07 | 3.73E-03 | 5.82E-07 | 4.86E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.01E-04 | 1.27E-06 | 1.12E-02 | 5.89E-06 | 5.16E-02 |
| **1,1,2-Trichloroethane** | **79005** | 2.26E-04 | 7.63E-05 | 6.69E-01 | 5.09E-05 | 4.46E-01 | 8.48E-06 | 7.25E-02 | 1.13E-05 | 9.65E-02 | 1.51E-05 | 1.26E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.20E-03 | 3.30E-05 | 2.90E-01 | 1.53E-04 | 1.34E+00 |
| **1,2,3-Trichloropropane** | **96184** | 2.76E-04 | 9.32E-05 | 8.16E-01 | 6.21E-05 | 5.44E-01 | 1.04E-05 | 8.86E-02 | 1.38E-05 | 1.18E-01 | 1.84E-05 | 1.54E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.35E-03 | 4.03E-05 | 3.54E-01 | 1.86E-04 | 1.63E+00 |
| **1,2,4-Trichlorobenzene** | **120821** | 7.79E-04 | 2.63E-04 | 2.30E+00 | 1.75E-04 | 1.54E+00 | 2.92E-05 | 2.50E-01 | 3.90E-05 | 3.33E-01 | 5.19E-05 | 4.34E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.79E-02 | 1.14E-04 | 9.98E-01 | 5.26E-04 | 4.61E+00 |
| **1,2-Dibromo-3-chloropropane** | **96128** | 4.94E-05 | 1.67E-05 | 1.46E-01 | 1.11E-05 | 9.74E-02 | 1.85E-06 | 1.59E-02 | 2.47E-06 | 2.11E-02 | 3.29E-06 | 2.75E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.14E-03 | 7.20E-06 | 6.33E-02 | 3.33E-05 | 2.92E-01 |
| **1,2-Dichlorobenzene** | **95501** | 5.48E-04 | 1.85E-04 | 1.62E+00 | 1.23E-04 | 1.08E+00 | 2.06E-05 | 1.76E-01 | 2.74E-05 | 2.34E-01 | 3.65E-05 | 3.05E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.26E-02 | 7.99E-05 | 7.02E-01 | 3.70E-04 | 3.24E+00 |
| **1,3-Dichlorobenzene** | **541731** | 4.90E-04 | 1.65E-04 | 1.45E+00 | 1.10E-04 | 9.66E-01 | 1.84E-05 | 1.57E-01 | 2.45E-05 | 2.09E-01 | 3.27E-05 | 2.73E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.13E-02 | 7.15E-05 | 6.28E-01 | 3.31E-04 | 2.90E+00 |
| **1,4 Dioxane** | **123911** | 1.41E-03 | 4.76E-04 | 4.17E+00 | 3.17E-04 | 2.78E+00 | 5.29E-05 | 4.53E-01 | 7.05E-05 | 6.02E-01 | 9.40E-05 | 7.85E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.24E-02 | 2.06E-04 | 1.81E+00 | 9.52E-04 | 8.34E+00 |
| **1,4-Dichlorobenzene** | **106467** | 5.19E-04 | 1.75E-04 | 1.54E+00 | 1.17E-04 | 1.02E+00 | 1.95E-05 | 1.67E-01 | 2.60E-05 | 2.22E-01 | 3.46E-05 | 2.89E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.19E-02 | 7.57E-05 | 6.65E-01 | 3.50E-04 | 3.07E+00 |
| **Acetaldehyde** | **75070** | 2.41E-03 | 8.13E-04 | 7.13E+00 | 5.42E-04 | 4.75E+00 | 9.04E-05 | 7.74E-01 | 1.21E-04 | 1.03E+00 | 1.61E-04 | 1.34E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.54E-02 | 3.51E-04 | 3.09E+00 | 1.63E-03 | 1.43E+01 |
| **Acrylonitrile** | **107131** | 2.43E-04 | 8.20E-05 | 7.19E-01 | 5.47E-05 | 4.79E-01 | 9.11E-06 | 7.80E-02 | 1.22E-05 | 1.04E-01 | 1.62E-05 | 1.35E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.59E-03 | 3.54E-05 | 3.11E-01 | 1.64E-04 | 1.44E+00 |
| **Benzene** | **71432** | 3.19E-04 | 1.08E-04 | 9.44E-01 | 7.18E-05 | 6.29E-01 | 1.20E-05 | 1.02E-01 | 1.60E-05 | 1.36E-01 | 2.13E-05 | 1.78E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.34E-03 | 4.65E-05 | 4.09E-01 | 2.15E-04 | 1.89E+00 |
| **Benzyl chloride** | **100447** | 2.89E-04 | 9.75E-05 | 8.55E-01 | 6.50E-05 | 5.70E-01 | 1.08E-05 | 9.28E-02 | 1.45E-05 | 1.23E-01 | 1.93E-05 | 1.61E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.65E-03 | 4.21E-05 | 3.70E-01 | 1.95E-04 | 1.71E+00 |
| **Butyraldehyde** | **123728** | 1.14E-04 | 3.85E-05 | 3.37E-01 | 2.57E-05 | 2.25E-01 | 4.28E-06 | 3.66E-02 | 5.70E-06 | 4.87E-02 | 7.60E-06 | 6.35E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.62E-03 | 1.66E-05 | 1.46E-01 | 7.70E-05 | 6.74E-01 |
| **Carbon Disulfide** | **75150** | 2.49E-03 | 8.40E-04 | 7.37E+00 | 5.60E-04 | 4.91E+00 | 9.34E-05 | 7.99E-01 | 1.25E-04 | 1.06E+00 | 1.66E-04 | 1.39E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.73E-02 | 3.63E-04 | 3.19E+00 | 1.68E-03 | 1.47E+01 |
| **Carbon tetrachloride** | **56235** | 5.87E-05 | 1.98E-05 | 1.74E-01 | 1.32E-05 | 1.16E-01 | 2.20E-06 | 1.88E-02 | 2.94E-06 | 2.51E-02 | 3.91E-06 | 3.27E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.35E-03 | 8.56E-06 | 7.52E-02 | 3.96E-05 | 3.47E-01 |
| **Chlorobenzene** | **108907** | 2.72E-04 | 9.18E-05 | 8.05E-01 | 6.12E-05 | 5.36E-01 | 1.02E-05 | 8.73E-02 | 1.36E-05 | 1.16E-01 | 1.81E-05 | 1.52E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.26E-03 | 3.97E-05 | 3.48E-01 | 1.84E-04 | 1.61E+00 |
| **Chloroform** | **67663** | 1.31E-04 | 4.42E-05 | 3.87E-01 | 2.95E-05 | 2.58E-01 | 4.91E-06 | 4.21E-02 | 6.55E-06 | 5.59E-02 | 8.73E-06 | 7.30E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.01E-03 | 1.91E-05 | 1.68E-01 | 8.84E-05 | 7.75E-01 |
| **Chloromethane** | **74873** | 7.93E-04 | 2.68E-04 | 2.35E+00 | 1.78E-04 | 1.56E+00 | 2.97E-05 | 2.55E-01 | 3.97E-05 | 3.39E-01 | 5.29E-05 | 4.42E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.82E-02 | 1.16E-04 | 1.02E+00 | 5.35E-04 | 4.69E+00 |
| **Crotonaldehyde** | **4170303** | 1.41E-04 | 4.76E-05 | 4.17E-01 | 3.17E-05 | 2.78E-01 | 5.29E-06 | 4.53E-02 | 7.05E-06 | 6.02E-02 | 9.40E-06 | 7.85E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.24E-03 | 2.06E-05 | 1.81E-01 | 9.52E-05 | 8.34E-01 |
| **Cyclohexane** | **110827** | 6.83E-03 | 2.31E-03 | 2.02E+01 | 1.54E-03 | 1.35E+01 | 2.56E-04 | 2.19E+00 | 3.42E-04 | 2.92E+00 | 4.55E-04 | 3.80E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.57E-01 | 9.96E-04 | 8.75E+00 | 4.61E-03 | 4.04E+01 |
| **Ethyl Chloride** | **75003** | 2.39E-04 | 8.07E-05 | 7.07E-01 | 5.38E-05 | 4.71E-01 | 8.96E-06 | 7.67E-02 | 1.20E-05 | 1.02E-01 | 1.59E-05 | 1.33E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.50E-03 | 3.49E-05 | 3.06E-01 | 1.61E-04 | 1.41E+00 |
| **Ethylbenzene** | **100414** | 3.47E-04 | 1.17E-04 | 1.03E+00 | 7.81E-05 | 6.84E-01 | 1.30E-05 | 1.11E-01 | 1.74E-05 | 1.48E-01 | 2.31E-05 | 1.93E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.98E-03 | 5.06E-05 | 4.45E-01 | 2.34E-04 | 2.05E+00 |
| **Ethylene Dibromide (EDB)** | **106934** | 3.06E-04 | 1.03E-04 | 9.05E-01 | 6.89E-05 | 6.03E-01 | 1.15E-05 | 9.82E-02 | 1.53E-05 | 1.31E-01 | 2.04E-05 | 1.70E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.04E-03 | 4.46E-05 | 3.92E-01 | 2.07E-04 | 1.81E+00 |
| **Ethylene Dichloride (EDC)** | **107062** | 5.89E-05 | 1.99E-05 | 1.74E-01 | 1.33E-05 | 1.16E-01 | 2.21E-06 | 1.89E-02 | 2.95E-06 | 2.52E-02 | 3.93E-06 | 3.28E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.35E-03 | 8.59E-06 | 7.55E-02 | 3.98E-05 | 3.48E-01 |
| **Formaldehyde** | **50000** | 3.98E-04 | 1.34E-04 | 1.18E+00 | 8.96E-05 | 7.85E-01 | 1.49E-05 | 1.28E-01 | 1.99E-05 | 1.70E-01 | 2.65E-05 | 2.22E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.15E-03 | 5.80E-05 | 5.10E-01 | 2.69E-04 | 2.35E+00 |
| **Hexane** | **110543** | 8.12E-04 | 2.74E-04 | 2.40E+00 | 1.83E-04 | 1.60E+00 | 3.05E-05 | 2.61E-01 | 4.06E-05 | 3.47E-01 | 5.41E-05 | 4.52E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.87E-02 | 1.18E-04 | 1.04E+00 | 5.48E-04 | 4.80E+00 |
| **Isopropyl Alcho** | **67630** | 1.62E-03 | 5.47E-04 | 4.79E+00 | 3.65E-04 | 3.19E+00 | 6.08E-05 | 5.20E-01 | 8.10E-05 | 6.92E-01 | 1.08E-04 | 9.02E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.73E-02 | 2.36E-04 | 2.08E+00 | 1.09E-03 | 9.58E+00 |
| **Isopropylbenzene (Cumene)** | **98828** | 5.61E-05 | 1.89E-05 | 1.66E-01 | 1.26E-05 | 1.11E-01 | 2.10E-06 | 1.80E-02 | 2.81E-06 | 2.40E-02 | 3.74E-06 | 3.12E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.29E-03 | 8.18E-06 | 7.19E-02 | 3.79E-05 | 3.32E-01 |
| **Methyl Ethyl Ketone (2-butanone)** | **78933** | 1.46E-02 | 4.93E-03 | 4.32E+01 | 3.29E-03 | 2.88E+01 | 5.48E-04 | 4.69E+00 | 7.30E-04 | 6.23E+00 | 9.73E-04 | 8.13E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.36E-01 | 2.13E-03 | 1.87E+01 | 9.86E-03 | 8.64E+01 |
| **Methyl Isobutyl Ketone** | **108101** | 7.09E-04 | 2.39E-04 | 2.10E+00 | 1.60E-04 | 1.40E+00 | 2.66E-05 | 2.28E-01 | 3.55E-05 | 3.03E-01 | 4.73E-05 | 3.95E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.63E-02 | 1.03E-04 | 9.08E-01 | 4.79E-04 | 4.19E+00 |
| **Napthalene** | **91203** | 1.16E-03 | 3.92E-04 | 3.43E+00 | 2.61E-04 | 2.29E+00 | 4.35E-05 | 3.72E-01 | 5.80E-05 | 4.95E-01 | 7.73E-05 | 6.46E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.67E-02 | 1.69E-04 | 1.49E+00 | 7.83E-04 | 6.86E+00 |
| **Perchloroethylene** | **127184** | 6.51E-04 | 2.20E-04 | 1.93E+00 | 1.46E-04 | 1.28E+00 | 2.44E-05 | 2.09E-01 | 3.26E-05 | 2.78E-01 | 4.34E-05 | 3.63E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.50E-02 | 9.49E-05 | 8.34E-01 | 4.39E-04 | 3.85E+00 |
| **Styrene** | **100425** | 3.59E-04 | 1.21E-04 | 1.06E+00 | 8.08E-05 | 7.08E-01 | 1.35E-05 | 1.15E-01 | 1.80E-05 | 1.53E-01 | 2.39E-05 | 2.00E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.26E-03 | 5.24E-05 | 4.60E-01 | 2.42E-04 | 2.12E+00 |
| **t-1,4-Dichloro-2-butene** | **764410** | 8.92E-04 | 3.01E-04 | 2.64E+00 | 2.01E-04 | 1.76E+00 | 3.35E-05 | 2.86E-01 | 4.46E-05 | 3.81E-01 | 5.95E-05 | 4.97E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.05E-02 | 1.30E-04 | 1.14E+00 | 6.02E-04 | 5.28E+00 |
| **Toluene** | **108883** | 1.07E-03 | 3.61E-04 | 3.17E+00 | 2.41E-04 | 2.11E+00 | 4.01E-05 | 3.43E-01 | 5.35E-05 | 4.57E-01 | 7.13E-05 | 5.96E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.46E-02 | 1.56E-04 | 1.37E+00 | 7.22E-04 | 6.33E+00 |
| **Trichlorofluoromethane'** | **75694** | 1.08E-07 | 3.65E-08 | 3.19E-04 | 2.43E-08 | 2.13E-04 | 4.05E-09 | 3.47E-05 | 5.40E-09 | 4.61E-05 | 7.20E-09 | 6.02E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.48E-06 | 1.58E-08 | 1.38E-04 | 7.29E-08 | 6.39E-04 |
| **Vinyl acetate** | **108054** | 1.97E-03 | 6.65E-04 | 5.83E+00 | 4.43E-04 | 3.88E+00 | 7.39E-05 | 6.32E-01 | 9.85E-05 | 8.41E-01 | 1.31E-04 | 1.10E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.53E-02 | 2.87E-04 | 2.52E+00 | 1.33E-03 | 1.17E+01 |
| **Xylenes** | **1330207** | 1.80E-03 | 6.08E-04 | 5.32E+00 | 4.05E-04 | 3.55E+00 | 6.75E-05 | 5.78E-01 | 9.00E-05 | 7.69E-01 | 1.20E-04 | 1.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.14E-02 | 2.63E-04 | 2.31E+00 | 1.22E-03 | 1.06E+01 |

**Name**

## Agricultural Miscellaneous Emissions from Dairy Operatio

| | |
|---|---|
| **Applicability** | Use this spreadsheet to characterize the miscellanous emissions from Dairy sources when VOC rates are known. VOC emissi there is more than one Milk Parlor. |
| *Author or updater* | Matthew Cegielski |
| *Last Update* | August 26, 2016 |
| **Facility:** | S & S Dairy |
| **ID#:** | N-7321 |
| **Project #:** | N1182555 |

| **More than one Milk Parlor?** | N | | **Formula** | | | |
|---|---|---|---|---|---|---|
| **Inputs** | VOC lb/yr | $NH_3$ lb/yr | Select N or Y from the dropdown. If there is more than one Milk Parlor, enter VOC and $NH_3$ rates. Toxic emissions are calculated by the multiplication of the VOC Rates and Emission Factors. | | | |
| Milk Parlor 1 | 0 | 0 | | | | |
| Milk Parlor 2 | 0 | 0 | lb/hr | lb/yr | lb/hr | lb/yr |
| **VOC Emission Rates** | | | **5.02E-02** | **4.40E+02** | **0.00E+00** | **0.00E+00** |

