STANISLAUS COUNTY PLANNING COMMISSION

July 16, 2026

STAFF REPORT

USE PERMIT APPLICATION NO. PLN2021-0087
JORDAO DAIRY

REQUEST: TO EXPAND AN EXISTING DAIRY FACILITY LOCATED ON A 79.74± ACRE PARCEL, IN THE GENERAL AGRICULTURE (A-2-40) ZONING DISTRICT, TO ALLOW THE HERD SIZE TO INCREASE FROM 1,985 MATURE COWS TO 3,990, AND TO ALLOW CONSTRUCTION OF THREE LOAFING BARNS TOTALING 236,000± SQUAREFEET.

APPLICATION INFORMATION

Applicant/Property Owner:	Jordao Dairy (Joe Jordao)
Agent:	Manny Sousa, Sousa Engineering
Location:	6025 S. Central Avenue, between Hilmar and Bradbury Roads, in the Turlock area.
Section, Township, Range:	3-6-9
Supervisorial District:	District Two (Supervisor Chiesa)
Assessor's Parcel:	057-004-013
Referrals:	See Exhibit G Environmental Review Referrals
Area of Parcel(s):	79.74± acres
Water Supply:	Private well
Sewage Disposal:	Private septic system
General Plan Designation:	Agriculture
Community Plan Designation:	N/A
Existing Zoning:	General Agriculture (A-2-40)
Sphere of Influence:	N/A
Williamson Act Contract No.:	1973-1344
Environmental Review:	Mitigated Negative Declaration
Present Land Use:	Eight single-family dwellings, and a dairy operation.
Surrounding Land Use:	County of Merced to the south; scattered single-family dwellings, dairies, and row crops in all directions.

RECOMMENDATION

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

PROJECT DESCRIPTION

The project is a request to expand the herd size of an existing dairy facility from 1,985 mature cows to 3,990, which includes an increase of 1,055 milk cows, 210 dry cows, and 800 support stock, and a reduction of 60 calves on-site, for a total of 90 calves to remain. As part of this request, the applicant also proposes to construct three new loafing barns for animal housing totaling 236,000± square feet, to convert an existing 76,700 square-foot loafing barn to a free stall barn, and to install an anerobic digester (see Exhibit B-6 – *Maps and Site Plan*).

The applicant anticipates an increase of 3,385 cubic feet of additional manure per day generated from the proposed herd expansion, for a total of 6,094 cubic feet of manure per day for the entire dairy operation. Nutrients produced from the herd will be used to fertilize approximately 897± acres of irrigated cropland on parcels located in both Stanislaus and Merced Counties on land owned by the dairy operator.

The project will increase the number of daily milk truck trips from two to three per day and feed truck trips from four to six per week; the dairy will not increase tallow or veterinary trips which will remain at three truck trips for tallow per week and two trips for veterinary services per month.

Hours of operation are 24 hours per day, seven days a week. There are currently eight employees on a maximum shift. Under this request, the number of employees will increase by four for a total of 12 employees on a maximum shift. Eight employees will continue to live on-site, and four employees will live off-site. No new employee housing is proposed as part of this request. The applicant does not anticipate any customers on-site.

SITE DESCRIPTION

The 79.74± acre project site is located at 6025 S. Central Avenue, between Hilmar and Bradbury Roads, in the Turlock area. The existing facility is currently improved with 548,285 square feet of free stall barns, loafing barns, and other accessory structures associated with the dairy, a dry manure storage area, two feed storage areas, 12 exercise pens, and two wastewater ponds. Additionally, eight permitted single-family residences have been developed on the property, six of which are occupied by dairy employees. The project site is served by existing private wells and septic systems and has access to County-maintained S. Central Avenue.

The project site is surrounded by scattered single-family dwellings, dairies, and row crops in all directions, and the County of Merced to the south.

ISSUES

While no specific issues unique to this request have been identified, the permitting of dairy herd expansions in general under the Central Valley Regional Water Quality Control Board (CVRWQCB) has been of issue. Under the County's practice for processing use permits for dairy expansions, the nutrient management plan (NMP) and waste management plan (WMP) that address the additional waste to be discharged as a result of the herd expansion are sent to the CVRWQCB for review and acceptance prior to circulation of the Initial Study (IS). Since

early 2022, the CVRWQCB has provided correspondence stating that, while NMP and WMP may be in agreement with the CVRWQCB's General Order for dairies, data collected by the Central Valley Dairy Representative Monitoring Program (CVDRMP) have indicated that these nutrient management practices are not sufficient to prevent the pollution of groundwater from cropland. As such, the CVRWQCB has placed the review of all NMP and WMP for expanding or new dairies on hold and operators are to proceed at their own discretion.

Under CEQA, the CVRWQCB is a responsible state agency with the statutory responsibility to protect water quality in California's Central Valley. The County's purpose in requiring use permits for new or expanding dairies is to provide dairy operators with an environmental document and determination under CEQA that may be used by the CVRWQCB in issuing new or modified individual permits, waivers, orders, or waste discharge requirements (WDRs). Individual WDRs are required for new and/or expanding dairies as the subject facilities are not covered under CVRWQCB's existing Reissuance of Waste Discharge Requirements General Order for Existing Milk Cow Dairies (Reissued Dairy General Order).

While the County's previous environmental assessments prepared for dairy expansion requests have relied on the understanding that individual WDRs would be issued following the County's approval of the project, the County has learned that the CVRWQCB has instead been relying on the following provision of the State Water Code (Section 13264):

> "(a) No person shall initiate any new discharge of waste or make any material changes in any discharge, or initiate a discharge to, make any material changes in a discharge to, or construct, an injection well, prior to the filing of the report required by Section 13260 and no person shall take any of these actions after filing the report but before whichever of the following occurs first:
>
> (1) The issuance of waste discharge requirements pursuant to Section 13263.
>
> (2) The expiration of 140 days after compliance with Section 13260 if the waste to be discharged does not create or threaten to create a condition of pollution or nuisance and any of the following applies:
>
> (A) The project is not subject to the California Environmental Quality Act (Division 13 [commencing with Section 21000] of the Public Resources Code).
>
> (B) The regional board is the lead agency for purposes of the California Environmental Quality Act, a negative declaration is required, and at least 105 days have expired since the regional board assumed lead agency responsibility.
>
> (C) The regional board is the lead agency for the purposes of the California Environmental Quality Act, and environmental impact report or written documentation prepared to meet the requirements of Section 21080.5 of

the Public Resources Code is required, and at least one year has expired since the regional board assumed lead agency responsibility.

(D) The regional board is a responsible agency for purposes of the California Environmental Quality Act, and at least 90 days have expired since certification or approval of environmental documentation by the lead agency.

In this case section (D) would be applicable in that the CVRWQCB is a responsible agency for the purposes of CEQA. Based on the CVRWQCB's correspondence and staff discussion with CVRWQCB staff, this provision is now in question based on the requirement that the discharge not create or threaten to create a condition of pollution or nuisance.

Four use permits for expanding dairy facilities have been heard and approved by the Planning Commission since the County became aware that the CVRWQCB had placed review of NMPs and WMPs on hold. Without acceptance of the NMPs and WMPs from the CVRWQCB, the County prepared three mitigation measures for the use permits in consultation with the CVRWQCB for specific requirements to be met in terms of best management practices (BMPs) and protection of surface and groundwater from nitrates in wastewater. All four use permits approved by the Planning Commission included adoption of a mitigated negative declaration (MND) with the same three mitigation measures which require the operators to: 1) follow specifically identified best management practices (BMPs); 2) comply with the WMP and NMP submitted to the County as part of the UP; and 3) enroll in the Central Valley Dairy Representative Monitoring Program (CVDRMP) to meet the requirements for groundwater monitoring. An MND has been prepared for the current request with the same mitigation measures.

The CVRWQCB is the responsible agency for approving dairy herd expansions and accordingly, the authorization of the herd expansion is dependent on the CVRWQCB’s approval. Reliance on the State Water Code places the CVRWQCB in a position to either accept or reject the County's CEQA determination based on their own finding that the discharge does not create or threaten to create a condition of pollution or nuisance.

Based on the applicant’s desire to have the project continue forward with the understanding that actual herd expansion is still subject to the CVRWQCB’s acceptance of the County’s environmental determination, staff is recommending approval of this request. If the Planning Commission believes that the mitigation measures identified in the IS/MND are sufficient to avoid potentially significant impacts to groundwater quality, then the findings required for approval of the project, including adoption of the MND, are provided in Exhibit A of the Planning Commission Staff Report. Since the mitigation measures are applicable at the time of herd expansion, the applicant may construct new buildings for the existing herd without any question of conflict with the Mitigation Monitoring and Reporting Program (MMRP). Building permits for the expansion of facilities for the existing herd are not subject to obtaining a use permit.