| Substances | CAS# | Toxic EF's (lb/lb VOC)* | LB/HR | LB/YR | LB/HR | LB/YR |
|---|---|---|---|---|---|---|
| 1,1,2,2-Tetrachloroethane | 79345 | 8.73E-06 | 4.38E-07 | 3.84E-03 | 0.00E+00 | 0.00E+00 |
| 1,1,2-Trichloroethane | 79005 | 2.26E-04 | 1.14E-05 | 9.94E-02 | 0.00E+00 | 0.00E+00 |
| 1,2,3-Trichloropropane | 96184 | 2.76E-04 | 1.39E-05 | 1.21E-01 | 0.00E+00 | 0.00E+00 |
| 1,2,4-Trichlorobenzene | 120821 | 7.79E-04 | 3.91E-05 | 3.43E-01 | 0.00E+00 | 0.00E+00 |
| 1,2-Dibromo-3-chloropropane | 96128 | 4.94E-05 | 2.48E-06 | 2.17E-02 | 0.00E+00 | 0.00E+00 |
| 1,2-Dichlorobenzene | 95501 | 5.48E-04 | 2.75E-05 | 2.41E-01 | 0.00E+00 | 0.00E+00 |
| 1,3-Dichlorobenzene | 541731 | 4.90E-04 | 2.46E-05 | 2.16E-01 | 0.00E+00 | 0.00E+00 |
| 1,4 Dioxane | 123911 | 1.41E-03 | 7.08E-05 | 6.20E-01 | 0.00E+00 | 0.00E+00 |
| 1,4-Dichlorobenzene | 106467 | 5.19E-04 | 2.61E-05 | 2.28E-01 | 0.00E+00 | 0.00E+00 |
| Acetaldehyde | 75070 | 2.41E-03 | 1.21E-04 | 1.06E+00 | 0.00E+00 | 0.00E+00 |
| Acrylonitrile | 107131 | 2.43E-04 | 1.22E-05 | 1.07E-01 | 0.00E+00 | 0.00E+00 |
| Benzene | 71432 | 3.19E-04 | 1.60E-05 | 1.40E-01 | 0.00E+00 | 0.00E+00 |
| Benzyl chloride | 100447 | 2.89E-04 | 1.45E-05 | 1.27E-01 | 0.00E+00 | 0.00E+00 |
| Butyraldehyde | 123728 | 1.14E-04 | 5.73E-06 | 5.02E-02 | 0.00E+00 | 0.00E+00 |
| Carbon Disulfide | 75150 | 2.49E-03 | 1.25E-04 | 1.10E+00 | 0.00E+00 | 0.00E+00 |
| Carbon tetrachloride | 56235 | 5.87E-05 | 2.95E-06 | 2.58E-02 | 0.00E+00 | 0.00E+00 |
| Chlorobenzene | 108907 | 2.72E-04 | 1.37E-05 | 1.20E-01 | 0.00E+00 | 0.00E+00 |
| Chloroform | 67663 | 1.31E-04 | 6.58E-06 | 5.76E-02 | 0.00E+00 | 0.00E+00 |
| Chloromethane | 74873 | 7.93E-04 | 3.98E-05 | 3.49E-01 | 0.00E+00 | 0.00E+00 |
| Crotonaldehyde | 4170303 | 1.41E-04 | 7.08E-06 | 6.20E-02 | 0.00E+00 | 0.00E+00 |
| Cyclohexane | 110827 | 6.83E-03 | 3.43E-04 | 3.01E+00 | 0.00E+00 | 0.00E+00 |
| Ethyl Chloride | 75003 | 2.39E-04 | 1.20E-05 | 1.05E-01 | 0.00E+00 | 0.00E+00 |
| Ethylbenzene | 100414 | 3.47E-04 | 1.74E-05 | 1.53E-01 | 0.00E+00 | 0.00E+00 |
| Ethylene Dibromide (EDB) | 106934 | 3.06E-04 | 1.54E-05 | 1.35E-01 | 0.00E+00 | 0.00E+00 |
| Ethylene Dichloride (EDC) | 107062 | 5.89E-05 | 2.96E-06 | 2.59E-02 | 0.00E+00 | 0.00E+00 |
| Formaldehyde | 50000 | 3.98E-04 | 2.00E-05 | 1.75E-01 | 0.00E+00 | 0.00E+00 |
| Hexane | 110543 | 8.12E-04 | 4.08E-05 | 3.57E-01 | 0.00E+00 | 0.00E+00 |
| Isopropyl Alchol | 67630 | 1.62E-03 | 8.14E-05 | 7.13E-01 | 0.00E+00 | 0.00E+00 |
| Isopropylbenzene (Cumene) | 98828 | 5.61E-05 | 2.82E-06 | 2.47E-02 | 0.00E+00 | 0.00E+00 |
| Methyl Ethyl Ketone (2-butanone) | 78933 | 1.46E-02 | 7.33E-04 | 6.42E+00 | 0.00E+00 | 0.00E+00 |
| Methyl Isobutyl Ketone | 108101 | 7.09E-04 | 3.56E-05 | 3.12E-01 | 0.00E+00 | 0.00E+00 |
| Napthalene | 91203 | 1.16E-03 | 5.83E-05 | 5.10E-01 | 0.00E+00 | 0.00E+00 |
| Perchloroethylene | 127184 | 6.51E-04 | 3.27E-05 | 2.86E-01 | 0.00E+00 | 0.00E+00 |
| Styrene | 100425 | 3.59E-04 | 1.80E-05 | 1.58E-01 | 0.00E+00 | 0.00E+00 |
| t-1,4-Dichloro-2-butene | 764410 | 8.92E-04 | 4.48E-05 | 3.92E-01 | 0.00E+00 | 0.00E+00 |
| Toluene | 108883 | 1.07E-03 | 5.37E-05 | 4.71E-01 | 0.00E+00 | 0.00E+00 |
| Trichlorofluoromethane* | 75694 | 1.08E-07 | 5.42E-09 | 4.75E-05 | 0.00E+00 | 0.00E+00 |
| Vinyl acetate | 108054 | 1.97E-03 | 9.89E-05 | 8.67E-01 | 0.00E+00 | 0.00E+00 |
| Xylenes | 1330207 | 1.80E-03 | 9.04E-05 | 7.92E-01 | 0.00E+00 | 0.00E+00 |
| Ammonia | 7664417 | | 1.72E-02 | 1.50E+02 | 0.00E+00 | 0.0 |

**References:**

*Emission factors are derived from the District's evaluation of dairy research studies conducted by California colleges and universities.

Pollutants required for toxic reporting. Current as of update date.

(Does not include emissions from Lagoons or enteric emissions from cows)

**Name**

# Agricultural Lagoon Emissions from Dairy Operations

| | |
|---|---|
| **Applicability** | Use this spreadsheet when the emissions are from a Dairy Lagoon sources and the VOC rates are known. The VOC rates are linked to the RMR worksheet cells VOC rates in 'Lagoon/Storage Pond row'. Enter values into the Lagoon area calculator on the right to determine area fraction(s). Total ammonia value is linked to the RMR worksheet cells, 'Lagoon/Storage Pond'. Individual Lagoon values are calculated by multiplying the total lagoon ammonia by their area fraction. Entries required in yellow areas, output in gray areas. |

| | | | |
|---|---|---|---|
| *Author or updater* | Matthew Cegielski | *Last Update* | September 12, 2018 |
| **Facility:** | S & S Dairy | | |
| **ID#:** | N-7321 | | |
| **Project #:** | N1182555 | | |

| **Inputs** | lb/hr | lb/yr | **Formula** |
|---|---|---|---|
| VOC Rate | 0 | -146 | Emissions are calculated by the multiplication of the VOC rates, area fracton, and emission factors. |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Lagoon Area Fraction** | | **1.00** | | **0.00** | | **0.00** | |
| **Substances** | **CAS#** | **Emissions Factors lb/VOC*** | **LB/HR** | **LB/YR** | **Lagoon LB/HR** | **Lagoon LB/YR** | **Lagoon 2 LB/HR** | **Lagoon 2 LB/YR** | **Lagoon 3 LB/HR** | **Lagoon 3 LB/YR** |
| **1,1,2,2-Tetrachloroethane** | **79345** | 3.44E-02 | -5.73E-04 | -5.02E+00 | -5.73E-04 | -5.02E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **1,1,2-Trichloroethane** | **79005** | 7.94E-03 | -1.32E-04 | -1.16E+00 | -1.32E-04 | -1.16E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **1,2,4-Trimethylbenzene** | **95636** | 2.94E-02 | -4.90E-04 | -4.29E+00 | -4.90E-04 | -4.29E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **1,2-Dichlorobenzene** | **95501** | 6.25E-02 | -1.04E-03 | -9.13E+00 | -1.04E-03 | -9.13E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **1,3-Dichlorobenzene** | **541731** | 4.94E-02 | -8.23E-04 | -7.21E+00 | -8.23E-04 | -7.21E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **1,3-Dichloropropene** | **542756** | 7.44E-03 | -1.24E-04 | -1.09E+00 | -1.24E-04 | -1.09E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **1,4 Dioxane** | **123911** | 2.50E-02 | -4.17E-04 | -3.65E+00 | -4.17E-04 | -3.65E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **1,4-Dichloro-2-butene** | **764410** | 6.88E-02 | -1.15E-03 | -1.00E+01 | -1.15E-03 | -1.00E+01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **1,4-Dichlorobenzene** | **106467** | 5.19E-02 | -8.65E-04 | -7.57E+00 | -8.65E-04 | -7.57E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Acetaldehyde** | **75070** | 1.56E-02 | -2.60E-04 | -2.28E+00 | -2.60E-04 | -2.28E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Acrylonitrile** | **107131** | 7.31E-03 | -1.22E-04 | -1.07E+00 | -1.22E-04 | -1.07E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Benzene** | **71432** | 2.88E-03 | -4.79E-05 | -4.20E-01 | -4.79E-05 | -4.20E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Benzyl chloride** | **100447** | 3.13E-02 | -5.21E-04 | -4.56E+00 | -5.21E-04 | -4.56E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Carbon disulfide** | **75150** | 3.94E-02 | -6.56E-04 | -5.75E+00 | -6.56E-04 | -5.75E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Chlorobenzene** | **108907** | 1.31E-02 | -2.19E-04 | -1.92E+00 | -2.19E-04 | -1.92E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Cumene** | **98828** | 1.94E-02 | -3.23E-04 | -2.83E+00 | -3.23E-04 | -2.83E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Cyclohexane** | **110827** | 8.19E-03 | -1.36E-04 | -1.20E+00 | -1.36E-04 | -1.20E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Ethyl Chloride** | **75003** | 4.63E-03 | -7.71E-05 | -6.75E-01 | -7.71E-05 | -6.75E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Ethylbenzene** | **100414** | 1.00E-02 | -1.67E-04 | -1.46E+00 | -1.67E-04 | -1.46E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Ethylene Dibromide (EDB)** | **106934** | 1.44E-02 | -2.40E-04 | -2.10E+00 | -2.40E-04 | -2.10E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Ethylene Dichloride (EDC)** | **107062** | 4.06E-03 | -6.77E-05 | -5.93E-01 | -6.77E-05 | -5.93E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Formaldehyde** | **50000** | 8.13E-03 | -1.35E-04 | -1.19E+00 | -1.35E-04 | -1.19E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Hexane** | **110543** | 4.31E-03 | -7.19E-05 | -6.30E-01 | -7.19E-05 | -6.30E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Isopropyl Alchol** | **67630** | 7.50E-03 | -1.25E-04 | -1.10E+00 | -1.25E-04 | -1.10E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Methyl Ethyl Ketone** | **78933** | 1.38E-02 | -2.29E-04 | -2.01E+00 | -2.29E-04 | -2.01E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Methyl Isobutyl Ketone** | **108101** | 1.13E-02 | -1.89E-04 | -1.65E+00 | -1.89E-04 | -1.65E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Napthalene** | **91203** | 1.88E-01 | -3.13E-03 | -2.74E+01 | -3.13E-03 | -2.74E+01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Perchloroethylene** | **127184** | 1.75E-01 | -2.92E-03 | -2.56E+01 | -2.92E-03 | -2.56E+01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Styrene** | **100425** | 1.63E-02 | -2.71E-04 | -2.37E+00 | -2.71E-04 | -2.37E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Toluene** | **108883** | 1.25E-02 | -2.08E-04 | -1.83E+00 | -2.08E-04 | -1.83E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Trichloroethylene** | **79016** | 1.12E-02 | -1.86E-04 | -1.63E+00 | -1.86E-04 | -1.63E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Xylenes** | **1330207** | 1.88E-02 | -3.13E-04 | -2.74E+00 | -3.13E-04 | -2.74E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Ammonia** | **7664417** | | | | 1.708E-01 | 1.497E+03 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 |

**References:**

*Emission factors are derived from data used to establish the District's volatile organic compound (VOC) emission factor for dairies

Pollutants required for toxic reporting. Current as of update date.

(Does not include emissions from Miscellaneous Processes or enteric emissions from cows)

# S&S Phase II Construction DPM

**Merced County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| General Light Industry | 136.50 | 1000sqft | 3.13 | 136,500.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 49 |
| **Climate Zone** | 3 | | | **Operational Year** | 2020 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Estimated Construction Schedule of 6 months

Trips and VMT - Run is for on-site DPM estimates. Therefore, worker trips have been set to zero.

Grading - Run is for on-site DPM estimates. Therefore, gradinging acres for fugitive dust have been set to zero.

Vehicle Trips - Construction Run Only

Consumer Products - Construction Run Only

Area Coating - Construction Run Only

Landscape Equipment - Construction Run Only

Energy Use - Construction Run Only

Water And Wastewater - Construction Run Only

Solid Waste - Construction Run Only

Construction Off-road Equipment Mitigation -

S&S Phase II Construction DPM - Merced County, Annual

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblAreaCoating | ReapplicationRatePercent | 10 | 0 |
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 0 | 15 |
| tblConstructionPhase | NumDays | 230.00 | 117.00 |
| tblConstructionPhase | NumDays | 8.00 | 10.00 |
| tblConstructionPhase | NumDays | 10.00 | 5.00 |
| tblConstructionPhase | PhaseEndDate | 12/29/2020 | 7/2/2020 |
| tblConstructionPhase | PhaseEndDate | 2/11/2020 | 1/21/2020 |
| tblConstructionPhase | PhaseEndDate | 1/14/2020 | 1/7/2020 |
| tblConstructionPhase | PhaseStartDate | 2/12/2020 | 1/22/2020 |
| tblConstructionPhase | PhaseStartDate | 1/15/2020 | 1/8/2020 |
| tblEnergyUse | LightingElect | 2.70 | 0.00 |
| tblEnergyUse | NT24E | 4.16 | 0.00 |
| tblEnergyUse | NT24NG | 3.84 | 0.00 |
| tblEnergyUse | T24E | 1.96 | 0.00 |
| tblEnergyUse | T24NG | 17.03 | 0.00 |
| tblGrading | AcresOfGrading | 5.00 | 0.00 |
| tblSolidWaste | SolidWasteGenerationRate | 229.40 | 0.00 |
| tblTripsAndVMT | VendorTripNumber | 30.00 | 0.00 |
| tblTripsAndVMT | WorkerTripNumber | 18.00 | 0.00 |
| tblTripsAndVMT | WorkerTripNumber | 15.00 | 0.00 |
| tblTripsAndVMT | WorkerTripNumber | 78.00 | 0.00 |
| tblVehicleTrips | ST_TR | 1.32 | 0.00 |
| tblVehicleTrips | SU_TR | 0.68 | 0.00 |
| tblVehicleTrips | WD_TR | 6.97 | 0.00 |
| tblWater | IndoorWaterUseRate | 42,781,250.00 | 0.00 |

# 2.0 Emissions Summary

## 2.1 Overall Construction

### Unmitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2020 | | | | | | 0.0772 | 0.1525 | | | | | | | | | |
| **Maximum** | | | | | | **0.0772** | **0.1525** | | | | | | | | | |

### Mitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2020 | | | | | | 0.0772 | 0.1525 | | | | | | | | | |
| **Maximum** | | | | | | **0.0772** | **0.1525** | | | | | | | | | |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

| Quarter | Start Date | End Date | Maximum Unmitigated ROG + NOX (tons/quarter) | Maximum Mitigated ROG + NOX (tons/quarter) |
|---|---|---|---|---|
| | | **Highest** | | |

## 2.2 Overall Operational

### Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Energy | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Mobile | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Waste | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Water | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

## 2.2 Overall Operational

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Energy | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Mobile | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Waste | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Water | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Site Preparation | Site Preparation | 1/1/2020 | 1/7/2020 | 5 | 5 | |
| 2 | Grading | Grading | 1/8/2020 | 1/21/2020 | 5 | 10 | |
| 3 | Building Construction | Building Construction | 1/22/2020 | 7/2/2020 | 5 | 117 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Site Preparation | Rubber Tired Dozers | 3 | 8.00 | 247 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 4 | 8.00 | 97 | 0.37 |
| Grading | Excavators | 1 | 8.00 | 158 | 0.38 |
| Grading | Graders | 1 | 8.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 3 | 8.00 | 97 | 0.37 |
| Building Construction | Cranes | 1 | 7.00 | 231 | 0.29 |
| Building Construction | Forklifts | 3 | 8.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 3 | 7.00 | 97 | 0.37 |
| Building Construction | Welders | 1 | 8.00 | 46 | 0.45 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | 7 | 0.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 6 | 0.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 9 | 0.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Reduce Vehicle Speed on Unpaved Roads

## 3.2 Site Preparation - 2020

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | | 0.0000 | 0.0452 | | | | | | | | | |
| Off-Road | | | | | | 5.4900e-003 | 5.4900e-003 | | | | | | | | | |
| **Total** | | | | | | **5.4900e-003** | **0.0507** | | | | | | | | | |

## 3.2 Site Preparation - 2020

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Vendor | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Worker | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | | 0.0000 | 0.0452 | | | | | | | | | |
| Off-Road | | | | | | 5.4900e-003 | 5.4900e-003 | | | | | | | | | |
| **Total** | | | | | | **5.4900e-003** | **0.0507** | | | | | | | | | |

## 3.2 Site Preparation - 2020

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Vendor | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Worker | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

## 3.3 Grading - 2020

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | | 0.0000 | 0.0301 | | | | | | | | | |
| Off-Road | | | | | | 6.3700e-003 | 6.3700e-003 | | | | | | | | | |
| **Total** | | | | | | **6.3700e-003** | **0.0365** | | | | | | | | | |

## 3.3 Grading - 2020

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Vendor | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Worker | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | | 0.0000 | 0.0301 | | | | | | | | | |
| Off-Road | | | | | | 6.3700e-003 | 6.3700e-003 | | | | | | | | | |
| **Total** | | | | | | **6.3700e-003** | **0.0365** | | | | | | | | | |

## 3.3 Grading - 2020

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Vendor | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Worker | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

## 3.4 Building Construction - 2020

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | | | | | | 0.0654 | 0.0654 | | | | | | | | | |
| **Total** | | | | | | **0.0654** | **0.0654** | | | | | | | | | |

## 3.4 Building Construction - 2020

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Vendor | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Worker | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | | | | | | 0.0654 | 0.0654 | | | | | | | | | |
| **Total** | | | | | | **0.0654** | **0.0654** | | | | | | | | | |

### 3.4 Building Construction - 2020

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Vendor | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Worker | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Unmitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| General Light Industry | 0.00 | 0.00 | 0.00 | | |
| Total | 0.00 | 0.00 | 0.00 | | |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| General Light Industry | 9.50 | 7.30 | 7.30 | 59.00 | 28.00 | 13.00 | 92 | 5 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| General Light Industry | 0.484945 | 0.031816 | 0.154973 | 0.120992 | 0.021332 | 0.005119 | 0.015709 | 0.151573 | 0.002377 | 0.002347 | 0.006486 | 0.001616 | 0.000714 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| NaturalGas Mitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| NaturalGas Unmitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| General Light Industry | 0 | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

## 5.2 Energy by Land Use - NaturalGas

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| General Light Industry | 0 | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| General Light Industry | 0 | | | | |
| **Total** | | | | | |

### 5.3 Energy by Land Use - Electricity

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| General Light Industry | 0 | | | | |
| **Total** | | | | | |

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Unmitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Consumer Products | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Landscaping | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Consumer Products | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Landscaping | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

## 7.0 Water Detail

## 7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | | | | |
| Unmitigated | | | | |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| General Light Industry | 0 / 0 | | | | |
| **Total** | | | | | |

### 7.2 Water by Land Use

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| General Light Industry | 0 / 0 | | | | |
| **Total** | | | | | |

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | | | | |
| Unmitigated | | | | |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| General Light Industry | 0 | | | | |
| **Total** | | | | | |

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| General Light Industry | 0 | | | | |
| **Total** | | | | | |

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

### Fire Pumps and Emergency Generators

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

### Boilers

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

### User Defined Equipment

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# S&S Phase I Construction DPM

**Merced County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| General Light Industry | 38.85 | 1000sqft | 0.89 | 38,850.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 49 |
| **Climate Zone** | 3 | | | **Operational Year** | 2020 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

S&S Phase I Construction DPM - Merced County, Annual

Project Characteristics -

Land Use -

Construction Phase - Estimated Construction Schedule of 2 months

Trips and VMT - Run is for on-site DPM estimates. Therefore, worker trips have been set to zero.

Grading - Run is for on-site DPM estimates. Therefore, gradinging acres for fugitive dust have been set to zero.

Vehicle Trips - Construction Run Only

Consumer Products - Construction Run Only

Area Coating - Construction Run Only

Landscape Equipment - Construction Run Only

Energy Use - Construction Run Only

Water And Wastewater - Construction Run Only

Solid Waste - Construction Run Only

Construction Off-road Equipment Mitigation -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblAreaCoating | Area_Nonresidential_Exterior | 15250 | 89000 |
| tblAreaCoating | Area_Nonresidential_Interior | 45750 | 267000 |
| tblAreaCoating | ReapplicationRatePercent | 10 | 0 |
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 0 | 15 |
| tblConstructionPhase | NumDays | 100.00 | 39.00 |
| tblConstructionPhase | NumDays | 2.00 | 4.00 |
| tblConstructionPhase | NumDays | 1.00 | 2.00 |
| tblConstructionPhase | PhaseEndDate | 12/17/2019 | 8/31/2019 |
| tblConstructionPhase | PhaseEndDate | 1/29/2019 | 7/8/2019 |
| tblConstructionPhase | PhaseEndDate | 1/1/2019 | 7/2/2019 |
| tblConstructionPhase | PhaseStartDate | 1/30/2019 | 7/9/2019 |
| tblConstructionPhase | PhaseStartDate | 1/2/2019 | 7/3/2019 |

| | | | |
|---|---|---|---|
| tblConstructionPhase | PhaseStartDate | 1/1/2019 | 7/1/2019 |
| tblConsumerProducts | ROG_EF | 2.14E-05 | 0 |
| tblEnergyUse | LightingElect | 2.70 | 0.00 |
| tblEnergyUse | NT24E | 4.16 | 0.00 |
| tblEnergyUse | NT24NG | 3.84 | 0.00 |
| tblEnergyUse | T24E | 1.96 | 0.00 |
| tblEnergyUse | T24NG | 17.03 | 0.00 |
| tblGrading | AcresOfGrading | 10.00 | 0.00 |
| tblSolidWaste | SolidWasteGenerationRate | 37.82 | 0.00 |
| tblTripsAndVMT | VendorTripNumber | 5.00 | 0.00 |
| tblTripsAndVMT | WorkerTripNumber | 18.00 | 0.00 |
| tblTripsAndVMT | WorkerTripNumber | 15.00 | 0.00 |
| tblTripsAndVMT | WorkerTripNumber | 13.00 | 0.00 |
| tblVehicleTrips | ST_TR | 1.32 | 0.00 |
| tblVehicleTrips | SU_TR | 0.68 | 0.00 |
| tblVehicleTrips | WD_TR | 6.97 | 0.00 |
| tblWater | IndoorWaterUseRate | 7,053,125.00 | 0.00 |

## 2.0 Emissions Summary

## 2.1 Overall Construction

### Unmitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2019 | | | | | | 0.0303 | 0.1809 | | | | | | | | | |
| **Maximum** | | | | | | **0.0303** | **0.1809** | | | | | | | | | |

### Mitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2019 | | | | | | 0.0303 | 0.1809 | | | | | | | | | |
| **Maximum** | | | | | | **0.0303** | **0.1809** | | | | | | | | | |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

S&S Phase I Construction DPM - Merced County, Annual

| Quarter | Start Date | End Date | Maximum Unmitigated ROG + NOX (tons/quarter) | Maximum Mitigated ROG + NOX (tons/quarter) |
|---|---|---|---|---|
| | | Highest | | |

## 2.2 Overall Operational

### Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Energy | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Mobile | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Waste | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Water | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

## 2.2 Overall Operational

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Energy | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Mobile | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Waste | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Water | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Site Preparation | Site Preparation | 7/1/2019 | 7/2/2019 | 5 | 2 | |
| 2 | Grading | Grading | 7/3/2019 | 7/8/2019 | 5 | 4 | |
| 3 | Building Construction | Building Construction | 7/9/2019 | 8/31/2019 | 5 | 39 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Site Preparation | Rubber Tired Dozers | 3 | 8.00 | 247 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 4 | 8.00 | 97 | 0.37 |
| Grading | Excavators | 1 | 8.00 | 158 | 0.38 |
| Grading | Graders | 1 | 8.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 3 | 8.00 | 97 | 0.37 |
| Building Construction | Cranes | 1 | 7.00 | 231 | 0.29 |
| Building Construction | Forklifts | 3 | 8.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 3 | 7.00 | 97 | 0.37 |
| Building Construction | Welders | 1 | 8.00 | 46 | 0.45 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | 7 | 0.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 6 | 0.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 9 | 0.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Reduce Vehicle Speed on Unpaved Roads

## 3.2 Site Preparation - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | | 0.0000 | 0.0903 | | | | | | | | | |
| Off-Road | | | | | | 2.3900e-003 | 2.3900e-003 | | | | | | | | | |
| **Total** | | | | | | **2.3900e-003** | **0.0927** | | | | | | | | | |

## 3.2 Site Preparation - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Vendor | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Worker | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | | 0.0000 | 0.0903 | | | | | | | | | |
| Off-Road | | | | | | 2.3900e-003 | 2.3900e-003 | | | | | | | | | |
| **Total** | | | | | | **2.3900e-003** | **0.0927** | | | | | | | | | |

## 3.2 Site Preparation - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Vendor | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Worker | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

## 3.3 Grading - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | | 0.0000 | 0.0602 | | | | | | | | | |
| Off-Road | | | | | | 2.7900e-003 | 2.7900e-003 | | | | | | | | | |
| **Total** | | | | | | **2.7900e-003** | **0.0630** | | | | | | | | | |

## 3.3 Grading - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Vendor | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Worker | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | | 0.0000 | 0.0602 | | | | | | | | | |
| Off-Road | | | | | | 2.7900e-003 | 2.7900e-003 | | | | | | | | | |
| **Total** | | | | | | **2.7900e-003** | **0.0630** | | | | | | | | | |

## 3.3 Grading - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Vendor | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Worker | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

## 3.4 Building Construction - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | | | | | | 0.0252 | 0.0252 | | | | | | | | | |
| **Total** | | | | | | **0.0252** | **0.0252** | | | | | | | | | |

## 3.4 Building Construction - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Vendor | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Worker | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | | | | | | 0.0252 | 0.0252 | | | | | | | | | |
| **Total** | | | | | | **0.0252** | **0.0252** | | | | | | | | | |

### 3.4 Building Construction - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Vendor | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Worker | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Unmitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| General Light Industry | 0.00 | 0.00 | 0.00 | | |
| Total | 0.00 | 0.00 | 0.00 | | |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| General Light Industry | 9.50 | 7.30 | 7.30 | 59.00 | 28.00 | 13.00 | 92 | 5 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| General Light Industry | 0.484945 | 0.031816 | 0.154973 | 0.120992 | 0.021332 | 0.005119 | 0.015709 | 0.151573 | 0.002377 | 0.002347 | 0.006486 | 0.001616 | 0.000714 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| NaturalGas Mitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| NaturalGas Unmitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| General Light Industry | 0 | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

## 5.2 Energy by Land Use - NaturalGas

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| General Light Industry | 0 | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| General Light Industry | 0 | | | | |
| **Total** | | | | | |

### 5.3 Energy by Land Use - Electricity

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| General Light Industry | 0 | | | | |
| **Total** | | | | | |

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Unmitigated | | | | | | 0.0000 | 0.0000 | | | | | | | | | |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Consumer Products | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Landscaping | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Consumer Products | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| Landscaping | | | | | | 0.0000 | 0.0000 | | | | | | | | | |
| **Total** | | | | | | **0.0000** | **0.0000** | | | | | | | | | |

## 7.0 Water Detail

## 7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | | | | |
| Unmitigated | | | | |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| General Light Industry | 0 / 0 | | | | |
| **Total** | | | | | |

### 7.2 Water by Land Use

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| General Light Industry | 0 / 0 | | | | |
| **Total** | | | | | |

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | | | | |
| Unmitigated | | | | |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| General Light Industry | 0 | | | | |
| **Total** | | | | | |

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| General Light Industry | 0 | | | | |
| **Total** | | | | | |

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

### Fire Pumps and Emergency Generators

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

### Boilers

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

### User Defined Equipment

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# APPENDIX B: AERMOD ELECTRONIC FILES

# AMBIENT AIR QUALITY ANALYSIS
## S&S Dairy Expansion

**5870 Crows Landing Road**
**Modesto, CA 95358**
**Stanislaus County**


Prepared By:

Matt Daniel – Senior Consultant

**INSIGHT ENVIRONMENTAL CONSULTANTS, INC.**
5500 Ming Avenue, Suite 140
Bakersfield, CA 93309
661-282-2200


May 2019

Project 190505.0128

Insight Environmental Consultants | Trinity Consultants

# TABLE OF CONTENTS

# LIST OF FIGURES

# LIST OF TABLES

# 1. EXECUTIVE SUMMARY

This document contains the ambient air quality analysis (AAQA) performed on behalf of Environmental Planning Partners, Inc. for an expansion of the existing S&S Dairy operation in Stanislaus County, California. The intent of the AAQA is to determine if the proposed dairy expansion has the potential to impact ambient air quality through a violation of the Ambient Air Quality standards (AAQS) or a substantial contribution to existing or projected air quality standards.

Under the provisions of the Federal Clean Air Act, the San Joaquin Valley Air Basin, including Stanislaus County, has been designated as attainment/unclassified for the National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), nitrogen dioxide ($NO_2$), and sulfur dioxide ($SO_2$); and attainment for particulate matter between 2.5 and 10 micrometers in diameter ($PM_{10}$). The Stanislaus County portions of the San Joaquin Valley Air Basin have been designated as non-attainment/extreme for the ozone ($O_3$) eight-hour average standard and non-attainment for the particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$) standard. The Stanislaus County portions of the San Joaquin Valley Air Basin have been designated as non-attainment/severe with the State one-hour standard for $O_3$; non-attainment for the $PM_{10}$, $PM_{2.5}$ and eight-hour $O_3$ standards; unclassified for hydrogen sulfide ($H_2S$) and visibility reducing particles; attainment/unclassified for CO; and attainment for all other compounds for which a California Ambient Air Quality Standards (CAAQS) exists. In order to determine whether a project will cause or contribute significantly to an AAQS violation, the maximum impacts attributable to the project are added to the existing background concentrations and are compared to the applicable AAQS. If an AAQS is not exceeded, the project is judged to not cause or contribute significantly to an AAQS violation for the applicable pollutant. If an ambient air quality standard is exceeded, it must be determined whether the project will cause a Prevention of Significant Deterioration (PSD) increment violation, which is achieved by comparing the maximum predicted concentration from the project to the established significant impact level (SIL) for the applicable pollutant. The San Joaquin Valley Air Pollution Control District (SJVAPCD) has developed alternative SILs for fugitive emissions of $PM_{10}$ and $PM_{2.5}$. If a source's maximum impacts are below the applicable SIL, the project is judged to not cause or contribute significantly to an AAQS violation or cause an increment violation.

For the S&S Dairy expansion project, maximum predicted concentrations of $NO_2$, $SO_2$, CO, $PM_{10}$, and $PM_{2.5}$ were predicted based on an analysis of the project-related emissions and air dispersion modeling. Emissions were calculated using generally accepted emission factors. Ambient air concentrations were predicted for the 1-hour, 3-hour, 8-hour, 24-hour and annual averaging periods using the most recent version of EPA's AMS/EPA Regulatory Model - AERMOD (recompiled for the Lakes ISC-AERMOD View interface).

Proposed emissions for the project will not cause or contribute to a violation of any NAAQS or CAAQS for any of the averaging periods for $NO_2$, $SO_2$, CO, or $H_2S$, or cause an increment violation of the SJVAPCD SILs for the annual and 24-hour averaging periods for $PM_{10}$ and $PM_{2.5}$.

In accordance with the SJVAPCD's *Guide for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015), the potential impact to air quality attributable to the proposed project is determined to be less than significant.

# 2. INTRODUCTION

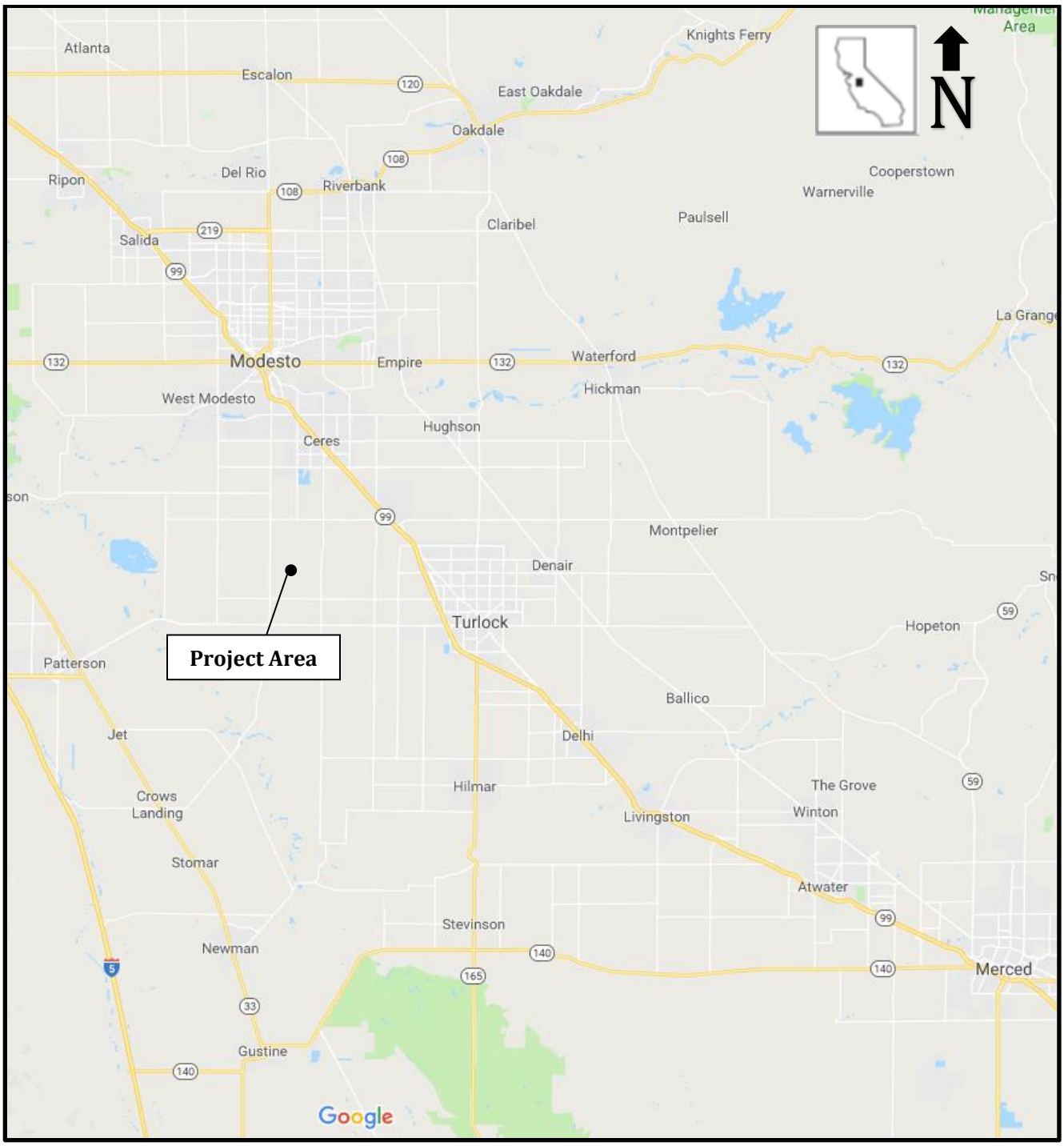
This Ambient Air Quality Analysis (AAQA) is provided as a service of Insight Environmental Consultants, Inc., a Trinity Consultants company performed on behalf of Environmental Planning Partners, Inc. for an expansion of the existing S&S Dairy operation in Stanislaus County, California (**Figure 2-1**). This AAQA was prepared pursuant to the San Joaquin Valley Air Pollution Control District's (SJVAPCD) *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI), (SJVAPCD 2015a) and the California Environmental Quality Act (CEQA).

A potentially significant impact to air quality, as defined by the CEQA Appendix G Environmental Checklist Form (not included herein), would occur if the project caused one or more of the following to occur:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or substantial contribution to an existing or projected air quality standard;
- Cause a cumulatively considerable net increase of any criteria pollutant for which the project region is designated non-attainment under an applicable Federal or State ambient air quality standard (including emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; and/or
- Create objectionable odors affecting a substantial number of people.

The intent of the AAQA is to determine if the project has the potential to impact ambient air quality through a violation of any air quality standard or a substantial contribution to an existing or projected air quality standard. Impacts to ambient air quality are evaluated based on the project-related emission of criteria pollutants. This analysis is limited to the potential impacts resulting from project-related emissions of nitrogen dioxide ($NO_2$), carbon monoxide (CO), sulfur dioxide ($SO_2$), particulate matter between 2.5 and 10 micrometers in diameter ($PM_{10}$), particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$), and hydrogen sulfide ($H_2S$). Project-related emissions are based on the proposed increase in the number of cattle and the additional on-site mobile sources required for the expansion.

**Figure 2-1. Location Map**



## 2.1. PROJECT DESCRIPTION

The existing dairy is located at 5870 Crows Landing Road in Modesto, California, which is in the County of Stanislaus. The facility will not be located within 1,000 feet of a K-12 school.

After modification, the dairy will house approximately 4,450 head of cattle. The existing and proposed herd configuration is provided in Table 2-1. The dairy will continue to operate 24 hours per day and 365 days per year.