GENERAL PLAN CONSISTENCY

The site is currently designated "Agriculture" in the Stanislaus County General Plan; this designation is consistent with the site's General Agriculture (A-2-40), zoning district. The agricultural designation recognizes the value and importance of agriculture by acting to preclude incompatible urban development within agricultural areas and, as such, should generally be zoned with 40 to 160-acre minimum parcel sizes. This designation establishes agriculture as the primary use, but allows dwelling units, limited agriculturally related commercial services, agriculturally related light industrial uses, and other uses which by their unique nature are not compatible with urban uses, provided they do not conflict with the primary use.

The proposed project is addressed by multiple goals, policies, and implementation measures of the Land Use and Agriculture Elements of the General Plan. Goal One, Policy Two of the Land Use Element requires that land designated Agriculture be restricted to uses that are compatible with agricultural practices. Goal Two, Policy 14, Implementation Measure One of the Land Use Element requires all development proposals that require discretionary action to be carefully reviewed to ensure that approval will not adversely affect an existing agricultural area. Goal Three, Policy 17 of the Land Use Element states that, "Agriculture, as the primary industry of the County, shall be promoted and protected." Goal One of the Agricultural Element is to strengthen the agricultural sector of our economy.

Policy 1.10 of the Agricultural Element requires buffers between agricultural operations and nonagricultural uses in order to minimize conflicts. Dairies are included in the Agricultural Element's definition of "Agriculture" and are considered to be permitted agricultural uses. Accordingly, an agricultural buffer would not be required between surrounding agricultural uses and the proposed project, as the proposed project is also considered to be an agricultural use.

Staff believes that the proposed project is consistent with the General Plan policies discussed above.

ZONING ORDINANCE CONSISTENCY

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

As discussed in the *Issues* section of the report, Confined Animal Facilities (CAF), which include dairies, are considered to be permitted agricultural uses; however, a use permit is required for new or expanding CAFs requiring a new or modified permit, waiver, order, or Waste Discharge Requirements (WDRs) from the Central Valley Regional Water Quality Control Board (CVRWQCB), where the issuance of such permit, waiver, order, or WDR requires compliance with the California Environmental Quality Act (CEQA) (Section 21.20.030 (F) of the Stanislaus County Zoning Ordinance). The County adopted the use permit requirement in 2003 in order to allow the County to facilitate the environmental review (in accordance with CEQA) required for issuance of any permit, waiver, order, or WDR by the CVRWQCB. The proposed project is only required to obtain a use permit because the CVRWQCB has determined that the proposed dairy is subject to issuance of WDRs requiring CEQA review. WDRs are State of California regulations pertaining to the treatment, storage, processing or disposal of solid waste.

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

> *The establishment, maintenance, and operation of the proposed use or building applied for is consistent with the General Plan designation of "Agriculture" and will not, under the circumstances of the particular case, be detrimental to the health, safety, and general welfare of persons residing or working in the neighborhood of the use and that it will not be detrimental or injurious to property and improvements in the neighborhood or to the general welfare of the County.*

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

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

The project site is currently enrolled under Williamson Act Contract No. 1973-1344. Section 21.20.045(A) of the zoning ordinance requires that all uses requiring use permits that are approved on Williamson Act contracted lands shall be consistent with the following three principles of compatibility:

1. *The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in the A-2 zoning district.*

2. *The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in the A-2 zoning district. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping.*

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

Staff believes the necessary findings for approval of this project can be made. With the mitigation measures and conditions of approval in place, there is no indication that, under the circumstances of this particular case, the proposed project will be detrimental to the health, safety, and general welfare of persons residing or working in the neighborhood of the use or that

it will be detrimental or injurious to property and improvements in the neighborhood or to the general welfare of the County. Dairy facilities are an important component of the agricultural economy in Stanislaus County. There is no indication this project will interfere or conflict with other agricultural uses in the area, compromise the long-term productive agricultural capability of the subject parcel or other contracted parcels in the A-2 zoning district, or result in the significant removal of adjacent contracted land from agricultural or open-space use.

ENVIRONMENTAL REVIEW

Pursuant to the California Environmental Quality Act (CEQA), the proposed project was circulated to interested parties and responsible agencies for review and comment (see Exhibit G - *Environmental Review Referrals*).

A Greenhouse Gas (GHG) Analysis was performed by Trinity Consultants, dated March 2026, to study the GHG emissions resulting from the proposed dairy herd expansion. The analysis identified and quantified GHG emissions resulting from both construction and operational activities under the proposed request. The proposed project's individual incremental increase in GHG emissions and total post-project facility-wide emissions were determined to be below the threshold of significance and accordingly, the project's GHG impacts were considered to be less than significant (see Attachment IV of Exhibit D – *Initial Study, with Attachments*).

As discussed in the *Issues* Section of this report, a Mitigated Negative Declaration has been prepared for approval (see Exhibit F - *Mitigated Negative Declaration*). Mitigation measures have been applied to the project to reduce potential impacts to Hydrology and Water Quality to a less than significant level. The mitigation measures require the operator to: 1) follow specifically identified best management practices (BMPs); 2) comply with the WMP and NMP submitted to the County as part of the project; and 3) enroll in the Central Valley Dairy Representative Monitoring Program (CVDRMP) to meet the requirements for groundwater monitoring. Conditions of approval, reflecting referral responses and the mitigation measures, have been placed on the project (see Exhibit C - *Conditions of Approval*).

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Note: Pursuant to California Fish and Game Code Section 711.4, a filing fee shall be paid for all project applications subject to the California Environmental Quality Act (CEQA); therefore, the applicant will further be required to pay **$3,100.75** for the California Department of Fish and Wildlife and the Clerk-Recorder filing fees. The attached Conditions of Approval ensure that this will occur.

Contact Person: Emily DeAnda, Associate Planner, (209) 525-6330

Attachments:

Exhibit A – Findings and Actions Required for Project Approval
Exhibit B – Maps and Site Plan
Exhibit C – Conditions of Approval
Exhibit D – Initial Study, with Attachments
Exhibit E – Mitigation Monitoring and Reporting Program

Exhibit F – Mitigated Negative Declaration
Exhibit G – Environmental Review Referrals
Exhibit H – Levine Act Disclosure Statement

Findings and Actions Required for Project Approval

1. Adopt the Mitigated Negative Declaration pursuant to CEQA Guidelines Section 15074(b), by finding that on the basis of the whole record, including the amended Initial Study and any comments received, that there is no substantial evidence the project will have a significant effect on the environment and that the Mitigated Negative Declaration reflects Stanislaus County's independent judgement and analysis.

2. Order the filing of a Notice of Determination with the Stanislaus County Clerk-Recorder's Office pursuant to Public Resources Code Section 21152 and CEQA Guidelines Section 15075.

3. Find that:

    a. The establishment, maintenance, and operation of the proposed use or building applied for is consistent with the General Plan designation of "Agriculture" and will not, under the circumstances of the particular case, be detrimental to the health, safety, and general welfare of persons residing or working in the neighborhood of the use and that it will not be detrimental or injurious to property and improvements in the neighborhood or to the general welfare of the County.
    b. The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in the A-2 zoning district.
    c. The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in the A-2 zoning district. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping.
    d. The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use.
    e. The project will increase activities in and around the project area, and increase demands for roads and services, thereby requiring dedication and improvements.

4. Approve Use Permit Application No. PLN2021-0087 – Jordao Dairy, subject to the attached Conditions of Approval and Mitigation Measures.