**Table 2-1. Herd Configuration – Existing and Proposed**

| | Current | Proposed | Increment |
|---|---|---|---|
| Milk Cows | 1,400 | 2,500 | 1,100 |
| Dry Cows | 200 | 400 | 200 |
| Bred Heifers 15-24 mos. | 500 | 850 | 350 |
| Heifers 7-14 mos. | 500 | 400 | -100 |
| Heifers 4-6 mos. | 200 | 300 | 100 |
| Calves 0-3 mos. | 200 | 0 | -200 |
| Bulls | 0 | 0 | 0 |
| **TOTAL** | **3,000** | **4,450** | **1,450** |

The proposed structure construction would consist of five new freestall barns. The proposed expansion would include construction of 175,350 square feet of new buildings.

# 3. BACKGROUND OF AIR QUALITY STANDARDS

Protection of the public health is maintained through the attainment and maintenance of standards for ambient concentrations of various compounds in the atmosphere and the enforcement of emission limits for individual stationary sources. The Federal Clean Air Act requires that the U.S. Environmental Protection Agency (EPA) establish National Ambient Air Quality Standards (NAAQS) to protect the health, safety, and welfare of the public. NAAQS have been established for ozone ($O_3$), carbon monoxide (CO), nitrogen dioxide ($NO_2$), sulfur dioxide ($SO_2$), particulate matter ($PM_{10}$ and $PM_{2.5}$) and lead (Pb). California has also adopted ambient air quality standards (CAAQS) for these "criteria" air pollutants that are more stringent than the corresponding NAAQS along with standards for hydrogen sulfide ($H_2S$), vinyl chloride (chloroethene) and visibility reducing particles. In 2010, the U.S. Environmental Protection Agency (EPA) promulgated a new 1-hour $NO_2$ and $SO_2$ primary NAAQS, which are considerably less than the current CAAQS. Compliance with the new standards must be determined for all new and modified sources that are subject to the ambient air quality standard analysis requirement in SJVAPCD Rule 2201, Section 4.14. Current Federal and State ambient air quality standards are presented in **Table 3-1.**

Responsibility for regulation of air quality in California rests with the California Air Resources Board (CARB), the multi-county Air Quality Management Districts and Unified Air Pollution Control Districts, and single-county Air Pollution Control Districts, with oversight responsibility held by the EPA. CARB is responsible for regulation of mobile source emissions, establishment of State ambient air quality standards, research and development, and oversight and coordination of the activities of the regional and local air quality agencies. The regional and local air quality agencies are primarily responsible for regulating stationary source emissions and for monitoring ambient pollutant concentrations.

The Clean Air Act Amendments of 1977 required states to identify areas that were not in attainment with the NAAQS and to develop State Implementation Plans containing strategies to bring these non-attainment areas into compliance. The project location has been designated as attainment /unclassified for the NAAQS for CO, $NO_2$, and $SO_2$; and attainment for $PM_{10}$. The project location has been designated as non-attainment/extreme for the $O_3$ eight-hour average standard and non-attainment for the $PM_{2.5}$ standard. A Federal designation for lead has not been made and NAAQS do not exist for $O_3$ (1-hour average), hydrogen sulfide ($H_2S$), sulfates, vinyl chloride or visibility reducing particles. The project location has been designated as non-attainment/severe with the State one-hour standard for $O_3$, non-attainment for the $PM_{10}$, $PM_{2.5}$, and eight-hour $O_3$ standards; unclassified for $H_2S$ and visibility reducing particles; attainment /unclassified for CO; and attainment for all other compounds for which a State standard exists. **Table 3-2** provides the San Joaquin Valley Air Basin's designation and classification based on the various criteria pollutants under both State and Federal standards.

## Table 3-1. Federal & California Ambient Air Quality Standards

| | | NAAQS | CAAQS |
|---|---|---|---|
| Pollutant | Averaging Time | Concentration | |
| $O_3$ | 8-Hour | 0.070 ppm (137 µg/m³) [c] | 0.070 ppm (137 µg/m³) |
| | 1-Hour | [a] | 0.09 ppm (180 µg/m³) |
| CO | 8-Hour | 9 ppm (10 mg/m³) | 9 ppm (10 mg/m³) |
| | 1-Hour | 35 ppm (40 mg/m³) | 20 ppm (23 mg/m³) |
| $NO_2$ | Annual Average | 53 ppb (100 µg/m³) | 0.030 ppm (56 µg/m³) |
| | 1-Hour | 100 ppb (188.68 µg/m³) | 0.18 ppm (338 µg/m³) |
| $SO_2$ | 3-Hour | 0.5 ppm (1,300 µg/m³) | |
| | 24 Hour | 0.14 ppm (365 µg/m³) | 0.04 ppm (105 µg/m³) |
| | 1-Hour | 75 ppb (196 µg/m³) | 0.25 ppm (655 µg/m³) |
| Particulate Matter (PM10) | Annual Arithmetic Mean | [b] | 20 µg/m³ |
| | 24-Hour | 150 µg/m³ | 50 µg/m³ |
| Fine Particulate Matter (PM2.5) | Annual Arithmetic Mean | 12 µg/m³ | 12 µg/m³ |
| | 24-Hour | 35 µg/m³ | |
| Sulfates | 24-Hour | | 25 µg/m³ |
| Pb [d] | Rolling Three-Month Average | 0.15 µg/m³ | |
| | 30 Day Average | | 1.5 µg/m³ |
| $H_2S$ | 1-Hour | | 0.03 ppm (42 µg/m³) |
| Vinyl Chloride (chloroethene) | 24-Hour | | 0.010 ppm (26 µg/m³) |
| Visibility Reducing particles | 8 Hour (1000 to 1800 PST) | | [e] |

ppm = parts per million
ppb = parts per billion
mg/m3 = milligrams per cubic meter
µg/m ³= micrograms per cubic meter

[a] 1-Hour $O_3$ standard revoked effective June 15, 2005.

[b] Annual PM 10 standard revoked effective December 18, 2006.

[c] EPA finalized the revised (2008) 8-hour $O_3$ standard of 0.075 ppm on March 27, 2008. The 1997 8-hour $O_3$ standard of 0.08 ppm has not been revoked. In the January 19, 2010 Federal Register, EPA proposed to revise the 2008 $O_3$ NAAQS of 0.075 ppm to a NAAQS in the range of 0.060 to 0.070 ppm. EPA expects to finalize the revised NAAQS, which will replace the 0.075 ppm NAAQS, by July 29, 2011.

[d] On October 15, 2008, EPA strengthened the Pb standard.

[e] Statewide Visibility Reducing Particle Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range. (SJVAPCD 2017a and CARB 2017a)

**Table 3-2. San Joaquin Valley Air Basin Attainment Status**

| Pollutant | NAAQS[a] | CAAQS[b] |
|---|---|---|
| $O_3$, 1-hour | No Federal Standard[f] | Nonattainment/Severe |
| $O_3$, 8-hour | Nonattainment/Extreme[e] | Nonattainment |
| $PM_{10}$ | Attainment[c] | Nonattainment |
| $PM_{2.5}$ | Nonattainment[d] | Nonattainment |
| CO | Attainment/Unclassified | Attainment/Unclassified |
| $NO_2$ | Attainment/Unclassified | Attainment |
| $SO_2$ | Attainment/Unclassified | Attainment |
| Pb (Particulate) | No Designation/Classification | Attainment |
| $H_2S$ | No Federal Standard | Unclassified |
| Sulfates | No Federal Standard | Attainment |
| Visibility Reducing particulates | No Federal Standard | Unclassified |
| Vinyl Chloride | No Federal Standard | Attainment |

[a] See 40 CFR Part 81

[b] See CCR Title 17 Sections 60200-60210

[c] On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM10 National Ambient Air Quality Standard (NAAQS) and approved the PM10 Maintenance Plan.

[d] The Valley is designated nonattainment for the 1997 PM2.5 NAAQS. EPA designated the Valley as nonattainment for the 2006 PM2.5 NAAQS on November 13, 2009 (effective December 14, 2009).

[e] Though the Valley was initially classified as serious nonattainment for the 1997 8-hour $O_3$ standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

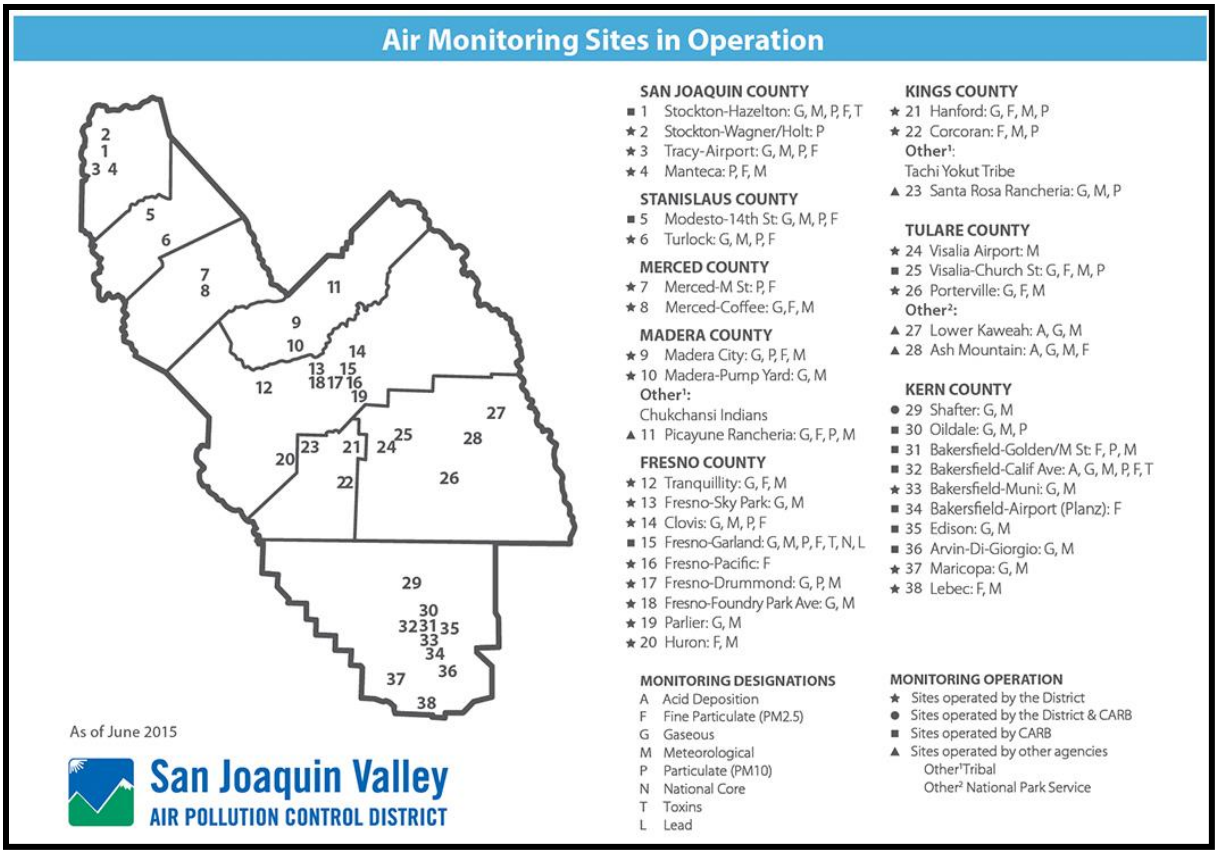
[f] Effective June 15, 2005, the EPA revoked the federal 1-hour $O_3$ standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour $O_3$ nonattainment areas continue to apply to the SJVAB. (SJVAPCD 2017a)

The SJVAPCD along with the CARB operates an air quality monitoring network that provides information on average concentrations of those pollutants for which State or Federal agencies have established ambient air quality standards. Information from the various monitoring stations is available from the agency web sites. A map of the various monitoring stations in the San Joaquin Valley is provided in **Figure 3-1**.

For the purposes of establishing background concentrations of applicable criteria pollutants, this AAQA relied on EPA's AirData and CARB monitoring values, the raw data for which were collected during 2017 and 2018[1] at CARB/SJVAPCD monitoring stations. Background values were selected from various monitoring stations based on closest proximity to the project site. **Table 3-3** provides the background concentrations applicable to the project area. No recent data is available for hydrogen sulfide, vinyl chloride or lead in Stanislaus County or adjacent Counties.

[1] The exception is the one-hour $NO_2$ background value, which EPA requires to be based on a 3-year average. The SJVAPCD's statistical analysis was based on the period 2014 to 2016.

**Figure 3-1. San Joaquin Valley APCD Monitoring Network**




(SJVAPCD 2017b)

**Table 3-3. Background Concentrations for the Project Vicinity**

| Pollutant | Averaging Period | Background Concentration µg/m³ | Reference |
|---|---|---|---|
| $NO_2$ | 1-hour | 96.2 | SJVACPD FTP Server, Stanislaus Co. (SJVAPCD 2017c) |
| | Annual | 19.7 | Stanislaus County, 2018 (USEPA 2019) |
| $SO_2$ | 1-hour | 20.3 | Fresno Co., 2018 (USEPA 2019) |
| | 3-hour | 18.3 | Scaled from $SO_2$ 1-hour concentration[2] |
| | 24-hour | 7.3 | Fresno Co., 2018 (USEPA 2019) |
| CO | 1-hour | 3330 | Stanislaus County, 2018 (USEPA 2019) |
| | 8-hour | 2950 | Stanislaus County, 2018 (USEPA 2019) |
| $PM_{2.5}$ | 24-hour | 74.5 | Stanislaus County, 2017 (CARB 2019) |
| | Annual | 12.9 | Stanislaus County, 2017 (CARB 2019) |
| $PM_{10}$ | 24-hour | 128.9 | Stanislaus County, 2017 (CARB 2019) |
| | Annual | 31.1 | Stanislaus County, 2017 (CARB 2019) |

1 The District processed the $NO_2$ monitoring data using the guidance provided in Appendix S of Part 50.
2 The $SO_2$ 3-hour Concentration was scaled from the $SO_2$ 1-hour Concentration using the recommended 0.9 factor (OEHHA 2015).

Stanislaus County, where the project area is located, is included among the eight counties that comprise the SJVAPCD. The SJVAPCD acts as the regulatory agency for air pollution control in the Basin and is the local agency empowered to regulate air pollutant emissions for the air basin. In order to demonstrate that a proposed project will not cause further air quality degradation, projects must demonstrate consistency with the SJVAPCD's adopted Air Quality Attainment Plans.

Air pollution sources associated with stationary sources are regulated through the permitting authority of the SJVAPCD under the New and Modified Stationary Source Review Rule (Rule 2201). Owners of any new or modified equipment that emits, reduces or controls air contaminants, except those specifically exempted by the SJVAPCD, are required to apply for an Authority to Construct and Permit to Operate (Rule 2010). Additionally, best available control technology (BACT) is required on specific types of equipment. Stationary sources are required to offset stationary source emission increases along with increases in cargo carrier emissions if the specified threshold levels are exceeded (Rule 2201, 4.7.1). The SJVAPCD uses this mechanism to ensure that all stationary sources within the project area are subject to the standards of the SJVAPCD to ensure that new or modified sources will not realize a net increase of criteria air pollutants.

Stationary sources subject to SJVAPCD New and Modified Stationary Source Review Rule must also comply with Rule 2201, Section 4.14, Ambient Air Quality Standards, which requires that "emissions from a new or modified Stationary Source shall not cause or make worse the violation of an Ambient Air Quality Standard…the APCO shall take into account the increases in minor and secondary sources emissions as well as the mitigation of emissions through offsets…." The Air Pollution Control Officer (APCO) also has discretion to exempt new or modified sources that are exempt from public notification requirements[2] from this section of Rule 2201. Public notification and publication is required for projects meeting any of the following criteria:

- New Major Sources and Major Modifications;
- Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one affected pollutant;
- Modifications that increase the Stationary Source Potential to Emit (SSPE1) from a level below the emissions offset threshold level to a level exceeding the emissions offset threshold level for one or more pollutants;
- New Stationary Sources with post-project Stationary Source Potential to Emit (SSPE2) exceeding the emissions offset threshold level for one or more pollutants; or
- Any permitting action resulting in a Stationary Source Project Increase in Permitted Emissions (SSIPE) exceeding 20,000 pounds per year for any one pollutant.

[2] *Public Notification and Publication Requirements*, San Joaquin Valley Air Pollution Control District Rule 2201 Section 5.4, amended April 21, 2011.

This section describes the methodology used to predict the potential impact to ambient air quality attributable to the dispersion of emissions of $NO_2$, $SO_2$, CO, $PM_{10}$, $PM_{2.5}$ and $H_2S$ from the proposed dairy operation expansion.

## 4.1. PROJECT EMISSIONS

The basis for evaluating the potential impact to ambient air quality is the identification of air pollution sources. Emissions based on the current configuration of the dairy are considered to be existing emissions.[3] Based on this fact, the facility's existing emissions are not included in the emissions proposed by the subject project. Therefore, emissions from the dairy modifications will be restricted to the increase in emissions for the proposed increase in the number of cattle (**Table 2-1**) and the additional on-site mobile sources required for the expansion. The potential emission sources with increased emissions addressed in the AAQA are listed in **Table 4-1**.

**Table 4-1. Sources of Potential Emissions**

| Source ID | Description |
|---|---|
| FSB3 | Freestall Barn |
| FSB4 | Freestall Barn |
| FSB5 | Freestall Barn |
| FSB6 | Freestall Barn |
| SHADE1 | Shade Barn |
| SLINE1 | Milk Delivery Truck Travel |
| SLINE2 | Commodity Delivery |
| SLINE3-7 | Feed and Bedding Delivery |
| STCK1 | Milk Truck Idling |
| STCK2 | Commodity Delivery Idling |
| STCK3 | Feed Loading |
| STCK4 | Solids Removal (Loader) |

Emissions attributable to animal movement were estimated by the SJVAPCD using spreadsheets developed by the SJVAPCD to calculate dairy emissions, which are provided in **Appendix A**. The incremental increases in emissions attributable to animal movement were calculated by comparing the pre- and post-project emissions from each animal housing source. SJVAPCD-approved control efficiencies were applied to $PM_{10}$ emission factors. To generate $PM_{2.5}$ emissions, the $PM_{10}$ emission results for these emission sources were multiplied by the $PM_{2.5}$ fraction of 11.4% from the livestock fugitive dust profile in the California Emission Inventory Data and Reporting System (CEIDARS) developed by CARB (SCAQMD 2006). Housing sources that had an increase in $PM_{10}$ and $PM_{2.5}$ emissions for 24-hour and annual periods are summarized in **Table 4-2**.

[3] Personal Communication with Leland Villalvazo, SJVAPCD, June 15, 2007.

**Table 4-2. Modeled Sources of Emissions Attributable to Animal Movement**

| Source ID | $PM_{10}$ Emissions | | $PM_{2.5}$ Emissions | |
|---|---|---|---|---|
| | Lbs/yr | Lbs/24-hr | Lbs/yr | Lbs/24-hr |
| FSB3 | 314 | 0.038 | 36 | 0.004 |
| FSB4 | 629 | 0.071 | 72 | 0.008 |
| FSB5 | 57 | 0.008 | 6 | 0.001 |
| FSB6 | 16 | 0.000 | 2 | 0.000 |
| SHADE1 | 40 | 0.004 | 5 | 0.001 |

On-site mobile sources for this facility include a diesel-fueled feed loading tractor, a manure loading tractor, a feed delivery tractor, a bedding delivery tractor, milk tankers, and commodity delivery trucks. The increased herd size will require additional tractor use for feed loading and delivery, bedding delivery, and solid manure loading. Additional truck trips will be required for milk tankers and commodity delivery trucks.

Emissions for tractors were calculated using the EPA's *Nonroad Compression-Ignition Engines - Exhaust Emission Standards* for the appropriate engine horsepower (HP) and year and load factors for the appropriate engine horsepower from California Emissions Estimator Model (CalEEMod) Appendix D, Tables 3.3 and 3.4 (CAPCOA 2013). Diesel truck running emissions are based on EMFAC2017 emission factors specific to Stanislaus County for vehicle category "T7 Ag." Diesel trucks were assumed to have 15 minutes of idling per visit. Diesel truck combustion emissions of $PM_{2.5}$ were set equal to $PM_{10}$ emissions. There will be no increases in 1-hour emissions because additional truck and tractor usage will not occur in the same 1-hour period as the existing equipment. In order to have a possible increase in the worst case one-hour emissions from the S&S Dairy, one of the three following scenarios would need to occur and be evaluated:

- New equipment must operate at the facility as a result of the project;
- An on-site piece of equipment must operate less than one hour during the worst-case 1-hour period pre-project and then must increase the operational time during the worst-case 1-hour period post-project.
- The project must increase the number trucks entering and exiting the facility over the number of pre-project trucks entering and exiting the facility during the worst-case 1-hour period.

The S&S Dairy Expansion Project does not propose any new pieces of equipment and all existing equipment currently operates the full hour during the worst-case hour. The project also does not propose an increase over the current worst-case 1-hour period of trucks entering or exiting the facility. Based on these findings the worst-case 1-hour period post-project emissions will be equal to or less than the worst-case 1-hour period pre-project. Therefore, the incremental increase for this project in regards to 1-hour periods is zero. Based on the same philosophy outlined above for 1-hour emissions there will not be an increase no max 3 and 8-hour emissions increases and daily emission increases from manure loading. Additionally, there will be no increase in solid removal trucks, rendering service trucks, and manure scraping at the facility.

However, the Project will result in emissions moving closer to the facility boundary and closer to receptors. Feed delivery and bedding delivery tractors will operate closer to some receptors, therefore, hourly emissions from new feed and bedding delivery routes require analysis for 1-hour AAQS. Based on the same philosophy outlined above for 1-hour emissions; max 3-hour and 8-hour emissions from feed delivery and bedding delivery will require analysis for AAQS.

Calculation worksheets for emissions from the on-site mobile sources are provided in Appendix B and are summarized in **Table 4-3**.

**Table 4-3. On-Site Mobile Source Combustion Emissions**

| Source ID | $NO_2$ Emissions | | $SO_2$ Emissions | | CO Emissions | | $PM_{10}/PM_{2.5}$ Emissions | |
|---|---|---|---|---|---|---|---|---|
| | Lbs/hr | Lbs/yr | Lbs/hr | Lbs/day | Lbs/hr | Lbs/8-hr | Lbs/24-hr | Lbs/yr |
| SLINE1 | 0.00E+00 | 1.74E+00 | 0.00E+00 | 7.24E-06 | 0.00E+00 | 3.60E-03 | 4.61E-04 | 1.20E-01 |
| SLINE2 | 0.00E+00 | 3.14E+00 | 0.00E+00 | 1.45E-05 | 0.00E+00 | 7.22E-03 | 9.25E-04 | 2.16E-01 |
| SLINE3 | 1.55E-01 | 1.86E+01 | 1.00E-03 | 1.25E-03 | 5.75E-01 | 7.57E-01 | 4.45E-03 | 8.44E-01 |
| SLINE4 | 1.09E-01 | 1.32E+01 | 7.07E-04 | 8.81E-04 | 4.07E-01 | 5.35E-01 | 3.14E-03 | 5.97E-01 |
| SLINE5 | 3.75E-02 | 4.52E+00 | 2.42E-04 | 3.02E-04 | 1.40E-01 | 1.84E-01 | 1.08E-03 | 2.05E-01 |
| SLINE6 | 1.56E-02 | 1.88E+00 | 1.01E-04 | 1.26E-04 | 5.81E-02 | 7.65E-02 | 4.49E-04 | 8.52E-02 |
| SLINE7 | 1.72E-02 | 2.07E+00 | 1.11E-04 | 1.38E-04 | 6.39E-02 | 8.41E-02 | 4.94E-04 | 9.37E-02 |
| STCK1 | 0.00E+00 | 3.51E+00 | 0.00E+00 | 8.93E-06 | 0.00E+00 | 6.95E-03 | 2.91E-04 | 7.56E-02 |
| STCK2 | 0.00E+00 | 6.31E+00 | 0.00E+00 | 1.79E-05 | 0.00E+00 | 1.39E-02 | 5.81E-04 | 1.36E-01 |
| STCK3 | 0.00E+00 | 1.51E+01 | 0.00E+00 | 6.93E-04 | 0.00E+00 | 5.13E-01 | 2.07E-03 | 7.55E-01 |
| STCK4 | 0.00E+00 | 5.84E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.92E-02 |

The SJVAPCD's *Dairy H2S AERMOD Hourly Emission File Generator* (SJVAPCD 2012) states that H2S emission are only generated at dairies in lagoons used to store or treat collected waste material. The generator calculates emissions based on the surface area of the lagoon. As there will be no increase in the surface area of the existing lagoons, there will be no increase in $H_2S$ emission associated with the proposed expansion.

## 4.2. DISPERSION MODELING

The most recent version of EPA's AMS/EPA Regulatory Model - AERMOD (recompiled for the Lakes ISC-AERMOD View interface) was used to predict the dispersion of emissions from the proposed dairy for the 1-hour, 3-hour, 8-hour, 24-hour and annual averaging periods. All of the AERMOD regulatory default parameters were employed. Rural dispersion parameters were used because the facility and surrounding land are considered "rural" under the Auer land use classification method.

The animal housing areas emissions were modeled as area sources. Unit emission rates for the area sources of 1 g/sec divided by the area of the source were input into AERMOD. The travel route for the feed and bedding delivery tractors, milk trucks, and commodity trucks were modeled as a line sources, which represents a series of volume sources, with a unit emission rate of 1 g/sec. The feed loading tractor, manure loading tractor, milk truck idling, and commodity truck idling were modeled as point sources, with a unit emission rate of 1 g/sec.

### 4.2.1. Meteorological Data

The SJVAPCD provided meteorological data for Stanislaus County, California to be used for projects within Stanislaus County. SJVAPCD-approved, AERMET processed meteorological datasets for calendar years 2013

through 2017[4] was input into AERMOD. This was the most recent available dataset available at the time the modeling runs were conducted.

### 4.2.2. Receptors

Existing land uses in the area where the dairy and proposed expansion are located are predominantly agriculture. There are scattered rural residences in the general area of the project; most of which are associated with local agricultural operations. A fenceline grid was used to define a dense receptor grid around the property boundary using Lakes ISC-AERMOD View interface. The fenceline spacing between receptors along the fenceline was set to 25 meters. Two tiers were specified, the first extended a distance of 100 meters from the fenceline with 25 meter spacing, and the second extended a distance of 200 meters from the fenceline with 50 meter spacing. The spacing between receptors perpendicular to the fenceline was set to 25 meters. A total of 1,212 receptors were generated for the fenceline grid. There is currently one on-site residence, however, this residence is occupied by the dairy owner. Therefore, the owner's residence is exempt from being modeled.[5]

## 4.3. MODELING RESULTS

Plot files generated by AERMOD were imported to a Microsoft Access based post-processor AAQA–PSD (developed by the SJVAPCD), where unit emission rates were converted to pollutant-specific emission rates based on the emissions provided in **Tables 4-2** and **4-3**. Background concentrations from **Table 3-3** were input to AAQA–PSD. Based on this data, a report was generated which provides the maximum concentrations per emission source, background concentration and total concentration for each averaging period. For each averaging period, the total concentration is compared to the applicable AAQS and designated as a "pass" or "fail."

As shown in the AAQA–PSD report provided in Appendix C and **Table 4-4**, air dispersion modeling demonstrates that the maximum impacts attributable to the project, when considered in addition to the existing available background concentrations, are below the applicable ambient air quality standard for all of the averaging periods for $NO_2$, $SO_2$, CO and $H_2S$.

Compliance with the Federal $NO_2$ one-hour standard was based on a modeling procedure developed by the SJVAPCD (SJVAPCD 2010). The most conservative approach, referred to as Tier I option 1, requires that the maximum one-hour modeling concentration be added to the SJVAPCD's Air Quality Design Value for the nearest monitoring station (see **Table 3-3**). Since the maximum 1-hour emission rate is not increasing as a result of this project the Tier I analysis demonstrates compliance with the Federal $NO_2$ one-hour standard.

[4] Provided via website, San Joaquin Valley Air Pollution Control District (SJVAPCD), ftp://12.219.204.27/public/Modeling/Meteorological_Data/AERMET_v16216/Modesto_23258/
[5] Personal communication with Leland Villalvazo, SJVAPCD, November 1, 2012.

**Table 4-4. Predicted Ambient Air Quality Impacts**

| Pollutant | Averaging Period | Background ($\mu g/m^3$) | Project ($\mu g/m^3$) | Project + Background ($\mu g/m^3$) | NAAQS ($\mu g/m^3$) | CAAQS ($\mu g/m^3$) |
|---|---|---|---|---|---|---|
| $NO_2$ | 1-hour | 96.20 | 0.000 | 96.20 | 188.68 | 339 |
| | Annual | 19.70 | 0.034 | 19.73 | 100 | --- |
| $SO_2$ | 1-hour | 20.30 | 0.000 | 20.30 | 195 | 655 |
| | 3-hour | 18.27 | 0.000 | 18.27 | 1300 | --- |
| | 24-hour | 7.33 | 0.004 | 7.33 | --- | 105 |
| CO | 1-hour | 3330 | 0.000 | 3330 | 40,000 | 23,000 |
| | 8-hour | 2590 | 9.529 | 2600 | 10,000 | 10,000 |
| $PM_{10}$ | 24-hour | 128.90 | 6.151 | 135.05 | 150 | 50 |
| | Annual | 31.10 | 0.606 | 31.71 | 50 | 20 |
| $PM_{2.5}$ | 24-hour | 74.50 | 0.717 | 75.22 | 35 | --- |
| | Annual | 12.90 | 0.070 | 12.97 | 12 | 12 |
| $H_2S$ | 1-hour | N/A | 0.000 | 0.00 | --- | 42 |

Background 24-hour and annual concentrations of $PM_{10}$ and the 24-hour concentration of $PM_{2.5}$ exceed their respective ambient air quality standards. Therefore, these averaging periods for $PM_{2.5}$ and $PM_{10}$ are evaluated in accordance with the Prevention of Significant Deterioration (PSD) procedure in Title 40, Code of Federal Regulations (CFR), Part 52.21. It is EPA's policy to use significant impact levels (SIL) to determine whether a proposed new or modified source will cause or contribute significantly to an AAQS or PSD increment violation. The SJVAPCD has developed SILs for fugitive emissions of $PM_{10}$ and $PM_{2.5}$.[6] As shown in **Tables 4-2** and **4-3**, 99% of the project's predicted $PM_{10}$ concentration is attributable to fugitive $PM_{10}$ emissions from animal movement. Therefore, SJVAPCD SILs are applicable to this project. If a source's maximum impacts are below the SIL, the source is judged to not cause or contribute significantly to an AAQS or increment violation.

A comparison of the proposed impact from the project to the SJVAPCD SILs, as shown in **Table 4-5**, demonstrates that the modeled $PM_{10}$ and $PM_{2.5}$ impacts directly attributable to the project are below the applicable SJVAPCD significance levels for the 24-hour and annual averaging periods of $PM_{10}$ and the 24-hour averaging period of $PM_{2.5}$ and therefore will not cause an increment violation of any SJVAPCD SIL.

**Table 4-5. Comparison of Maximum Modeled Project Impact with Significance Thresholds**

| Pollutant | Averaging Period | Predicted Concentration ($\mu g/m^3$) | SJVAPCD SIL ($\mu g/m^3$) |
|---|---|---|---|
| $PM_{10}$ | 24-hour | 6.151 | 10.4 |
| | Annual | 0.606 | 2.08 |
| $PM_{2.5}$ | 24-hour | 0.717 | 2.5 |

Based on the results of the air dispersion modeling, comparisons to AAQSs and applicable SILs, *the impact to air quality is not considered to be significant.*

[6] Personal Communication with Yu Vu, San Joaquin Valley Air Pollution Control District, August 15, 2012

# 5. CONCLUSIONS

In accordance with the San Joaquin Valley Air Pollution Control District's *Guide for Assessing and Mitigating Air Quality Impacts* air dispersion modeling demonstrates that the ambient air quality impact attributable to the proposed project is determined to be less than significant based on the following conclusions:

- Proposed emissions for the project will not cause or contribute to a violation of any NAAQS or CAAQS for any of the averaging periods for $NO_2$, $SO_2$, CO, or H2S or cause an increment violation of the SJVAPCD SILs for $PM_{10}$ and $PM_{2.5}$.

# 6. REFERENCES


Auer, Jr., A.H., 1978. Correlation of Land Use and Cover with Meteorological Anomalies. Journal of Applied Meteorology, 17(5): 636-643, 1978.

California Air Pollution Control Officers Association (CAPCOA). 2013. California Emissions Estimator Model tm (CalEEMod), version 2013.2.2, released October 2013. Available online at: http://caleemod.com/

California Environmental Quality Act, *Appendix G – Environmental Checklist Form, Final Text.* October 26, 1998.

California Air Resources Board. CARB. 2017a. Ambient Air Quality Standards, Accessed July 2017. <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>

CARB. 2017b. iADAM Air Quality Data Statistics, Accessed July 2017. <http://www.arb.ca.gov/adam/index.html>

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines, Appendix H, Accessed July 2017. <http://www.oehha.ca.gov/air/hot_spots/2015/2015GMAppendicesG_J.pdf>

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2000. *Environmental Review Guidelines Procedures for Implementing the California Environmental Quality Act.* August 2000.

----------. 2010. *Modeling Procedures to Address the New Federal 1 Hour $NO_2$ Standard (Revision 1.0)*. April 12, 2010.

----------. 2012. *Dairy $H_2S$ AERMOD Hourly Emission File Generator, Version 1.0.* September 2012.

----------. 2015. Guide for Assessing and Mitigating Air Quality Impacts. March 19, 2015.

----------. 2017a. Ambient Air Quality Standards and Valley Attainment Status, Accessed July 2017. <http://www.valleyair.org/aqinfo/attainment.htm>

----------. 2017b. Air Monitoring Sites in Operation, Accessed July 2017. <http://www.valleyair.org/aqinfo/MonitoringSites.htm>

----------. 2017c. NO2 3 Year Max Data, Accessed July 2017. <ftp://12.219.204.27/public/Modeling/Monitoring_Data/3yr_Max_NO2_Values>

SCAQMD. 2006. Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds. October 2006. <http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/particulate-matter-(pm)-2.5-significance-thresholds-and-calculation-methodology/final_pm2_5methodology.pdf?sfvrsn=2

United States Environmental Protection Agency. 2017. AirData, Monitor Values Report, Accessed July 2017. <http://www.epa.gov/airquality/airdata/ad_rep_mon.html>

# APPENDIX A: FUGITIVE EMISSION ESTIMATION WORKSHEETS

| Name | Cow Housing Summary | | | | |
|---|---|---|---|---|---|
| **Applicability** | Use this spreadsheet to enter data from the Engineer's Dairy Calculator.Entries here will be linked to other worksheets. After completion, proceed to RMR worksheet for further entries. | | | | |
| *Author or updater* | Matthew Cegielski | *Last Update* | September 24, 2018 | | |
| **Facility:** | S & S Dairy | | 0 | Not Set | |
| **ID#:** | N-7321 | | | | |
| **Project #:** | N1182555 | | | | |

Copy and paste the SSIPE - Cow Housing table (rows under header) from the RMR Summary worksheet in the Engineer's Dairy Calculator. Zero and null entries will be highlighted in red after entry.