JORDAO DAIRY, CENTRAL AVE

UP PLN2021-0087

AREA MAP

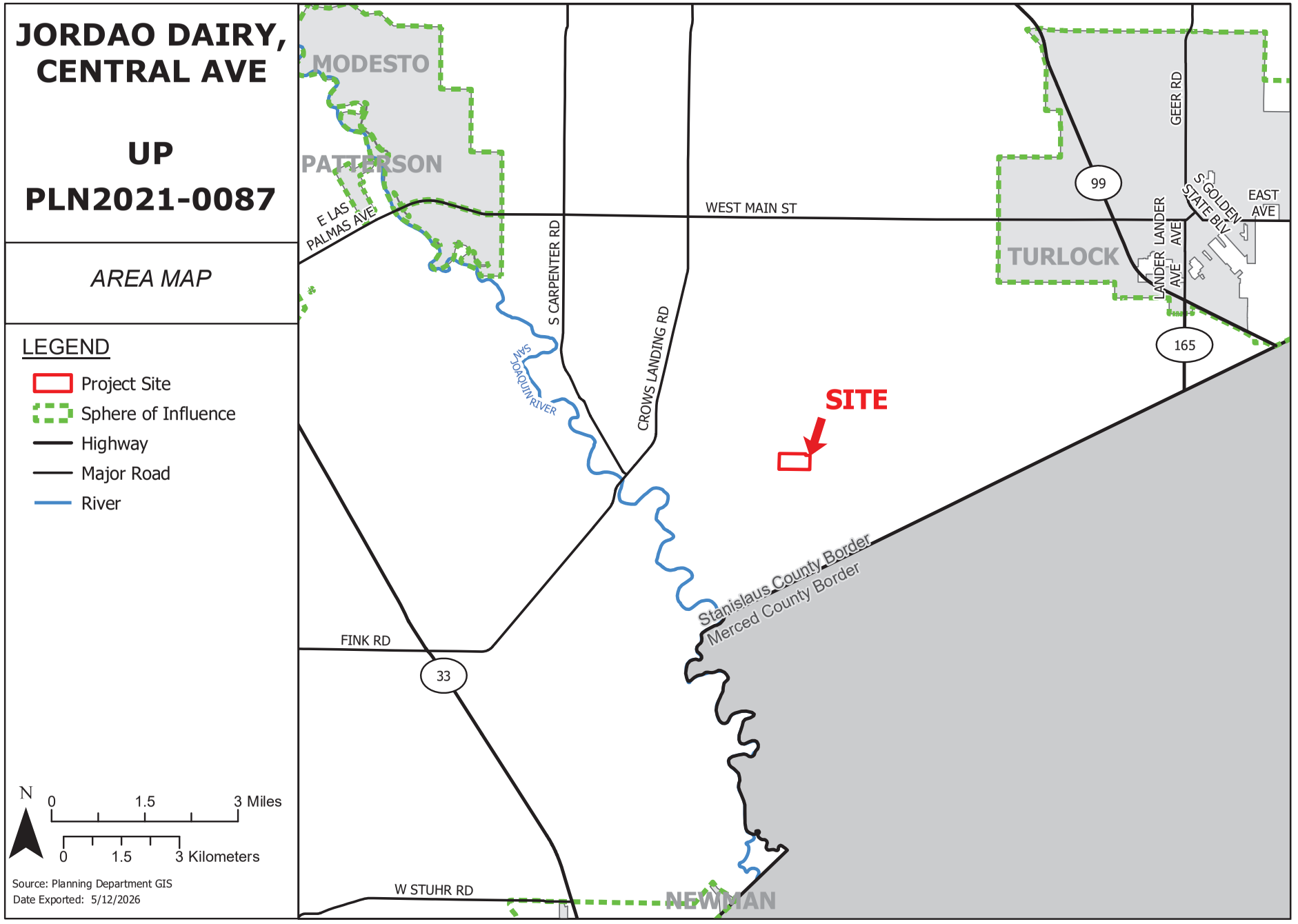


EXHIBIT B

JORDAO DAIRY, CENTRAL AVE

UP PLN2021-0087

GENERAL PLAN MAP

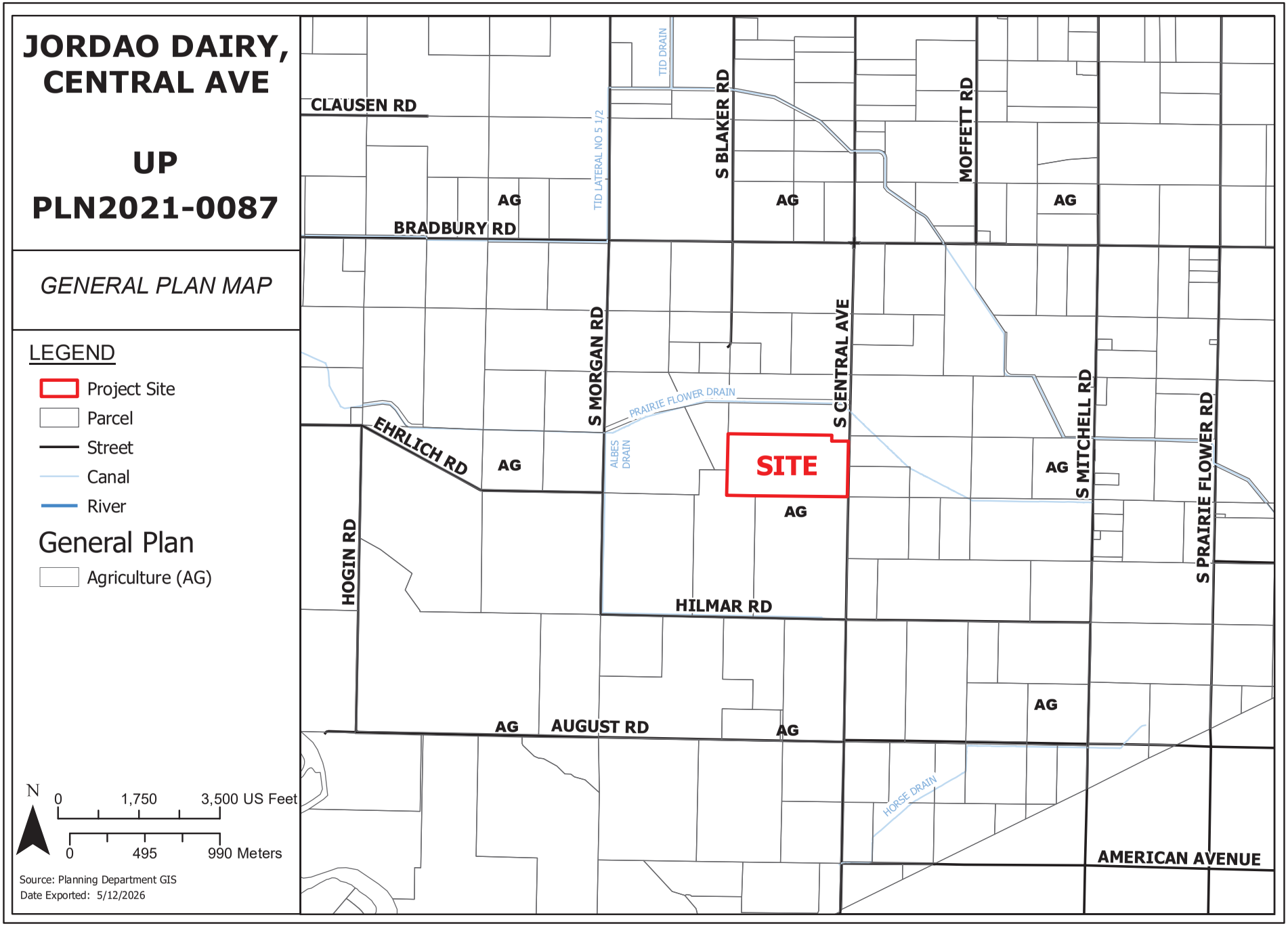


EXHIBIT B-1

JORDAO DAIRY, CENTRAL AVE

UP PLN2021-0087

ZONING MAP

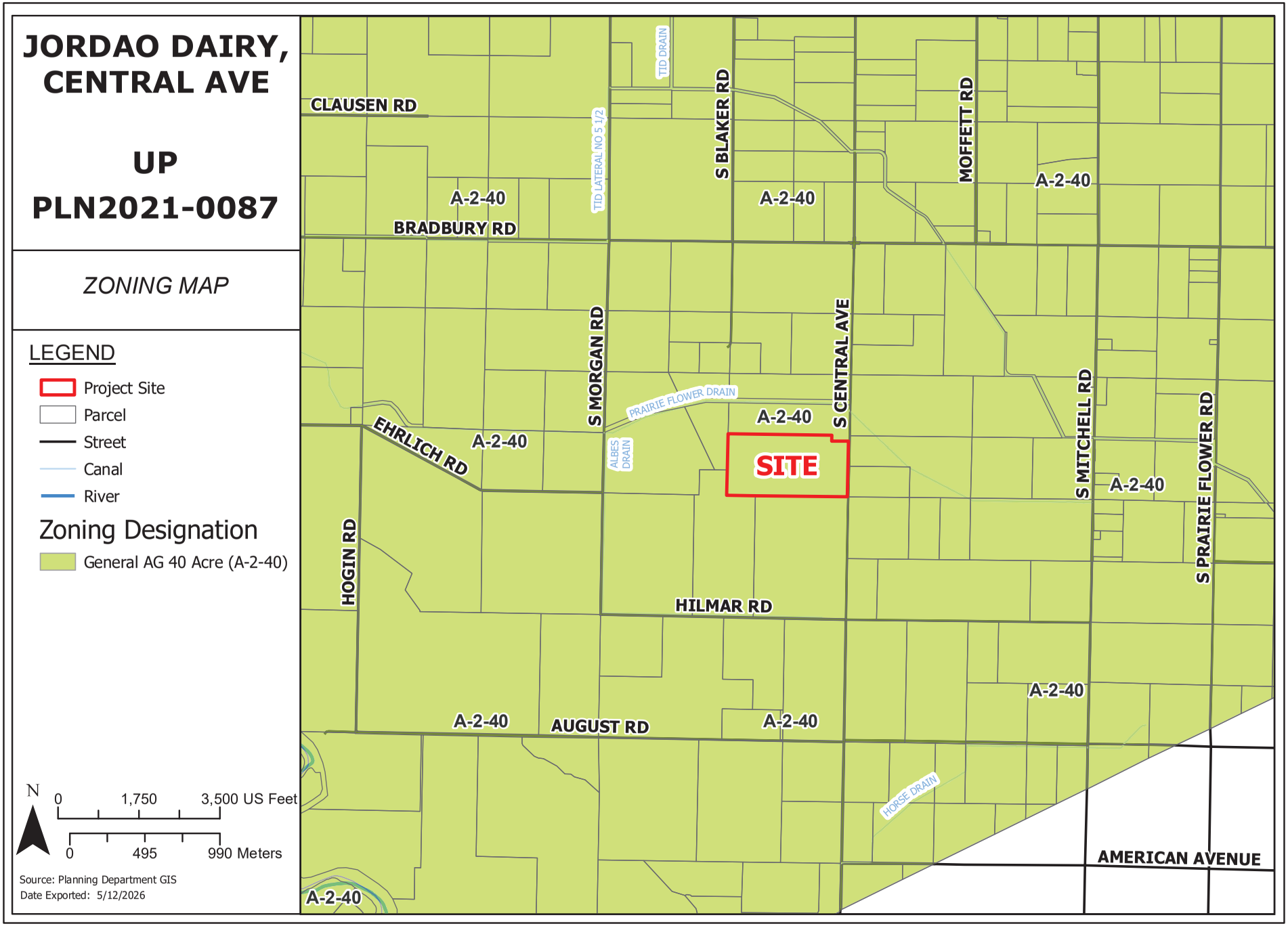


EXHIBIT B-2

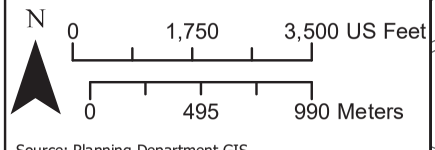
JORDAO DAIRY, CENTRAL AVE

UP PLN2021-0087

ACREAGE MAP

LEGEND

- Project Site
- Parcel
- Street
- Canal
- River



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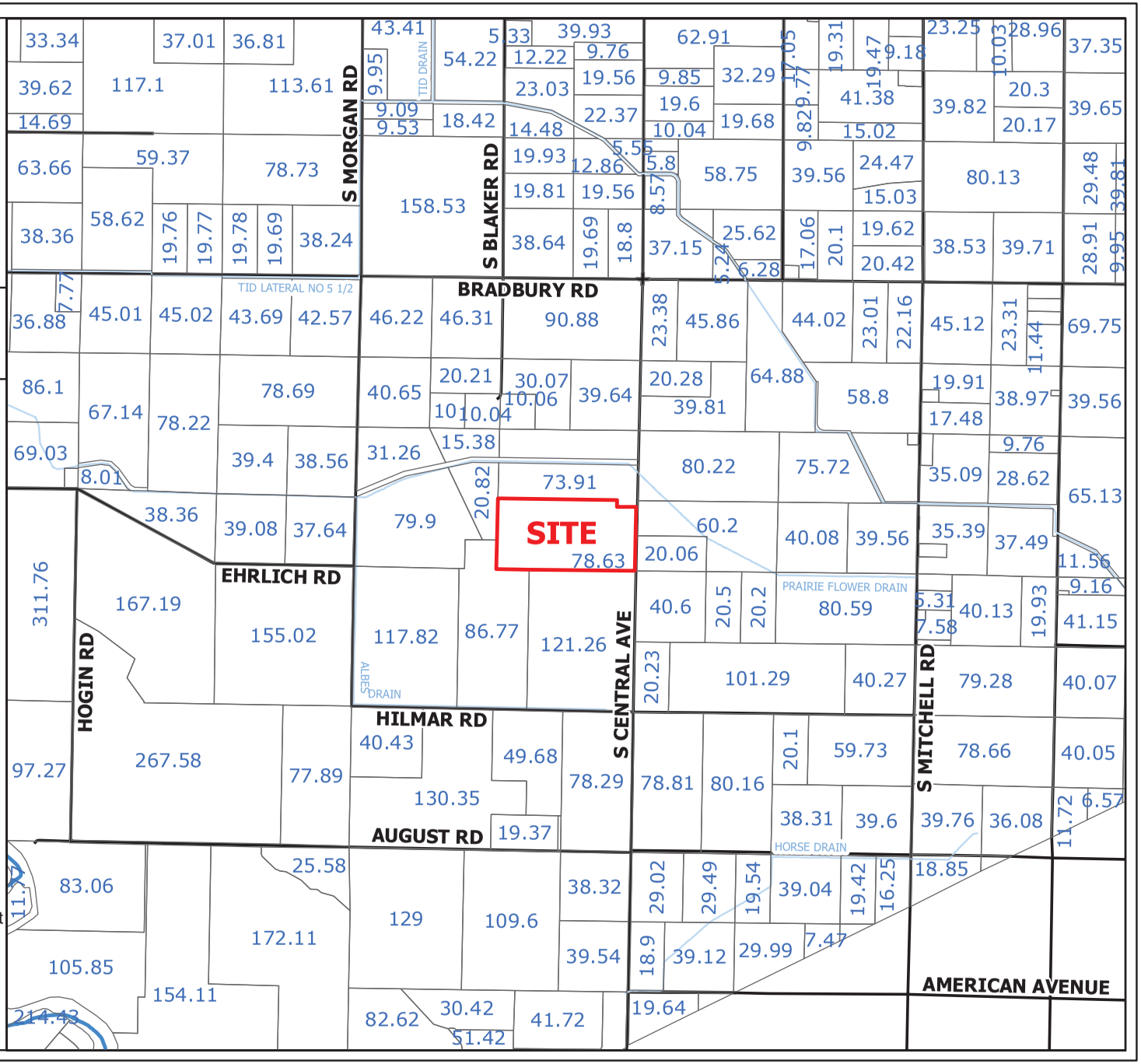