**Potential to Emit - Cow Housing**

| Housing Name(s) or #(s) | Type of Cow | # of Cows | VOC (lb/hr) | VOC (lb/yr) | $NH_3$ (lb/hr) | $NH_3$ (lb/yr) | $PM_{10}$ (lb/hr) | $PM_{10}$ (lb/yr) |
|---|---|---|---|---|---|---|---|---|
| Freestall Barn #5 | milk cows | 300 | 0.3375 | 2,958 | 0.7250 | 6,338 | 0.0083 | 57 |
| Freestall Barn #6 | milk cows | 200 | 0.2250 | 1,972 | 0.4833 | 4,226 | 0.0000 | 16 |
| Freestall Barn #7 | support stock | 75 | 0.0375 | 321 | 0.0458 | 415 | -0.9417 | -8,235 |
| Shade Barn #1 | support stock | 100 | 0.0500 | 427 | 0.0667 | 554 | 0.0042 | 40 |
| Freestall Barn #1 | dry cows | 100 | 0.0667 | 557 | 0.1250 | 1,071 | -0.0250 | -245 |
| Freestall Barn #2-A | dry cows | 0 | 0.0000 | 0 | 0.0000 | 0 | -0.0375 | -350 |
| Freesatll Barn #2-B | dry cows | -25 | 0.0000 | 23 | 0.0417 | 379 | -0.1250 | -1,104 |
| Freestall Barn #3 | support stock | 300 | 0.1458 | 1,281 | 0.1917 | 1,661 | 0.0375 | 314 |
| Freestall Barn #4 | milk cows | 600 | 0.6750 | 5,916 | 1.4458 | 12,677 | 0.0708 | 629 |

Copy and paste values from the corresponding table in the Engineer Dairy Calculator's RMR Summary worksheet. Paste values only with matched destination formatting. Ensure the same names are lined up by row number. Zero and null entries will be highlighted in red after entry.

| SSIPE RMR Summary | | | | | | | |
|---|---|---|---|---|---|---|---|
| | PM10 lb/hr | PM10 lb/yr | VOC lb/hr | VOC lb/yr | NH3 lb/hr | NH3 lb/yr | H2S lb/yr |
| Milking Parlor | - | - | 0 | 440 | 0.017 | 150 | - |
| Cow Housing | -1 | -8,947 | 2 | 13,299 | 3.098 | 27,140 | - |
| Liquid Manure | - | - | 0 | -185 | 0.123 | 1,074 | - |
| Solid Manure | - | - | 0 | 194 | 0.401 | 3,512 | - |
| Feed Handling | - | - | 1 | 5,658 | - | - | - |
| Lagoon/Storage Pond | - | - | 0 | -146 | 0.171 | 1,497 | 0 |
| Land Application (Liquid) | - | - | 0 | -73 | -0.046 | -402 | - |
| Land Application (Solid) | - | - | 0 | -37 | 0.213 | 1,862 | - |
| Solid Manure Storage | - | - | 0 | 183 | 0.188 | 1,643 | - |

| SSIPE Total Herd Summary | |
|---|---|
| Change in Milk Cows | 1,100 |
| Change in Dairy Head | 1,450 |
| Change in Dairy Head (Flushed) | 1,450 |

# APPENDIX B: ON-SITE MOBILE SOURCE COMBUSTION EMISSION WORKSHEETS

**Table 1. Truck Travel: Diesel Particulate Matter Increased Emissions**

| Type of Vehicles | Source | Round Trip Distance (mi) | Emission Factor (g/mi) | Increase in Trucks/Year | Emissions (lb/yr) | Emissions (lb/Max 24-hr) | |
|---|---|---|---|---|---|---|---|
| Milk Tankers | SLINE1 | 0.12 | 2.90 | 260 | 2.08E-01 | 7.99E-04 | |
| Commodity Delivery | SLINE2 | 0.13 | 2.90 | 468 | 3.75E-01 | 1.60E-03 | |
| Solid Manure | | 0.00 | 2.90 | 0 | 0.00E+00 | 0.00E+00 | *No expected increase |
| Rendering Service | | 0.00 | 2.90 | 0 | 0.00E+00 | 0.00E+00 | *No expected increase |

Note 1: Running emission factors for vehicle category "T7 Ag" were obtained from the EMFAC2017 Web Database for Stanislaus County (2019) with an Aggregate Fleet Mix Traveling 5 MPH.
Note 2: Increases in trucks/yr is from the Initial Study, page 18

**Table 2. Truck Idling: Diesel Particulate Matter Increased Emissions**

| Type of Vehicles | Source | Emission Factor (g/hr-vehicle) | Minutes Idling/Truck | Increase in Trucks/Year | Emissions (lb/yr) | Emissions (lb/Max 24-hr) | |
|---|---|---|---|---|---|---|---|
| Milk Tankers | STCK1 | 0.53 | 15 | 260 | 7.56E-02 | 2.91E-04 | |
| Commodity Delivery | STCK2 | 0.53 | 15 | 468 | 1.36E-01 | 5.81E-04 | |
| Solid Manure | | 0.53 | 15 | 0 | 0.00E+00 | 0.00E+00 | *No expected increase |
| Rendering Service | | 0.53 | 15 | 0 | 0.00E+00 | 0.00E+00 | *No expected increase |

Note 1: Running emission factors for vehicle category "T7 Ag" were obtained from the EMFAC2017 Web Database for Stanislaus County (2019) with an Aggregate Fleet Mix Idling.
Note 2: Increases in trucks/yr is from the Initial Study, page 18

**Table 3. Tractors: Diesel Particulate Matter Increased Emissions**

| | Source (# Volume Sources) | HP | Load Factor | Hours/day | Days/Year | Emission Factor (g/hp-hr) | Emissions (lb/yr) | Emissions (lb/Max 24-hr) | |
|---|---|---|---|---|---|---|---|---|---|
| Feed Loading | STCK3 | 170 | 0.37 | 1 | 365 | 1.49E-02 | 7.55E-01 | 2.07E-03 | |
| Bedding Delivery | SLINE3-7 | 130 | 0.37 | 2 | 10 | 2.24E-02 | 4.74E-02 | 4.74E-03 | |
| Manure Scraping | | 130 | 0.37 | 0 | 0 | 2.24E-02 | 0.00E+00 | 0.00E+00 | *No increase is expected |
| Manure Loading | STCK4 | 200 | 0.37 | 6 | 2 | 1.49E-02 | 2.92E-02 | 0.00E+00 | *No increase in max daily emissions. |
| Feed Delivery | SLINE3-7 | 400 | 0.37 | 1 | 365 | 1.49E-02 | 1.78E+00 | 4.87E-03 | |

Note1 : Emissions based on EPA's *Nonroad Compression-Ignition* Engines - Exhaust Emission Standards for the appropriate year and HP
https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100OA05.pdf
Note 2: Increase in hours/day was provided by the project applicant

**Table 4. Truck Travel: NO Increased Emissions**

| | Source | Round Trip Distance (mi) | Emission Factor (g/mi) | Increase in Trucks/Year | Emissions (lb/yr) | Emissions (lb/Max hr) |
|---|---|---|---|---|---|---|
| Milk Tankers | SLINE1 | 0.12 | 42.52 | 260 | 3.04E+00 | 0.00E+00 |
| Commodity Delivery | SLINE2 | 0.13 | 42.52 | 468 | 5.50E+00 | 0.00E+00 |
| Solid Manure | 0 | 0.00 | 42.52 | 0 | 0.00E+00 | 0.00E+00 |
| Rendering Service | 0 | 0.00 | 42.52 | 0 | 0.00E+00 | 0.00E+00 |

Note 1: Running emission factors for vehicle category "T7 Ag" were obtained from the EMFAC2017 Web Database for Staninlaus County (2019) with an Aggregate Fleet Mix Traveling 5 MPH.
Note 2: Increases in trucks/yr is from the Initial Study, page 18

**Table 5. Truck Idling: NOx Increased Emissions**

| Type of Vehicles | Source | Emission Factor (g/hr-vehicle) | Minutes Idling/Truck | Increase in Trucks/Year | Emissions (lb/yr) | Emissions (lb/Max hr) |
|---|---|---|---|---|---|---|
| Milk Tankers | STCK1 | 24.47 | 15 | 260 | 3.51E+00 | 0.00E+00 |
| Commodity Delivery | STCK2 | 24.47 | 15 | 468 | 6.31E+00 | 0.00E+00 |
| Solid Manure | 0 | 24.47 | 15 | 0 | 0.00E+00 | 0.00E+00 |
| Rendering Service | 0 | 24.47 | 15 | 0 | 0.00E+00 | 0.00E+00 |

Note 1: Running emission factors for vehicle category "T7 Ag" were obtained from the EMFAC2017 Web Database for Staninlaus County (2019) with an Aggregate Fleet Mix Idling.
Note 2: Increases in trucks/yr is from the Initial Study, page 18

**Table 6. Tractors: NOx Increased Emissions**

| | Source (# Volume Sources) | HP | Load Factor | Hours/day | Days/Year | Emission Factor (g/hp-hr) | Emissions (lb/yr) | Emissions (lb/Max hr) |
|---|---|---|---|---|---|---|---|---|
| Feed Loading | STCK3 | 170 | 0.37 | 1 | 365 | 2.98E-01 | 1.510E+01 | 0.00E+00 |
| Bedding Delivery | SLINE3-7 | 130 | 0.37 | 2 | 10 | 2.24E+00 | 4.74E+00 | 2.37E-01 |
| Manure Scraping | 0 | 130 | 0.37 | 0 | 0 | 2.24E+00 | 0.00E+00 | 0.00E+00 |
| Manure Loading | STCK4 | 200 | 0.37 | 6 | 2 | 2.98E-01 | 5.84E-01 | 0.00E+00 |
| Feed Delivery | SLINE3-7 | 400 | 0.37 | 1 | 365 | 2.98E-01 | 3.55E+01 | 9.73E-02 |

Note1 : Emissions based on EPA's *Nonroad Compression-Ignition* Engines - Exhaust Emission Standards for the appropriate year and HP
https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100OA05.pdf
Note 2: Increase in hours/day was provided by the project applicant
Note 3: Load factors from CalEEMod's Appendix D Table 3.3 *OFFROAD Default Horsepower and Load Factors*
Note 4: Actual max hourly emissions will not increase but was calculated since new freestall barns are closer to the facility boundary.

**Table 7. Truck Travel: SOx Increased Emissions**

| Type of Vehicles | Source | Round Trip Distance (mi) | Emission Factor (g/mi) | Increase in Trucks/Year | Emissions (lb/yr) | Emissions (lb/Max 24-hr) | Emissions (lb/Max 3-hr) | Emissions (lb/Max 1-hr) |
|---|---|---|---|---|---|---|---|---|
| Milk Tankers | SLINE1 | 0.12 | 0.04 | 260 | 2.60E-03 | 1.00E-05 | 0.00E+00 | 0.00E+00 |
| Commodity Delivery | SLINE2 | 0.13 | 0.04 | 468 | 4.70E-03 | 2.01E-05 | 0.00E+00 | 0.00E+00 |
| Solid Manure | 0 | 0.00 | 0.04 | 0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Rendering Service | 0 | 0.00 | 0.04 | 0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

Note 1: Running emission factors for vehicle category "T7 Ag" were obtained from the EMFAC2017 Web Database for Staninlaus County (2019) with an Aggregate Fleet Mix Traveling 5 MPH.
Note 2: Increases in trucks/yr is from the Initial Study, page 18

**Table 8. Truck Idling: SOx Increased Emissions**

| Type of Vehicles | Source | Emission Factor (g/hr-vehicle) | Minutes Idling/Truck | Increase in Trucks/Year | Emissions (lb/yr) | Emissions (lb/Max 24-hr) | Emissions (lb/Max 3-hr) | Emissions (lb/Max 1-hr) |
|---|---|---|---|---|---|---|---|---|
| Milk Tankers | STCK1 | 0.02 | 15 | 260 | 2.32E-03 | 8.93E-06 | 0.00E+00 | 0.00E+00 |
| Commodity Delivery | STCK2 | 0.02 | 15 | 468 | 4.18E-03 | 1.79E-05 | 0.00E+00 | 0.00E+00 |
| Solid Manure | 0 | 0.02 | 15 | 0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Rendering Service | 0 | 0.02 | 15 | 0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

Note 1: Running emission factors for vehicle category "T7 Ag" were obtained from the EMFAC2017 Web Database for Staninlaus County (2019) with an Aggregate Fleet Mix Idling.
Note 2: Increases in trucks/yr is from the Initial Study, page 18

**Table 9. Tractors: SOx Increase Emissions**

| | Source (# Volume Sources) | HP | Load Factor | Hours/day | Days/Year | Emission Factor (g/hp-hr) | Emissions (lb/yr) | Emissions (lb/Max 24-hr) | Emissions (lb/Max 3-hr) | Emissions (lb/Max 1-hr) |
|---|---|---|---|---|---|---|---|---|---|---|
| Feed Loading | STCK3 | 170 | 0.37 | 1 | 365 | 5.00E-03 | 2.53E-01 | 6.93E-04 | 0.00E+00 | 0.00E+00 |
| Bedding Delivery | SLINE3-7 | 130 | 0.37 | 2 | 10 | 5.00E-03 | 1.06E-02 | 1.06E-03 | 1.06E-03 | 5.30E-04 |
| Manure Scraping | 0 | 130 | 0.37 | 0 | 0 | 5.00E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Manure Loading | STCK4 | 200 | 0.37 | 6 | 2 | 5.00E-03 | 9.79E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Feed Delivery | SLINE3-7 | 400 | 0.37 | 1 | 365 | 5.00E-03 | 5.95E-01 | 1.63E-03 | 1.63E-03 | 1.63E-03 |

Note1 : Emissions based on CalEEmod's Appendix D, dafualts for the appropriate year and HP
Note 2: Increase in hours/day was provided by the project applicant
Note 3: Load factors from CalEEMod's Appendix D Table 3.3 *OFFROAD Default Horsepower and Load Factors*
Note 4: Actual max hourly and 3-hour emissions will not increase but was calculated since the max hour will relocate closer to the facility boundary.

**Table 10. Truck Travel: CO Increased Emissions**

| Type of Vehicles | Source | Round Trip Distance (mi) | Emission Factor (g/mi) | Increase in Trucks/Year | Emissions (lb/Max 8-yr) | Emissions (lb/Max hr) |
|---|---|---|---|---|---|---|
| Milk Tankers | SLINE1 | 0.12 | 19.72 | 260 | 5.43E-03 | 0.00E+00 |
| Commodity Delivery | SLINE2 | 0.13 | 19.72 | 468 | 1.09E-02 | 0.00E+00 |
| Solid Manure | 0 | 0.00 | 19.72 | 0 | 0.00E+00 | 0.00E+00 |
| Rendering Service | 0 | 0.00 | 19.72 | 0 | 0.00E+00 | 0.00E+00 |

Note 1: Running emission factors for vehicle category "T7 Ag" were obtained from the EMFAC2017 Web Database for Staninlaus County (2019) with an Aggregate Fleet Mix Traveling 5 MPH.
Note 2: Increases in trucks/yr is from the Initial Study, page 18

**Table 11. Truck Idling: CO Increased Emissions**

| Type of Vehicles | Source | Emission Factor (g/hr-vehicle) | Minutes Idling/Truck | Increase in Trucks/Year | Emissions (lb/Max hr) | Emissions (lb/Max 8-hr) |
|---|---|---|---|---|---|---|
| Milk Tankers | STCK1 | 12.61 | 15 | 260 | 0.00E+00 | 6.95E-03 |
| Commodity Delivery | STCK2 | 12.61 | 15 | 468 | 0.00E+00 | 1.39E-02 |
| Solid Manure | 0 | 12.61 | 15 | 0 | 0.00E+00 | 0.00E+00 |
| Rendering Service | 0 | 12.61 | 15 | 0 | 0.00E+00 | 0.00E+00 |

Note 1: Running emission factors for vehicle category "T7 Ag" were obtained from the EMFAC2017 Web Database for Staninlaus County (2019) with an Aggregate Fleet Mix Idling.
Note 2: Increases in trucks/yr is from the Initial Study, page 18

**Table 12. Tractors: CO Increase Emissions**

| | Source (# Volume Sources) | HP | Load Factor | Hours/day | Days/Year | Emission Factor (g/hp-hr) | Emissions (lb/yr) | Emissions (lb/Max hr) | Emissions (lb/Max 8-hr) |
|---|---|---|---|---|---|---|---|---|---|
| Feed Loading | STCK3 | 170 | 0.37 | 1 | 365 | 3.70E+00 | 1.87E+02 | 0.00E+00 | 5.13E-01 |
| Bedding Delivery | SLINE3-7 | 130 | 0.37 | 2 | 10 | 3.70E+00 | 7.85E+00 | 3.92E-01 | 7.85E-01 |
| Manure Scraping | 0 | 130 | 0.37 | 0 | 0 | 3.70E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Manure Loading | STCK4 | 200 | 0.37 | 6 | 2 | 2.61E+00 | 5.11E+00 | 0.00E+00 | 0.00E+00 |
| Feed Delivery | SLINE3-7 | 400 | 0.37 | 1 | 365 | 2.61E+00 | 3.11E+02 | 8.52E-01 | 8.52E-01 |

Note1 : Emissions based on EPA's *Nonroad Compression-Ignition* Engines - Exhaust Emission Standards for the appropriate year and HP
https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100OA05.pdf
Note 2: Increase in hours/day was provided by the project applicant
Note 3: Load factors from CalEEMod's Appendix D Table 3.3 *OFFROAD Default Horsepower and Load Factors*