EXHIBIT B-3

JORDAO DAIRY, CENTRAL AVE

UP

PLN2021-0087

2023 AERIAL AREA MAP

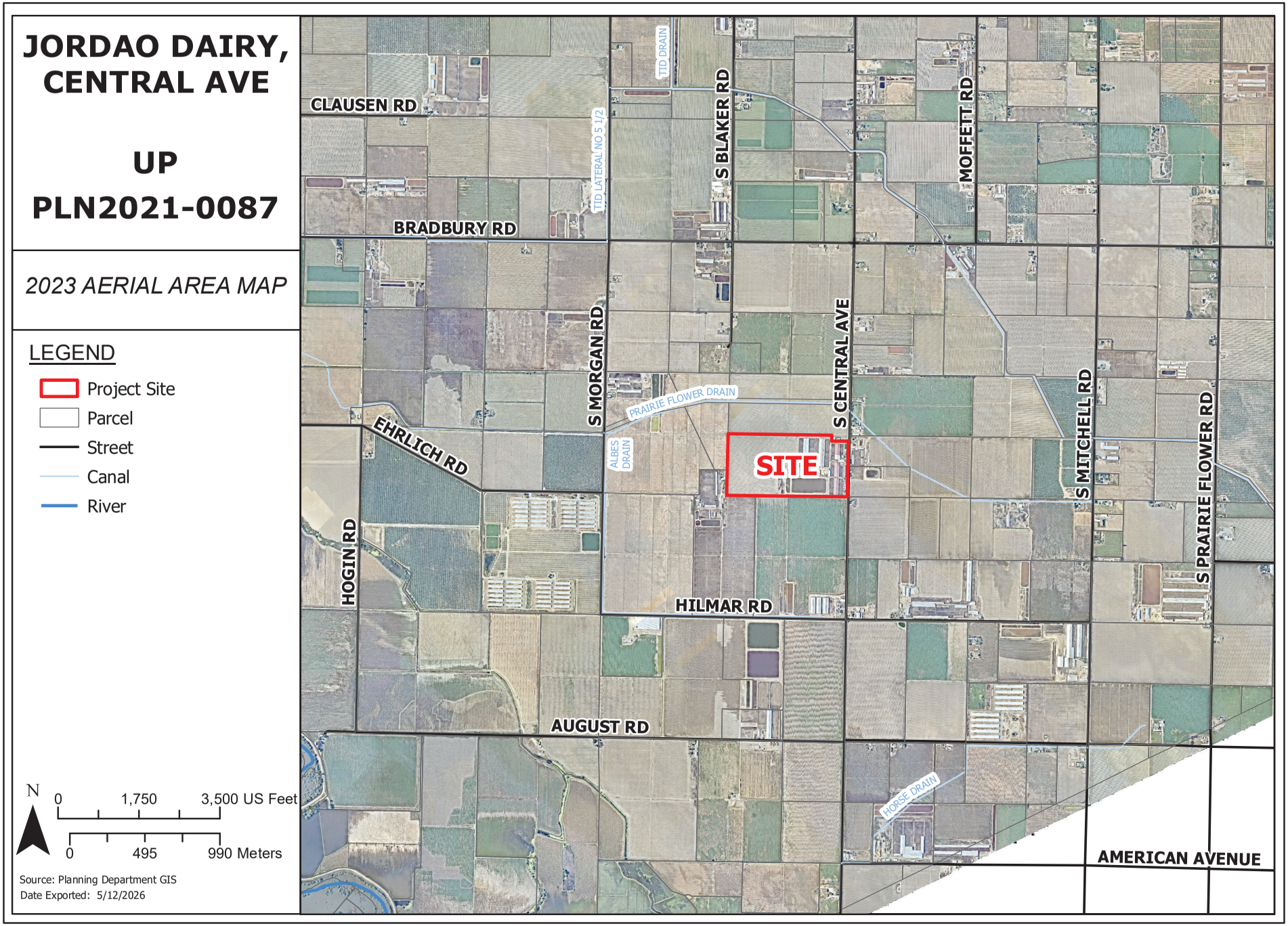


EXHIBIT B-4

JORDAO DAIRY, CENTRAL AVE

UP PLN2021-0087

2023 AERIAL SITE MAP

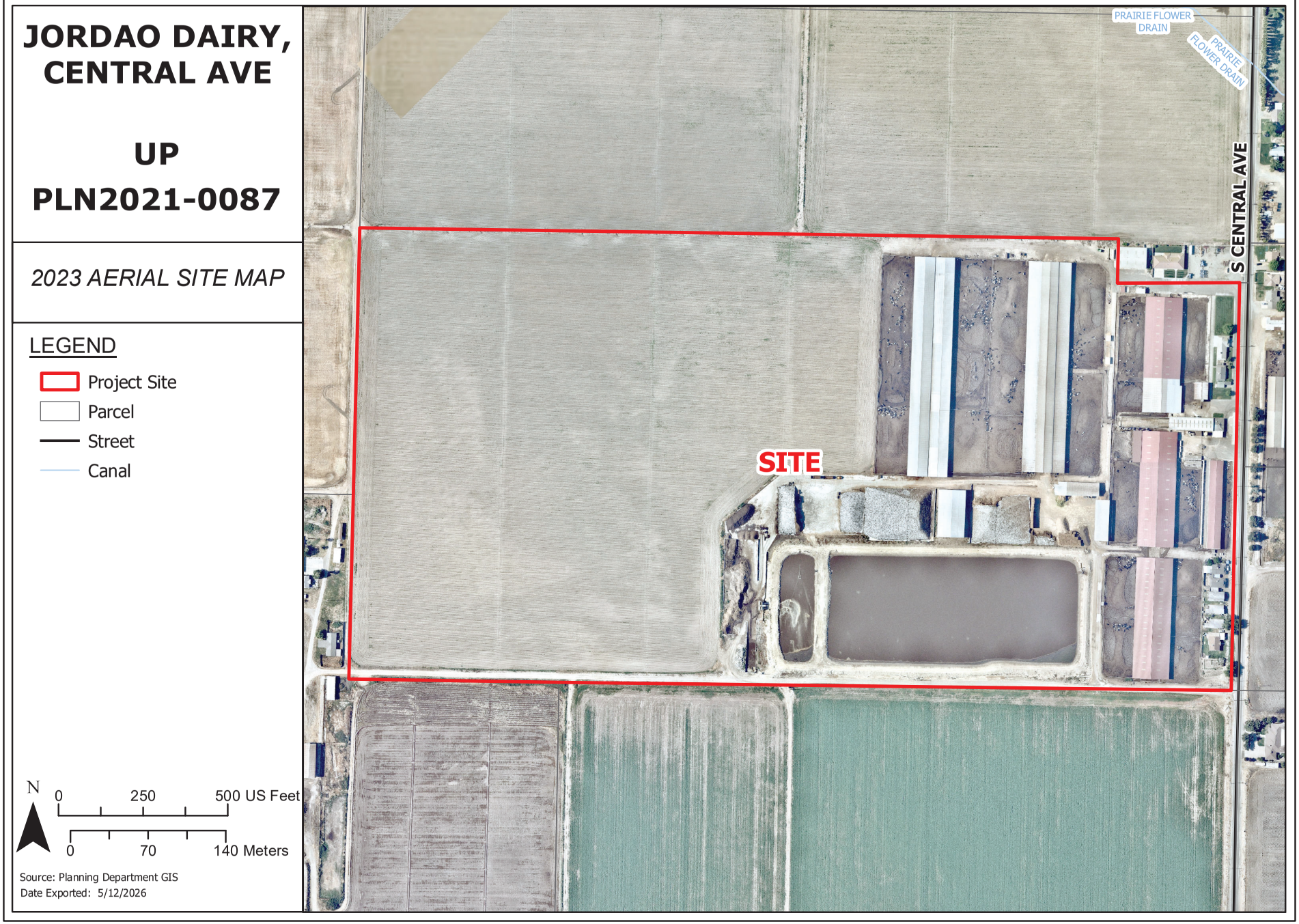
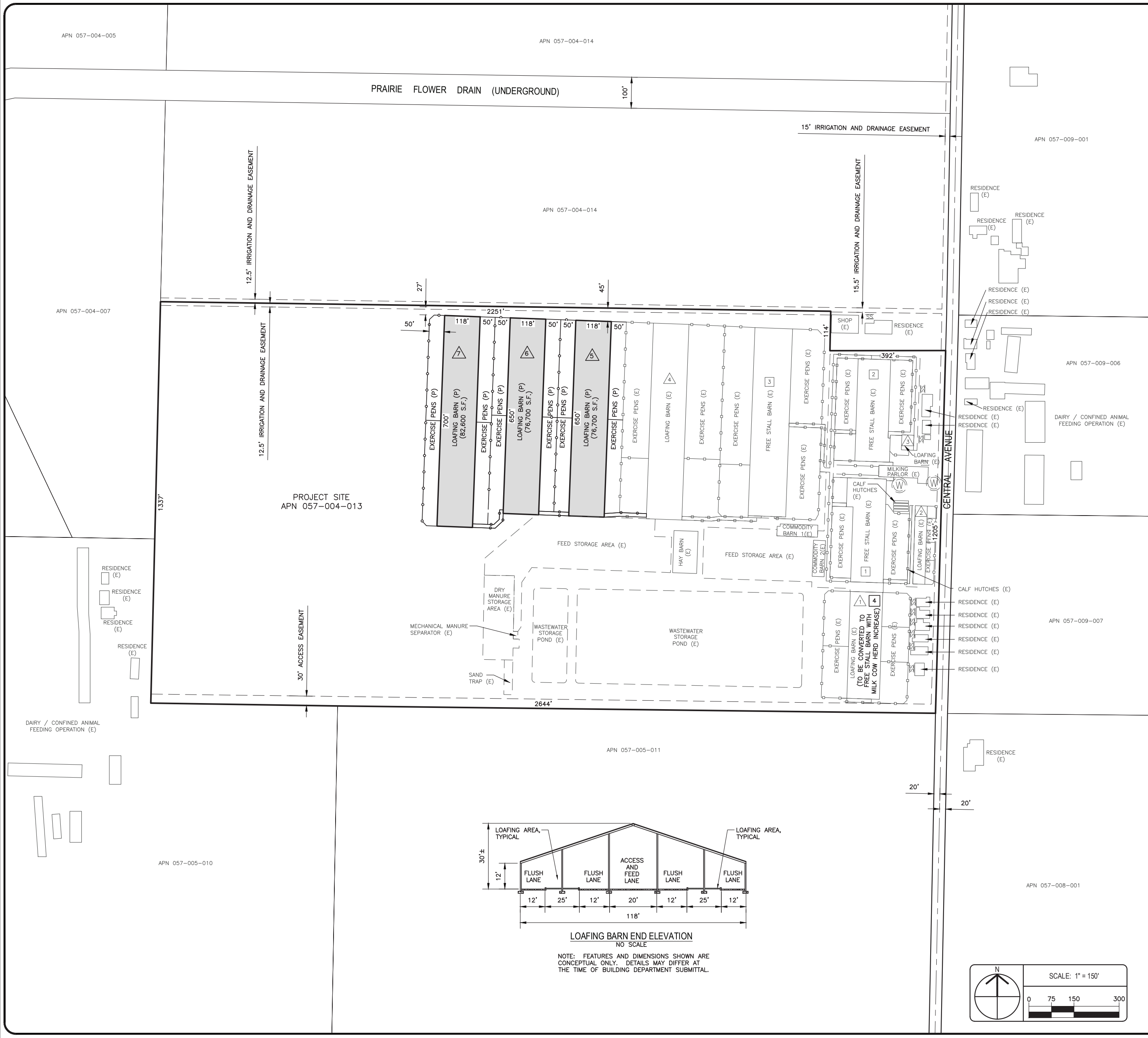
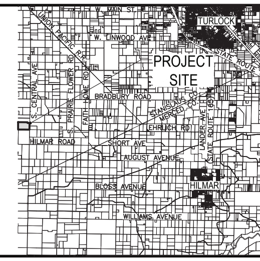