# APPENDIX C: AAQA-PSD REPORT FOR $NO_2$, CO, $SO_2$, $PM_{10}$, $PM_{2.5}$ AND $H_2S$

## AAQA for S&S Dairy Expansion
## All Values are in ug/m^3

| | NOx 1 Hour | NOx Annual | CO 1 Hour | CO 8 Hour | SOx 1 Hour | SOx 3 Hour | SOx 24 Hour | PM10 24 Hour | PM10 Annual | PM2.5 24 Hour | PM2.5 Annual | H2S 1 Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FSB3 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.29E+00 | 3.48E-01 | 3.75E-01 | 3.96E-02 | 0.00E+00 |
| FSB4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.54E+00 | 7.82E-02 | 1.75E-01 | 8.92E-03 | 0.00E+00 |
| FSB5 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.55E-01 | 1.14E-02 | 1.77E-02 | 1.29E-03 | 0.00E+00 |
| FSB6 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.53E-02 | 4.18E-03 | 5.17E-03 | 4.76E-04 | 0.00E+00 |
| SHADE1 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.11E+00 | 1.63E-01 | 1.26E-01 | 1.86E-02 | 0.00E+00 |
| SLINE1 | 0.00E+00 | 4.61E-04 | 0.00E+00 | 1.55E-01 | 0.00E+00 | 0.00E+00 | 1.16E-05 | 2.33E-03 | 4.74E-04 | 2.33E-03 | 4.74E-04 | 0.00E+00 |
| SLINE2 | 0.00E+00 | 2.65E-03 | 0.00E+00 | 1.60E-01 | 0.00E+00 | 0.00E+00 | 1.05E-04 | 4.10E-03 | 3.30E-04 | 4.10E-03 | 3.30E-04 | 0.00E+00 |
| SLINE3 | 1.46E+01 | 3.95E-03 | 5.43E+01 | 3.22E+01 | 9.45E-02 | 2.88E-02 | 5.71E-04 | 3.05E-03 | 2.54E-04 | 3.05E-03 | 2.54E-04 | 0.00E+00 |
| SLINE4 | 1.39E+01 | 1.60E-02 | 5.17E+01 | 2.87E+01 | 8.98E-02 | 2.86E-02 | 9.45E-04 | 3.53E-03 | 1.97E-04 | 3.53E-03 | 1.97E-04 | 0.00E+00 |
| SLINE5 | 1.51E+01 | 1.53E-03 | 5.65E+01 | 2.53E+01 | 9.76E-02 | 3.42E-02 | 8.00E-04 | 3.02E-03 | 1.91E-04 | 3.02E-03 | 1.91E-04 | 0.00E+00 |
| SLINE6 | 4.33E+00 | 4.31E-04 | 1.61E+01 | 8.03E+00 | 2.80E-02 | 5.08E-03 | 1.12E-04 | 9.64E-04 | 4.49E-05 | 9.64E-04 | 4.49E-05 | 0.00E+00 |
| SLINE7 | 3.86E+00 | 3.53E-04 | 1.43E+01 | 8.38E+00 | 2.49E-02 | 5.71E-03 | 1.14E-04 | 7.92E-04 | 4.40E-05 | 7.92E-04 | 4.40E-05 | 0.00E+00 |
| STCK1 | 0.00E+00 | 3.19E-04 | 0.00E+00 | 2.32E-02 | 0.00E+00 | 0.00E+00 | 3.72E-06 | 1.42E-04 | 1.05E-05 | 1.42E-04 | 1.05E-05 | 0.00E+00 |
| STCK2 | 0.00E+00 | 3.34E-03 | 0.00E+00 | 6.80E-02 | 0.00E+00 | 0.00E+00 | 1.66E-05 | 4.75E-04 | 4.29E-05 | 4.75E-04 | 4.29E-05 | 0.00E+00 |
| STCK3 | 0.00E+00 | 5.96E-03 | 0.00E+00 | 2.11E+00 | 0.00E+00 | 0.00E+00 | 1.13E-03 | 1.45E-03 | 1.88E-04 | 1.45E-03 | 1.88E-04 | 0.00E+00 |
| STCK4 | 0.00E+00 | 3.64E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.38E-06 | 0.00E+00 | 1.38E-06 | 0.00E+00 |
| Background | 9.62E+01 | 1.97E+01 | 3.33E+03 | 2.59E+03 | 2.03E+01 | 1.83E+01 | 7.33E+00 | 1.29E+02 | 3.11E+01 | 7.45E+01 | 1.29E+01 | 0.00E+00 |
| **Facility Totals** | 1.48E+02 | 1.97E+01 | 3.52E+03 | 2.70E+03 | 2.06E+01 | 1.84E+01 | 7.33E+00 | 1.35E+02 | 3.17E+01 | 7.52E+01 | 1.30E+01 | 0.00E+00 |
| **AAQS** | 188.68 | 100 | 23000 | 10000 | 195 | 1300 | 105 | 50 | 20 | 35 | 12 | 42 |
| | **Pass** | **Pass** | **Pass** | **Pass** | **Pass** | **Pass** | **Pass** | **Fail** | **Fail** | **Fail** | **Fail** | **Pass** |

## District and EPA's Significance Level (ug/m^3)

| | NOx 1 Hour | NOx Annual | CO 1 Hour | CO 8 Hour | SOx 1 Hour | SOx 3 Hour | SOx 24 Hour | PM10 24 Hour | PM10 Annual | PM2.5 24 Hour | PM2.5 Annual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Totals w/o Background** | | | | | | | | **6.15** | **0.61** | **0.72** | **0.07** |
| **SIL** | **0** | **1** | **2000** | **500** | **0** | **25** | **5** | **10.4** | **2.08** | **2.5** | **0.63** |
| | | | | | | | | **Pass** | **Pass** | **Pass** | **Pass** |

## *AAQA Emission (g/sec)*

| *Device* | NOx 1 Hour | NOx Annual | CO 1 Hour | CO 8 Hour | SOx 1 Hour | SOx 3 Hour | SOx 24 Hour | PM10 24 Hour | PM10 Annual | PM2.5 24 Hour | PM2.5 Annual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FSB3 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.52E-03 | 4.52E-03 | 5.15E-04 | 5.15E-04 |
| FSB4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.05E-03 | 9.05E-03 | 1.03E-03 | 1.03E-03 |
| FSB5 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.20E-04 | 8.20E-04 | 9.35E-05 | 9.35E-05 |
| FSB6 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.30E-04 | 2.30E-04 | 2.62E-05 | 2.62E-05 |
| SHADE1 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.75E-04 | 5.75E-04 | 6.56E-05 | 6.56E-05 |
| SLINE1 | 0.00E+00 | 4.37E-05 | 0.00E+00 | 8.55E-05 | 0.00E+00 | 0.00E+00 | 5.25E-08 | 2.99E-06 | 4.19E-06 | 2.99E-06 | 4.19E-06 |
| SLINE2 | 0.00E+00 | 7.91E-05 | 0.00E+00 | 1.71E-04 | 0.00E+00 | 0.00E+00 | 1.05E-07 | 8.41E-06 | 5.39E-06 | 8.41E-06 | 5.39E-06 |
| SLINE3 | 1.95E-02 | 2.68E-04 | 7.24E-02 | 9.54E-02 | 1.26E-04 | 5.23E-05 | 6.54E-06 | 2.33E-05 | 1.21E-05 | 2.33E-05 | 1.21E-05 |
| SLINE4 | 1.37E-02 | 1.89E-04 | 5.13E-02 | 6.74E-02 | 8.91E-05 | 3.70E-05 | 4.62E-06 | 1.65E-05 | 8.58E-06 | 1.65E-05 | 8.58E-06 |
| SLINE5 | 4.72E-03 | 6.50E-05 | 1.76E-02 | 2.32E-02 | 3.05E-05 | 1.27E-05 | 1.58E-06 | 5.66E-06 | 2.94E-06 | 5.66E-06 | 2.94E-06 |
| SLINE6 | 1.97E-03 | 2.71E-05 | 7.32E-03 | 9.64E-03 | 1.27E-05 | 5.28E-06 | 6.60E-07 | 2.36E-06 | 1.23E-06 | 2.36E-06 | 1.23E-06 |
| SLINE7 | 2.17E-03 | 2.98E-05 | 8.05E-03 | 1.06E-02 | 1.40E-05 | 5.81E-06 | 7.26E-07 | 2.59E-06 | 1.35E-06 | 2.59E-06 | 1.35E-06 |
| STCK1 | 0.00E+00 | 5.04E-05 | 0.00E+00 | 1.09E-04 | 0.00E+00 | 0.00E+00 | 4.69E-08 | 1.53E-06 | 1.09E-06 | 1.53E-06 | 1.09E-06 |
| STCK2 | 0.00E+00 | 9.08E-05 | 0.00E+00 | 2.19E-04 | 0.00E+00 | 0.00E+00 | 9.38E-08 | 3.05E-06 | 1.96E-06 | 3.05E-06 | 1.96E-06 |
| STCK3 | 0.00E+00 | 2.17E-04 | 0.00E+00 | 8.08E-03 | 0.00E+00 | 0.00E+00 | 3.64E-06 | 1.09E-05 | 1.09E-05 | 1.09E-05 | 1.09E-05 |
| STCK4 | 0.00E+00 | 8.40E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.20E-07 | 0.00E+00 | 4.20E-07 |

# APPENDIX D: AERMOD ELECTRONIC FILES

**From:** Kyle Melching
**To:** manny@sousaeng.com
**Cc:** "Raadha Jacobstein"; Kristen Anaya; Matt Daniel
**Subject:** RE: S & S Dairy - SJVAPCD review
**Date:** Wednesday, July 10, 2019 9:26:19 AM

---

Manny,

I've had the opportunity to review the latest health risk assessment and significance determination. Although there were some minor assumption made in the model that differ from District practice; the overall result would not change the significance determination made in the document.

The District has no further comments regarding this project.

Thank you,

Kyle Melching
Senior Air Quality Specialist
San Joaquin Valley Air Pollution Control District
1990 E. Gettysburg Ave., Fresno, CA 93726
Phone: 559-230-5894

HEALTHY AIR LIVING
www.healthyairliving.com
Make one change for clean air!

---

**From:** manny@sousaeng.com <manny@sousaeng.com>
**Sent:** Tuesday, July 9, 2019 8:45 AM
**To:** Kyle Melching <Kyle.Melching@valleyair.org>
**Cc:** 'Raadha Jacobstein' <rjacobstein@e-planningpartners.com>; 'Kristen Anaya' <ANAYAK@stancounty.com>
**Subject:** RE: S & S Dairy - SJVAPCD review

Good morning Kyle,

Is there any update on your review of the most recently submitted information? Please let me know at your earliest convenience.

Thank you,

Manny Sousa, P.E.
Sousa Engineering
PO Box 1613
Oakdale, CA 95361

## Kristen Anaya

**From:** Cockerham, Kyle@Waterboards <Kyle.Cockerham@waterboards.ca.gov>
**Sent:** Thursday, June 7, 2018 3:32 PM
**To:** Kristen Anaya
**Cc:** Herbst, Charlene@Waterboards
**Subject:** S & S Dairy Expansion

Hi Kristen,

Charlene asked me to follow up with you regarding the S & S Dairy at 348 E Monte Vista Ave in Ceres. First things first, yes, we will need to issue WDRs for the dairy expansion. That would entail a Form 200, an updated NMP, and an updated WMP. It sounds like you have the NMP and WMP, so it would be great if you could forward pdf files of those plans. If they are expanding their wastewater storage system, we will also need design plans for that.

We would also like an assurance that they would remain in good standing in the Mountain View Monitoring Cluster coalition to comply with their groundwater monitoring requirement. A letter committing to that program would suffice.

Lastly, do you know how they will comply with CEQA?

*Kyle Cockerham, PG*
Confined Animal Facilities Unit
Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Drive, Ste. 200
Rancho Cordova, CA 95670
(916) 464-4739

## Kristen Anaya

**From:** Cockerham, Kyle@Waterboards <Kyle.Cockerham@waterboards.ca.gov>
**Sent:** Friday, November 30, 2018 11:25 AM
**To:** Kristen Anaya
**Cc:** Charlene@Waterboards Herbst
**Subject:** FW: S & S Dairy Expansion
**Attachments:** 2018-002_WMP complete S&S_20181109_SIGNED.PDF

Hi Kristen,

I reviewed the NMP and WMP for S & S Dairy (PLN2018-0054). I had a few minor comments on the WMP which I forwarded to the dairy's engineer, Sousa Engineering. The engineer addressed the comments and sent me an updated WMP (see attached). Based on our review, the WMP and NMP are sufficient.

Please feel free to call or email if you have any questions or comments.

*Kyle Cockerham, PG*
Confined Animal Facilities Unit
Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Drive, Ste. 200
Rancho Cordova, CA 95670
(916) 464-4739

**From:** Denny Ferreira
**To:** Kristen Anaya
**Date:** 7/9/2018 8:02 AM
**Subject:** PLN2018-0054 comments

- All structures to be demolished shall be issued a clearance from the San Joaquin Valley Air Pollution Control District prior to the issuance of a Demolition Permit from Stanislaus County Building Permit Services.
- The following proposal to construct this Agricultural U-4 occupancy shall be required to be in compliance with the most current adopted California Building Code at the time of the application submittal date.

Kristen,

Hope you had a good weekend! Please see that these two comments are applied to the Use Permit.

Thank You!!!

Denny Ferreira
Building Official
Stanislaus County-
Building Permit Services
(209)525-6557

Stanislaus County

CHIEF EXECUTIVE OFFICE

*Jody L. Hayes*
*Chief Executive Officer*

*Patricia Hill Thomas*
*Chief Operations Officer/*
*Assistant Executive Officer*

*Keith D. Boggs*
*Assistant Executive Officer*

*Patrice M. Dietrich*
*Assistant Executive Officer*



**STANISLAUS COUNTY ENVIRONMENTAL REVIEW COMMITTEE**

July 24, 2018

Kristen Anaya, Assistant Planner
Stanislaus County Planning and Community Development
1010 10th Street, Suite 3400
Modesto, CA 95354

**SUBJECT: ENVIRONMENTAL REFERRAL – S & S DAIRY, INC. – USE PERMIT APPLICATION NO. PLN2018-0054 – EARLY CONSULTATION**

Ms. Anaya:

Thank you for the opportunity to review the Early Consultation phase of the above-referenced project.

The Stanislaus County Environmental Review Committee (ERC) has reviewed the subject project and has no comments at this time.

The ERC appreciates the opportunity to comment on this project.

Sincerely,

for Patrick Cavanah
Sr. Management Consultant
Environmental Review Committee

PC:ss

cc: ERC Members



1010 10th Street, Ste. 6800, Modesto, CA 95354 Post Office Box 3404
Modesto, California 95353 Phone: 209.525.6333 Fax: 209.544.6226

**DEPARTMENT OF PUBLIC WORKS**

*David Leamon, PE*
*Interim Public Works Director*
*Construction Administration/Operations*

*Chris Brady, PE*
*Deputy Director - Design/Survey/Fleet Maintenance*

*Frederic Clark, PE, LS*
*Deputy Director - Development/Traffic*

*Letti Ortiz*
*Senior Business and Finance Manager*

*www.stancounty.com/publicworks*



September 4, 2018

To: Kristen Anaya, Assistant Planner, Planning and Community Development

From: Angie Halverson, Senior Land Development Coordinator

Subject: PLN2018-0054 S & S Dairy Use Permit

This is a request to expand an existing dairy operation that is located on 107 acres in the Ceres area. This dairy expansion will include the demolition of several structures and the construction of five new free-stall barns. Public Works has reviewed the project and would like to add to the previously submitted conditions.

OFF-SITE:

1. Prior to the issuance of a building permit, an encroachment permit shall be taken out for an asphalt driveway onto East Monte Vista Avenue. The driveway to be paved is the driveway that sees the most truck traffic accessing Commons Road.
    - A paved driveway shall be installed per Stanislaus County Public Works Standards and Specifications for a Minor Road.

2. No parking, loading, or unloading of vehicles is permitted within the East Monte Vista Avenue right of way. The developer shall install or pay for the installation of any off-site signs and/or markings, as required by Stanislaus County.

3. Prior to the issuance of any building or grading permit for the property, the Bystrum Road frontage shall be offered to Stanislaus County as an Irrevocable Offer of Dedication. Bystrum Road is classified as a 60 foot Local roadway. The required ½ width is 30 feet west of the centerline. Currently there is 20 feet of existing right of way west of the centerline. This means that the requirement for the IOD to be 10 feet west of the existing right of way.

CALIFORNIA
Water Boards

Central Valley Regional Water Quality Control Board

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION



23 July 2018

Kristen Anaya
Stanislaus County
Planning and Community Department
1010 10th Street, Suite 3400
Modesto, CA 95354

CERTIFIED MAIL
91 7199 9991 7039 6992 6007

**COMMENTS TO REQUEST FOR REVIEW FOR THE EARLY CONSULTATION, USE PERMIT APPLICATION NO. PLN2018-0054 – S & S DAIRY INC. PROJECT, SCH# 2018072020, STANISLAUS COUNTY**

Pursuant to the State Clearinghouse's 9 July 2018 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Early Consultation* for the Use Permit Application No. PLN2018-0054 – S & S Dairy, Inc. Project, located in Stanislaus County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

## I. Regulatory Setting

### Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources

Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues.

For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website: http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/.

**Antidegradation Considerations**

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Policy is available on page IV-15.01 at: http://www.waterboards.ca.gov/centralvalleywater_issues/basin_plans/sacsjr.pdf

In part it states:

*Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.*

*This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.*

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

## II. Permitting Requirements

**Construction Storm Water General Permit**

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit

requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

**Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]**

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

**Industrial Storm Water General Permit**

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

**Clean Water Act Section 404 Permit**

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

**Clean Water Act Section 401 Permit – Water Quality Certification**

If an USACOE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

**Waste Discharge Requirements – Discharges to Waters of the State**

If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

**Dewatering Permit**

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Risk General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Risk Waiver)
R5-2013-0145. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Risk General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Risk Waiver and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf

**Regulatory Compliance for Commercially Irrigated Agriculture**

If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program. There are two options to comply:

1. **Obtain Coverage Under a Coalition Group.** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/for_growers/apply_coalition_group/index.shtml or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.

2. **Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100**. Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 10-100 acres are currently $1,084 + $6.70/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov.

**Low or Limited Threat General NPDES Permit**

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Dewatering and Other Low Threat Discharges to Surface Waters* (Low Threat General Order) or the General Order for *Limited Threat Discharges of Treated/Untreated Groundwater from Cleanup Sites, Wastewater from*

*Superchlorination Projects, and Other Limited Threat Wastewaters to Surface Water* (Limited Threat General Order). A complete application must be submitted to the Central Valley Water Board to obtain coverage under these General NPDES permits.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0073.pdf

**NPDES Permit**

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit.

For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit3.shtml

If you have questions regarding these comments, please contact me at (916) 464-4644 or Stephanie.Tadlock@waterboards.ca.gov.

Stephanie Tadlock

Stephanie Tadlock
Senior Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™



July 12, 2018

Kristen Anaya
Stanislaus County
Planning & Community Development
1010 10th Street, Suite 3400
Modesto, CA 95354

**Project: Use Permit Application No. PLN2018-0054 – S & S Dairy, Inc.**

**District CEQA Reference No: 20180711**

Dear Ms. Anaya:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the Early Consultation Referral for the project referenced above located at 348 East Monte Vista Avenue, in Ceres, CA (APN 022-026-014). The proposed project consists of increasing herd size from 1,380 combined milk and dry cows to 2,900 combined milk and dry cows (2,500 milk and 400 dry), the demolition of four existing structures, and the construction of five new free-stall barns with flush lanes totaling 175,350 square feet for animal housing (Project).

The District offers the following comments:

## Emissions Analysis

1) At the federal level for the National Ambient Air Quality Standards (NAAQS), the District is currently designated as extreme nonattainment for the 8-hour ozone standards; nonattainment for the PM2.5 standards; and attainment for the 1-Hour ozone, PM10 and CO standards. At the state level, the District is currently designated as nonattainment for the 8-hour ozone, PM10, and PM2.5 California Ambient Air Quality Standards (CAAQS).