EXHIBIT B-5



VICINITY MAP



PROJECT SITE INFORMATION

APPLICANT: JOE JORDAO DAIRY
6025 S CENTRAL AVENUE
TURLOCK, CA 95380

PROPERTY OWNER: JOE JORDAO
6025 S CENTRAL AVENUE
TURLOCK, CA 95380

PROPERTY ADDRESS: 6025 S CENTRAL AVENUE
TURLOCK, CA 95380

PROPERTY ASSESSOR'S PARCEL NUMBER: 057-004-013

PROPOSED BUILDING SQUARE FOOTAGE: 236,000 S.F.

THE PROJECT SITE IS LOCATED IN ZONE X PER FEMA FLOOD INSURANCE RATE MAP 06099C0565E. 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 "LOAFING BARN" OR "FREE STALL BARN" ARE ANIMAL HOUSING STRUCTURES.

LEGEND

CORRAL (E)	EXISTING FACILITY IMPROVEMENT
100	EXISTING COUNTOUR AND ELEVATION PER USGS TOPOGRAPHIC MAP
	EXISTING FENCE
W	EXISTING WELL
SS	APPROXIMATE LOCATION OF EXISTING SEPTIC TANK AND LEACH FIELD
WT	EXISTING WATER TANK
EXERCISE PEN (P)	PROPOSED FACILITY IMPROVEMENT
	PROPOSED FENCE
FREE STALL BARN (P)	PROPOSED STRUCTURE OR IMPROVEMENT

ANIMAL HOUSING IDENTIFICATION LEGEND

3	EXISTING CORRAL NUMBER
4	EXISTING LOAFING BARN NUMBER
5	EXISTING FREE STALL BARN NUMBER
3	PROPOSED CORRAL NUMBER
4	PROPOSED LOAFING BARN NUMBER
5	PROPOSED FREE STALL BARN NUMBER

EXISTING BUILDING DIMENSIONS

BUILDING	LENGTH (FT.)	WIDTH (FT.)	AREA (SQ. FT.)
LOAFING 1	355	108	38,340
LOAFING 2	260	40	10,400
LOAFING 3	50	40	2,000
LOAFING 4	650	118	76,700
FREE STALL 1	IRREGULAR	IRREGULAR	39,400
FREE STALL 2	IRREGULAR	IRREGULAR	37,300
FREE STALL 3	625	125	78,125
FREE STALL 4	650	118	76,700
FREE STALL 5	650	118	76,700
FREE STALL 6	700	118	82,600
MILKING PARLOR	IRREGULAR	IRREGULAR	5,200
CALF HUTCHES	N/A	N/A	3,500
COMMODITY 1	IRREGULAR	IRREGULAR	4,800
COMMODITY 2	133	40	5,320
HAY BARN	140	80	11,200

SHEET 1 OF 1

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
JOE JORDAO DAIRY

STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 9/15/2021
FILE: 01_site.dwg
JOB NO.: 2021-026

REVISIONS		
SYMBOL	DESCRIPTION	APPD.

EXHIBIT B-6

DRAFT

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

CONDITIONS OF APPROVAL AND MITIGATION MEASURES

USE PERMIT APPLICATION NO. PLN2021-0087
JORDAO DAIRY

Department of Planning and Community Development

1. Use(s) shall be conducted as described in the application and supporting information (including the plot plan) as approved by the Planning Commission and/or Board of Supervisors and in accordance with other laws and ordinances.

2. Pursuant to Section 711.4 of the California Fish and Game Code, the applicant is required to pay a California Department of Fish and Wildlife fee at the time of filing a "Notice of Determination. Within five (5) days of approval of this project by the Planning Commission or Board of Supervisors, the applicant shall submit to the Department of Planning and Community Development a check for **$3,100.75**, made payable to **Stanislaus County**, for the payment of California Department of Fish and Wildlife and Clerk-Recorder filing fees.

   Pursuant to Section 711.4 (e) (3) of the California Fish and Game Code, no project shall be operative, vested, or final, nor shall local government permits for the project be valid, until the filing fees required pursuant to this section are paid.

3. Developer shall pay all Public Facilities Impact Fees and Fire Facilities Fees as adopted by Resolution of the Board of Supervisors. The fees shall be payable at the time of issuance of a building permit for any construction in the development project and shall be based on the rates in effect at the time of building permit issuance.

4. The applicant/owner is required to defend, indemnify, or hold harmless the County, its officers, and employees from any claim, action, or proceedings against the County to set aside the approval of the project which is brought within the applicable statute of limitations. The County shall promptly notify the applicant of any claim, action, or proceeding to set aside the approval and shall cooperate fully in the defense.

5. The Department of Planning and Community Development shall record a Notice of Administrative Conditions and Restrictions with the County Recorder's Office within 30 days of project approval. The Notice includes: Conditions of Approval/Development Standards and Schedule; any adopted Mitigation Measures; and a project area map.

6. Should any archeological or human remains be discovered during development, work shall be immediately halted within 150 feet of the find until it can be evaluated by a

qualified archaeologist. If the find is determined to be historically or culturally significant, appropriate mitigation measures to protect and preserve the resource shall be formulated and implemented. The Central California Information Center shall be notified if the find is deemed historically or culturally significant.

7. A photometric lighting plan shall be submitted for review and approval by the Planning Department, prior to the installation of any additional lighting. All exterior lighting shall be designed (aimed down and toward the site) to provide adequate illumination without a glare effect. This shall include, but not be limited to, the use of shielded light fixtures to prevent skyglow (light spilling into the night sky) and the installation of shielded fixtures to prevent light trespass (glare and spill light that shines onto neighboring properties). The height of any freestanding lighting fixtures should not exceed 15 feet above grade.

Department of Public Works

8. No parking, loading, or unloading of vehicles will be permitted within the Stanislaus County road right-of-way.

9. The developer will be required to install or pay for the installation of any signs and/or markings, if warranted.

10. Prior to either increasing the herd or the issuance of a grading permit or building permit, whichever comes first, an Encroachment Permit shall be obtained for the unpaved driveways that access the dairy site from Central Avenue. The driveways shall be installed as per Stanislaus County Public Work Standards and Specifications.

11. Prior to increasing the herd or the issuance of a grading permit or a building permit, whichever comes first, Central Avenue is classified as an 80-foot Major Collector Road. The current right-of-way width of the Central Avenue at the project site is 40 feet for the full road width. The required ½ width of Central Avenue is 40 feet west of the centerline of the roadway. The existing right-of-way is 20 feet west of the centerline of the roadway. The remaining 20 feet west of the centerline shall be dedicated as an Irrevocable Offer of Dedication.

12. A grading, drainage, and erosion/sediment control plan for the project site shall be submitted for any building permit that will create a larger or smaller building footprint. The grading and drainage plan shall include the following information:

    a. The plan shall contain drainage calculations and enough information to verify that runoff from project will not flow onto adjacent properties and Stanislaus County road right-of-way. Public Works will review and approve the drainage calculations.

    b. For projects greater than one-acre in size, the grading drainage and erosion/sediment control plan shall comply with the current State of California National Pollutant Discharge Elimination System (NPDES) General Construction Permit. A Waste Discharge Identification Number (WDID) and a copy of the Notice of Intent (NOI) and the project's Storm Water Pollution Prevention Plan (SWPPP) shall be provided prior to the approval of any grading, if applicable.

c. The applicant of the grading permit shall pay the current Stanislaus County Public Works weighted labor rate for review of the grading plan.

d. The applicant of the grading permit shall pay the current Stanislaus County Public Works weighted labor rate for all on-site inspections. The Public Works inspector shall be contacted 48 hours prior to the commencement of any grading or drainage work on-site.

Building Permits Division

13. Building permits are required and the project must conform with the California Code of Regulations, Title 24.

Department of Environmental Resources (DER)

14. Prior to issuance of any grading or building permit, the applicant shall submit a site plan that includes the location, layout and design of all-existing and proposed on-site wastewater treatment systems (OWTS) and the future 100 percent expansion (replacement) areas, and evidence that the existing OWTS meets the County's Local Agency Management Program (LAMP) requirements, and that the existing and/or any proposed OWTS meets conditions and guidelines, as established by Measure X, regarding Primary and Secondary wastewater treatment.

15. Prior to issuance of a building permit, the applicant shall secure all necessary permits for the destruction/relocation of any on-site water wells and water distribution lines, and/or the on-site wastewater treatment system (OWTS) at the project site under the direction of DER. All applicable County Local Agency Management Program (LAMP) standards and required setbacks are to be met.

16. Prior to final occupancy of any new building, a water supply permit for a state small water system, as defined by California Health and Safety Code (CA HSC), Section 116275(n) and Title 22 California Code of Regulations (CCR) Section 64211, shall be issued by DER, serving as Local Primary Agency.

17. The applicant shall contact the Department of Environmental Resources regarding appropriate permitting requirements for monitoring wells, exploratory borings, hazardous materials, and/or wastes. The applicant and/or occupants handling hazardous materials or generating wastes must notify the department prior to operation.

San Joaquin Valley Air Pollution Control District (SJVAPCD)

18. Any construction resulting from this project shall comply with standardized dust controls adopted by the SJVAPCD and may be subject to additional regulations/permits, as determined by the SJVAPCD.

19. Prior to final of any building permit for the proposed use, an Authority to Construct (ATC) and Permit to Operate (PTO) must be issued to the project proponent by the SJVAPCD.

20. Prior to issuance of a building permit to demolish a structure, the applicant shall contact the SJVAPCD to determine rules or permits required under Rule 4002 for a thorough

inspection for asbestos.

21. Prior to the start of construction, the property owner/operator shall contact the SJVAPCD to determine if any SJVAPCD rules or permits are required, including, but not limited to, Regulation VIII, (Fugitive PM10 Prohibitions), Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities), Rule 4102 (Nuisance), Rule 4601 (Architectural Coatings), Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations), Rule 4550 (Conservation Management Practices), and Rule 4570 (Confined Animal Facilities).

Turlock Irrigation District (TID)

22. A 36-inch concrete pipeline and 25-foot irrigation easement belonging to TID Improvement District (ID) 9720, The Ables Kapor Branch, runs east to west along approximately the northern border of the subject parcel. Any impacts to TID facilities, occurring as a result of project development, shall meet TID requirements.

Turlock Mosquito Abatement District

23. Any additional wastewater shall be monitored and controlled pursuant to all applicable District standards, rules and regulations. Standing water must be confined to existing lagoons and kept free of vegetation to limit mosquito breeding.

Central Valley Regional Water Quality Control Board

24. Prior to increasing the herd, the dairy operator shall be responsible for contacting the Central Valley Regional Water Quality Control Board to determine if any permits are required.

Mitigation Measures

25. The following Best Management Practices shall be implemented as applicable:
    - Positive drainage shall be included in project design and construction to ensure that excessive ponding does not occur. The design shall comply with Title 3, Division 2, Chapter 1, Article 22, Section 646.1 of the Food and Agriculture Code for construction and maintenance of dairy or facility surroundings, corrals, and ramps, as described below.
    - Dirt or unpaved corrals, or unpaved lanes, shall not be located closer than 25 feet from the milking barn or closer than 50 feet from the milk house. Corral drainage must be provided.
    - A paved (concrete or equivalent) ramp or corral shall be provided to allow the animals to enter and leave the milking barn. This paved area shall be curbed (minimum of six inches high and six inches wide) and sloped to a drain. Cow washing areas shall be paved (concrete or equivalent) and sloped to a drain. The perimeter of the area shall be constructed in a manner that will retain the wash water to a paved drained area. Paved access shall be provided to permanent feed racks, mangers, and water troughs. Water troughs shall be provided with: (1) a drain to carry the water from the corrals; and (2) pavement (concrete or equivalent) which is at least 10 feet wide at the drinking area.

- The cow standing platform at permanent feed racks shall be paved with concrete or equivalent for at least ten feet back of the stanchion line.
- As unpaved areas are cleaned, depressions tend to form, allowing ponding and increased infiltration. Regular maintenance shall include filling of depressions. Personnel shall be taught the correct use of manure collection machines (wheel loaders or elevating scrapers).

The dairy operator/property owner shall be responsible for providing, to the satisfaction of the Planning Director, documentation of the implementation of the aforementioned Best Management Practices. The dairy operator/property owner shall be responsible for paying the County's actual costs of verifying compliance. If the County finds any of the applicable Best Management Practices have not been implemented, the dairy operator/property owner shall implement said Best Management Practices within the time frame specified in writing by the County.

26. The applicant shall comply with requirements of the Nutrient Management Plan (NMP) and Waste Management Plan (WMP) submitted to the County, as part of the Use Permit approval. The application rates of liquid and/or solid manure identified within the NMP shall not result in total nitrogen applied to the land application areas exceeding 1.65 times total nitrogen that will be removed from the field in the harvested portion of the crop. Upon request, compliance shall be verified by the collection of nutrient samples for nitrogen, potassium, phosphorus, and salts prior to and during application periods to confirm agronomic rates within all portions of cropped areas receiving manure, and to protect water supplies. The dairy operator/property owner shall be responsible for hiring a qualified professional, approved by the Planning Director, to collect nutrient samples, interpret the results, and provide said results to the County for review. If determined necessary by the Planning Director, the dairy operator/property owner shall pay for the County's actual costs to hire a third party to review the annual results.

27. The applicant shall enroll in the Central Valley Dairy Representative Monitoring Program (CVDRMP) to meet the requirements for groundwater monitoring. Documentation reflecting enrollment shall be provided to the Stanislaus County Department of Planning and Community Development prior to increasing the herd.

****

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

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, January 1, 2025

1.	**Project title:**	Use Permit Application No. PLN2021-0087 – Jordao Dairy
2.	**Lead agency name and address:**	Stanislaus County 1010 10th Street, Suite 3400 Modesto, CA 95354
3.	**Contact person and phone number:**	Emily DeAnda, Associate Planner (209) 525-6330
4.	**Project location:**	6321, 6237, 6233, 6235, 6231, 6033, 6031, 6025 S. Central Avenue, between Hilmar and Bradbury Roads, in the Turlock area (APN: 057-004-013).
5.	**Project sponsor's name and address:**	Joe Jordao, Jordao Dairy 6025 S. Central Avenue, Turlock, CA 95380
6.	**Williamson Act Contract:**	1973-1344
7.	**General Plan designation:**	Agriculture
8.	**Zoning:**	General Agriculture (A-2-40)

9. Description of project:

Request to increase the herd size from 1,985 mature cows to 3,990 and to allow construction of three loafing barns totaling 236,000± square feet at an existing dairy facility located on a 79.74± acre parcel in the General Agriculture (A-2-40) zoning district. The request includes an increase of 1,055 milk and 210 dry cows and support stock numbers by 800, and a reduction of 60 calves on-site for a total of 90 calves to remain on-site under this request. The existing facility is currently improved with: 548,285 square feet of free stall barns, loafing barns, and other accessory structures associated with the dairy, a dry manure storage area, two feed storage areas, 12 exercise pens, and two wastewater ponds. Additionally, eight single-family residences have been developed on the property, two of which are utilized by the property owner and six are utilized by employees who live on-site. The applicant proposes to construct three new loafing barns for animal housing totaling 236,000± square feet in size, to convert one existing 76,700 square-foot loafing barn to a free stall barn, and to install an anerobic digester, within the existing dairy production area boundary.

The applicant anticipates an increase of 3,385 cubic feet of additional manure per-day generated from the proposed herd expansion for a total of 6,094 cubic feet of manure per-day for the entire dairy operation. Nutrients produced from the herd will be used to fertilize 897 acres of irrigated cropland on parcels located in both Stanislaus and Merced Counties on land owned by the dairy operator. Hours of operation are up to 24 hours per-day, seven days a week.