2) The CEQA referral submitted to the District does not provide sufficient information to allow the District to assess the Project's potential impact on air quality. The District recommends that the County provide a more detailed assessment.

Samir Sheikh
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

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

www.valleyair.org www.healthyairliving.com

3) The District recommends that the assessment include the following impacts:

a) **Construction Emissions:** Construction emissions are short-term emissions and should be evaluated separately from operational emissions. For reference, the District's annual criteria thresholds of significance for construction are: 100 tons per year of carbon monoxide (CO), 10 tons per year of oxides of nitrogen (NOx), 10 tons per year of reactive organic gases (ROG), 27 tons per year of oxides of sulfur (SOx), 15 tons per year of particulate matter of 10 microns or less in size (PM10), or 15 tons per year of particulate matter of 2.5 microns or less in size (PM2.5).

i) *Recommended Mitigation Measure if needed:* To reduce impacts from construction related exhaust emissions, the District recommends feasible mitigation for the project to utilize off-road construction fleets that can achieve fleet average emissions equal to or cleaner than the Tier III emission standards, as set forth in §2423 of Title 13 of the California Code of Regulations, and Part 89 of Title 40 Code of Federal Regulations. This can be achieved through any combination of uncontrolled engines and engines complying with Tier III and above engine standards.

b) **Operational Emissions:** Permitted (stationary sources) and non-permitted (mobile sources) sources should be analyzed separately. For reference, the annual criteria thresholds of significance for operation of permitted and non-permitted sources each are: 100 tons per year of carbon monoxide (CO), 10 tons per year of oxides of nitrogen (NOx), 10 tons per year of reactive organic gases (ROG), 27 tons per year of oxides of sulfur (SOx), 15 tons per year of particulate matter of 10 microns or less in size (PM10), or 15 tons per year of particulate matter of 2.5 microns or less in size (PM2.5).

c) **Recommended Model:** Project related criteria pollutant emissions from construction and operation non-permitted (limited to equipment not subject to District permits) should be identified and quantified. Emissions analysis should be performed using CalEEMod (**Cal**ifornia **E**mission **E**stimator **Mod**el), which uses the most recent approved version of relevant Air Resources Board (ARB) emissions models and emission factors. CalEEMod is available to the public and can be downloaded from the CalEEMod website at: www.caleemod.com.

d) **Nuisance Odors:** The Project should be evaluated to determine the likelihood that the Project would result in nuisance odors. Nuisance orders are subjective, thus the District has not established thresholds of significance for nuisance odors. Nuisance odors may be assessed qualitatively taking into consideration of Project design elements and proximity to off-site receptors that potentially would be exposed objectionable odors.

e) **Health Risk Screening/Assessment:** A Health Risk Screening/Assessment identifies potential Toxic Air Contaminants (TAC's) impact on surrounding sensitive receptors such as hospitals, daycare centers, schools, work-sites, and residences. TAC's are air pollutants identified by the Office of Environmental Health Hazard Assessment/California Air Resources Board (OEHHA/CARB) (https://www.arb.ca.gov/toxics/healthval/healthval.htm) that pose a present or potential hazard to human health. A common source of TACs can be attributed to diesel exhaust emitted from both mobile and stationary sources. Industry specific TACs generated must also be identified and quantified.

The District recommends the Project be evaluated for potential health impacts to surrounding receptors (on-site and off-site) resulting from operational and multi-year construction TAC emissions.

i) The District recommends conducting a screening analysis that includes all sources of emissions. A screening analysis is used to identify projects which may have a significant health impact. A prioritization, using CAPCOA's updated methodology, is the recommended screening method. A prioritization score of 10 or greater is considered to be significant and a refined Health Risk Assessment (HRA) should be performed. The prioritization calculator can be found at: http:www.valleyair.org/busind/pto/emission_factors/Criteria/Toxics/Utilities/PRIORITIZATION%20RMR%202016.XLS.

ii) The District recommends a refined HRA for projects that result in a prioritization score of 10 or greater. It is recommended that the Project proponent contact the District to review the proposed modeling protocol. The Project would be considered to have a significant health risk if the HRA demonstrates that the project related health impacts would exceed the Districts significance threshold of 20 in a million for carcinogenic risk and 1.0 for the Acute and Chronic Hazard Indices.

More information on toxic emission factors, prioritizations and HRAs can be obtained by:

- E-Mailing inquiries to: hramodeler@valleyair.org; or
- The District can be contacted at (559) 230-6000 for assistance; or
- Visiting the Districts website (Modeling Guidance) at http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm

f) **Ambient Air Quality Analysis:** An ambient air quality analysis (AAQA) uses air dispersion modeling to determine if emissions increases from a project will cause or contribute to a violation of the ambient air quality standards. The District recommends that an AAQA be performed for the Project if emissions exceed 100 pounds per day of any pollutant.

If an AAQA is performed, the analysis should include emissions from both Project specific permitted and non-permitted equipment and activities. The District recommends consultation with District staff to determine the appropriate model and input data to use in the analysis. Specific information for assessing significance, including screening tools and modeling guidance is available online at the District's website www.valleyair.org/ceqa.

4) If preliminary review indicates that an EIR should be prepared, the District recommends that the EIR include the following elements, in addition to the effects identified above:

   a) A discussion of the methodology, model assumptions, inputs and results used in characterizing the project's impact on air quality.

   b) A discussion of the components and phases of the Project and the associated emission projections, including ongoing emissions from each previous phase.

   c) A discussion of Project design elements and mitigation measures, including characterization of the effectiveness of each mitigation measure incorporated into the Project.

   d) A discussion of dairy operations including the following:

      i) Breakdown of herd composition by the following categories:
         - Milk Cows
         - Dry Cows
         - Heifers 15-24 months
         - Heifers 7-14 months
         - Heifers 4-6 months
         - Calves under 3 months

      ii) Description of manure process flow (from housing to lagoon(s)).

      iii) Identify if manure will be composted onsite.

      iv) Identify the type of housing (flush, scrape, etc) and exact method of manure handling for each type of cow.

   e) District's attainment status: The document should include a discussion of whether the Project would result in a cumulatively considerable net increase of any criteria pollutant or precursor for which the San Joaquin Valley Air Basin is in non-attainment. Information on the District's attainment status can be found online by visiting the District's website at: http://valleyair.org/aqinfo/attainment.htm.

## District Rules and Regulations

5) The proposed Project may be subject to the following District rules: Regulation VIII (Fugitive PM10 Prohibitions), Rule 4102 (Nuisance), Rule 4601 (Architectural Coatings), and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). In the event an existing building will be renovated, partially demolished or removed, the Project may be subject to District Rule 4002 (National Emission Standards for Hazardous Air Pollutants). The following rules are specific to confined animal operations:

   - 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 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. The District's CMP handbook can be found online at the District's website at: http://www.valleyair.org/farmpermits/updates/cmp_handbook.pdf.

   - Rule 4570 (Confined Animal Facilities) – 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. Therefore, a Rule 4570 application shall also be submitted to the District.

   The above list of rules is neither exhaustive nor exclusive. To identify other District rules or regulations that apply to this Project or to obtain information about District permit requirements, the applicant is encouraged to contact the District's Small Business Assistance Office at (209) 557-6446. Current District rules can be found online at: www.valleyair.org/rules/1ruleslist.htm.

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 Stephanie Pellegrini at (559) 230-5820 and provide the reference number at the top of the letter.

Sincerely,

Arnaud Marjollet
Director of Permit Services

Brian Clements
Program Manager

AM: sp

STATE OF CALIFORNIA

# GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR



## Memorandum

**Date:** July 10, 2018

**To:** All Reviewing Agencies

**From:** Scott Morgan, Director

**Re:** SCH # 2018072020

**Use Permit Application No. PLN2018-0054 - S & S Dairy, Inc.**

---

Please be advised, on **July 9, 2018** the ***Early Consultation*** for the above referenced project was sent to your agency for review without the *missing cover letter*. Please accept the attached **cover letter** for the **Early Consultation**. We apologize for any inconvenience this may have caused. All other information remains the same.

cc: Kristen Anaya
Stanislaus County
1010 10th Street, Suite 3400
Modesto, CA 95354

STATE OF CALIFORNIA

# GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

**Request for Early Consultation**

July 10, 2018

To: Reviewing Agencies

Re: Use Permit Application No. PLN2018-0054 - S & S Dairy, Inc.
SCH# 2018072020

Prior to determining whether a Negative Declaration or an Environmental Impact Report (EIR) is required for a project under CEQA, a Lead Agency is required to consult with all responsible and trustee agencies. This notice and attachment fulfill the early consultation requirement. Recommendations on the appropriate type of environmental document for this project, as well as comments on its scope and content, should be transmitted to the Lead Agency at the address below. You do not have to be a responsible or trustee agency to comment on the project. All agencies are encouraged to comment in a manner that will assist the Lead Agency to prepare a complete and adequate environmental document.

Please direct your comments to:

**Kristen Anaya**
**Stanislaus County**
**1010 10th Street, Suite 3400**
**Modesto, CA 95354**

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to SCH Number 2018072020 in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachment
cc: Lead Agency

# Document Details Repo
# State Clearinghouse Data Base

**SCH#** 2018072020
**Project Title** Use Permit Application No. PLN2018-0054 - S & S Dairy, Inc.
**Lead Agency** Stanislaus County

**Type** CON Early Consultation

**Description** Request to expand an existing dairy operation located on a 106.93 acre parcel by increasing herd size from 1,380 combined milk and dry cows to 2,900 combined milk and dry cows (2,500 milk and 400 dry). The herd is also comprised of an additional 850 bred heifers (15-24 months), 400 heifers (7-14 months), and 300 calves (4-6 months). The project will involve the demolition of four existing structures and the construction of five new free-stall barns with flush lanes totaling 175.350 sf for animal housing. The existing dairy operation includes a hay barn, milking parlor, equipment storage, and commodity barn. All proposed structures will be constructed within the existing dairy production area boundary. The estimated wastewater storage needs will be accommodated by the existing capacity of the three on-site lagoons. The nutrients produced by the herd will be utilized to fertilize approx 32 parcels totaling 1,210+/- farmable acres. A waste management plan and nutrient management plan are attached. The project site has a private domestic well and two septic-leach systems. A 20 ft PG&E easement runs north-south and adjacent to the project site's eastern property line.

## Lead Agency Contact

**Name** Kristen Anaya
**Agency** Stanislaus County
**Phone** (209) 525-6330 **Fax**
**email**
**Address** 1010 10th Street, Suite 3400
**City** Modesto **State** CA **Zip** 95354

## Project Location

**County** Stanislaus
**City** Ceres
**Region**
**Cross Streets** Crows Landing Rd & Brystrum Rd
**Lat / Long**
**Parcel No.** 022-026-014
**Township** 9 **Range** 5 **Section** **Base** 9

## Proximity to:

**Highways**
**Airports**
**Railways** UPRR
**Waterways** T.I.D. Lateral No. 3
**Schools** Mountain View MS
**Land Use** PLU: Dairy; Z: A-2; GPD: AG

**Project Issues**

**Reviewing Agencies** Resources Agency; Central Valley Flood Protection Board; Department of Fish and Wildlife, Region 4; Department of Parks and Recreation; Department of Water Resources; Caltrans, District 10; Regional Water Quality Control Bd., Region 5 (Sacramento); State Water Resources Control Board, Division of Drinking Water; Department of Toxic Substances Control; Delta Protection Commission; Delta Stewardship Council; Native American Heritage Commission; Public Utilities Commission

**Date Received** 07/09/2018 **Start of Review** 07/09/2018 **End of Review** 07/30/2018

Note: Blanks in data fields result from insufficient information provided by lead agency.

# Notice of Completion and Environmental Document Transmittal

California Environmental Quality Act

SCH # 2018072020

**TO:** State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812-3044
(916) 445-0613

**FROM:** Stanislaus County Planning & Community Development
1010 10th Street, Suite 3400, Modesto, CA 95354
Planning Phone: (209) 525-6330 Fax: (209) 525-5911
Building Phone: (209) 525-6557 Fax: (209) 525-7759

**Project Title:** Use Permit Application No. PLN2018-0054 - S & S Dairy, Inc.
**Lead Agency:** Stanislaus County Planning and Community Development **Contact Person:** Kristen Anaya, Assistant Planner
**Street Address:** 1010 10th Street, Suite 3400 **Phone:** (209)525-6330
**City:** Modesto, CA **Zip:** 95354 **County:** Stanislaus

**Project Location:** 348 E Monte Vista Avenue **City/Nearest Community:** Ceres
**Cross Streets:** Crows Landing Road & Bystrum Road **Zip Code:** 95307
**Longitude/Latitude (degrees, minutes and seconds):** ___° ___' ___" N / ___° ___' ___" W **Total Acres:** 106.93
**Assessor's Parcel Number:** 022-026-014 **Section:** ___ **Twp.:** 9 **Range:** 5 **Base:** 9
**Within 2 Miles:** State Hwy #: ___ **Waterways:** T.I.D. Lateral No. 3
Airports: ___ **Railways:** Union Pacific **Schools:** Mountain View Middle

**Local Public Review Period:** (to be filled in by lead agency)
**Starting Date:** July 6, 2018 **Ending Date:** July 24, 2018

Governor's Office of Planning & Research
JUL 09 2018
STATE CLEARINGHOUSE

**Document Type:**
CEQA: ☐ NOP ☐ Draft EIR NEPA: ☐ NOI OTHER: ☐ Joint Document
☒ Early Cons ☐ Supplement/Subsequent EIR ☐ EA ☐ Final Document
☐ Neg Dec (Prior SCH No.) ___ ☐ Draft EIS ☐ Other: ___
☐ Mit Neg Dec ☐ Other: ___ ☐ FONSI

**Local Action Type:**
☐ General Plan Update ☐ Specific Plan ☐ Rezone ☐ Annexation
☐ General Plan Amendment ☐ Master Plan ☐ Prezone ☐ Redevelopment
☐ General Plan Element ☐ Planned Unit Development ☒ Use Permit ☐ Coastal Permit
☐ Community Plan ☐ Site Plan ☐ Land Division (Subdivision, etc.) ☐ Other ___

**Development Type:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ☐ Residential | Units: ___ | Acres: ___ | | ☐ Water Facilities | Type: ___ | MGD ___ |
| ☐ Office | Sq.ft.: ___ | Acres: ___ | Employees: ___ | ☐ Transportation | Type: ___ | |
| ☐ Commercial | Sq.ft.: ___ | Acres: ___ | Employees: ___ | ☐ Mining | Mineral: ___ | |
| ☐ Industrial | Sq.ft.: ___ | Acres: ___ | Employees: ___ | ☐ Power | Type: ___ | Watts ___ |
| ☐ Educational | | | | ☐ Waste Facilities | Type: ___ | MGD ___ |
| ☐ Recreational | | | | ☐ Hazardous Waste | Type: ___ | |
| ☐ OCS Related | | | | ☒ Other | Confined Animal Facility Operation | |

**Present Land Use/Zoning/General Plan Designation:**
PLU: Dairy; Zoning: A-2-40 (General Agriculture); GPD: AG (Agriculture)

**Project Description:** (please use a separate page if necessary)

Request to expand an existing dairy operation located on a 106.93 acre parcel by increasing herd size from 1,380 combined milk and dry cows to 2,900 combined milk and dry cows (2,500 milk and 400 dry). The herd is also comprised of an additional 850 bred heifers (15-24 months), 400 heifers (7-14 months), and 300 calves (4-6 months). The project will involve the demolition of four existing structures and the construction of five new free-stall barns with flush lanes totaling 175,350 square feet for animal housing. The existing dairy operation includes a hay barn, milking parlor, equipment storage, and commodity barn. All proposed structures will be constructed within the existing dairy production area boundary.

The estimated wastewater storage needs will be accommodated by the existing capacity of the three on-site lagoons. The nutrients produced by the herd will be utilized to fertilize approximately 32 parcels totaling 1,210± farmable acres. A Waste Management Plan and Nutrient Management Plan are attached. The project site has a private domestic well and two septic-leach systems. A 20 foot PG&E easement runs north-south and adjacent to the project site's eastern property line.

State Clearinghouse Contact: (916) 445-0613

State Review Began: 7 - 9 - 2018

**EARLY CONSULTATION**

SEND COMMENTS DIRECTLY TO LEAD AGENCY BY: 7 - 30 - 18

**Please note State Clearinghouse Number (SCH#) on all Comments**
SCH#: 2018072020

**Please forward late comments directly to the Lead Agency**

AQMD/APCD 34

(Resources: 7 / 14)

**Project Sent to the following State Agencies**

| | | | |
|---|---|---|---|
| X | **Resources** | | **Cal EPA** |
| ___ | Boating & Waterways | ___ | ARB: Airport & Freight |
| X | Central Valley Flood Prot. | ___ | ARB: Transportation Projects |
| ___ | Coastal Comm | ___ | ARB: Major Industrial/Energy |
| ___ | Colorado Rvr Bd | ___ | Resources, Recyc. & Recovery |
| ___ | Conservation | X | SWRCB: Div. of Drinking Water |
| X | CDFW # 4 | ___ | **SWRCB: Div Drinking Wtr #** ___ |
| ___ | Cal Fire | ___ | SWRCB: Div. Financial Assist. |
| ___ | Historic Preservation | ___ | SWRCB: Wtr Quality |
| X | Parks & Rec | ___ | SWRCB: Wtr Rights |
| ___ | Bay Cons & Dev Comm. | X | Reg. WQCB # 5S |
| X | DWR | X | Toxic Sub Ctrl-CTC ___ |
| | | | **Yth/Adlt Corrections** |
| | **CalSTA** | ___ | Corrections |
| ___ | Aeronautics | | **Independent Comm** |
| ___ | CHP | X | Delta Protection Comm |
| X | Caltrans # 10 | X | Delta Stewardship Council |
| ___ | CHP | ___ | Energy Commission |
| ___ | Trans Planning | X | NAHC |
| | **Other** | X | Public Utilities Comm |
| ___ | Education | ___ | Santa Monica Bay Restoration |
| ___ | Food & Agriculture | ___ | State Lands Comm |
| ___ | HCD | ___ | Tahoe Rgl Plan Agency |
| ___ | OES | ___ | ___ Conservancy |
| | **State/Consumer Svcs** | | |
| ___ | General Services | ___ | Other: |