There are currently eight employees on a maximum shift. The proposed request is expected to increase the number of employees by four for a total of 12 employees on a maximum shift: eight employees will continue to live on-site, and four employees will live off-site. No new employee housing is proposed as part of this request. The applicant does not anticipate any customers on-site. The dairy currently receives a total of two milk truck trips per-day, four feed truck trips per week, three truck trips for tallow per week, and two trips for veterinary services per month. The proposed request is expected to increase the number of feed truck trips by two for a total of six round trip feed truck trips per-week and increase milk truck trips by one for a total of three round trip milk truck trips per-day. The number of tallow truck and veterinary trips are not expected to increase as part of this request. If all of the proposed truck and vehicle trips were to

occur on the same day, there would be a total of 28 truck trips (14 trucks entering and leaving the project site), and eight vehicle trips (a total of four employees entering and leaving the project site) anticipated per-day for a maximum of 36 trips per-day which is an increase of 14 trips per-day from existing operations which includes 22 truck trips and no employee vehicle trips in and out of the facility.

The project site is served by private well and septic system and has access to a County-maintained road by way of S. Central Avenue. Confined Animal Facilities (CAF), which include dairies, are considered to be permitted agricultural uses; however, a use permit is required for new or expanding CAFs requiring a new or modified permit waiver, order, or Waste Discharge Requirements (WDRs) from the Regional Water Quality Control Board (RWQCB), where the issuance of such permit, waiver, order, or WDR requires compliance with the California Environmental Quality Act (CEQA) (Section 21.20.030 (F) of the Stanislaus County Zoning Code). The County adopted the use permit requirement in 2003 in order to allow the County to facilitate the environmental review (in accordance with CEQA) required for issuance of any permit, waiver, order, or WDR by the RWQCB.

10.	**Surrounding land uses and setting:**	County of Merced to the south; scattered single-family dwellings, dairies, and row crops in all directions.
11.	**Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.):**	Stanislaus County Department of Public Works Department of Environmental Resources Milk and Dairy Division Regional Water Quality Control Board San Joaquin Valley Air Pollution Control District
12.	**Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?:**	In accordance with SB 18, this project was not referred to the tribes listed with the Native American Heritage Commission (NAHC) as the project is not a General Plan Amendment. The Muwekma Ohlone Tribe of the San Francisco (S.F.) Bay Area has requested consultation in accordance with AB 52 for all projects located west of the San Joaquin River. This project is not located in that area; accordingly, this project is not being sent to the Muwekma Ohlone S.F. Bay Area tribe.
13.	**Attachments:**	I. Nutrient Management Plan prepared by Patrick Machado, dated September 10, 2021 II. Waste Management Plan prepared by Sousa Engineering, dated August 2021 III. Health Risk Assessment and Ambient Air Quality Analysis prepared by Trinity Consultants, dated April 2023 and revised October 2023 and February 2024 IV. Greenhouse Gas Analysis prepared by Trinity Consultants, dated February 2025, and revised April 2025, October 2025 and March 2026

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ **I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.**

☒ **I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.**

☐ **I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.**

☐ **I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.**

☐ **I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.**

Signature on File **May 15, 2026**
Prepared by Emily DeAnda, Associate Planner 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, then 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.

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, would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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 loafing barns totaling 236,000 square feet 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 Incorporated**	**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: This is a request to expand the herd size of an existing dairy from 1,985 mature cows to 3,990 and to allow construction of three loafing barns totaling 236,000± square feet at an existing dairy facility located on a 79.74± acre parcel. The request includes an increase of 1,055 milk and 210 dry cows and support stock numbers by 800 and a reduction of 60 calves on-site for a total of 90 calves to remain on-site under this request. The request includes an increase of 1,055 milk and 210 dry cows and support stock numbers by 800. The existing facility is currently improved with: 548,285 square feet of free stall barns, loafing barns, and other accessory structures associated with the dairy, a dry manure storage area, two feed storage areas, 12 exercise pens, and two wastewater ponds. The applicant proposes to construct three new loafing barns for animal housing totaling 236,000± square feet in size, and to convert one existing 76,700 square-foot loafing barn to a free stall barn, within the existing dairy production area boundary. Surrounding land uses consist of scattered dairies, single-family dwellings, and row crops in all directions; the County of Merced is located to the south.

In determining most productive agricultural areas, factors to be considered include but are not limited to soil types and potential for agricultural production; the availability of irrigation water; and the existence of Williamson Act contracts. According to Goal Two, Policy 2.5, Implementation Measure 1, of the General Plan's Agricultural Element, when defining the County's most productive agricultural areas, it is important to recognize that soil types alone should not be the determining factor. Although soil types should be considered, the designation of "most productive agricultural areas" also should be based on existing uses and their contributions to the agricultural sector of our economy. The California Revised Storie Index is a rating system based on soil properties, including texture, steepness, and drainage, that dictate the potential for soils to be used for irrigated agricultural production in California. This rating system grades soils with an index rating

between 81-100 to be excellent (Grade 1), 61-80 to be good (Grade 2), 41-60 to be fair (Grade 3), 21-40 to be poor (Grade 4), 11-20 to be very poor (Grade 5), and ten or less to be nonagricultural (Grade 6). The project site is developed with a confined animal facility. The project site is designated by the California Department of Conservation Farmland Mapping and Monitoring Program as Confined Animal Agriculture. According to the California Department of Agriculture's Natural Resources Conservation Service's Soil Survey, the project site's soil is classified as being comprised of Hilmar loamy sand, slightly saline-alkali, 0 to 1 percent slopes (HkbA – Storie Index Rating: 54, Grade 3), Delhi loamy sand, 0 to 3 percent slopes, MLRA 17 (DeA – Storie Index Rating: 67, Grade 2), Delhi sand, 3 to 8 percent slopes, MLRA 17 (DhB – Storie Index Rating: 46, Grade 3), and Dinuba sandy loam, slightly saline-alkali, 0 to 1 percent slopes (DwA – Storie Index Rating: 68, Grade 2). However, the site does qualify as prime agricultural land based on the site having irrigated land, which supports livestock used for the production of food and fiber. Based on this information, the project will not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use and will not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use, as the existing project site is developed with a confined animal facility and will remain a confined animal facility following project approval.

The Agricultural Element includes a requirement for an agricultural buffer to protect the long-term health of local agriculture by minimizing conflicts resulting from normal agricultural practices as a consequence of new or expanding uses approved in or adjacent to the A-2 (General Agriculture) zoning district. These guidelines apply to all new or expanding uses approved by discretionary permitting in the A-2 zoning district or on a parcel adjoining the A-2 zoning district. However, dairies are considered to be a permitted agricultural use in the A-2 zoning district in Stanislaus County. Use permits are only processed for the expansion of dairy facilities when the Regional Water Quality Control Board (RWQCB) determines that Waste Discharge Requirements (WDRs) are required, which requires CEQA compliance. As dairies are a permitted use, an agricultural buffer is not required for this project. As dairies are a permitted use, an agricultural buffer is not required for this project. Additionally, the project site is currently enrolled under California Land Conservancy ("Williamson Act") Contract No. 73-1344. Uses requiring use permits that are approved on lands under California Land Conservation Contracts (Williamson Act Contracts) shall be consistent with all of the following principles of compatibility:

1. The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in the A-2 zoning district;

2. The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in the A-2 zoning district; and

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

As a permitted agricultural use, the project is considered to be consistent with the Williamson Act Principals of Compatibility.

The existing dairy facility utilizes a scrape cleaning system and is already improved with all the necessary corrals, feed storage, waste management, and utilities necessary to accommodate the proposed herd expansion. The site is served by an on-site domestic well and private septic systems. The attached Waste Management Plan (WMP) and Nutrient Management Plan (NMP) provide details on managing the expanded dairy cow stock. Nutrients produced from the herd will be used to fertilize 897 acres of irrigated cropland on parcels located in both Stanislaus and Merced Counties on land owned by the diary operator.

The project site is located within the Turlock Irrigation District (TID) boundaries. The project was referred to TID which responded stating the District has no comment on the project.

The project will have no impact to forest land or timberland. If approved, the project will not conflict with any agricultural activities in the area and/or lands enrolled in the Williamson Act, as the parcels will continue to be used for agricultural purposes.

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: Application information; USDA – NRCS Web Soil Survey; California State Department of Conservation Farmland Mapping and Monitoring Program – Stanislaus County Farmland 2022; Referral response from the Turlock Irrigation District, dated May 20, 2024; Waste Management Plan prepared by Sousa Engineering, dated August 2021; Nutrient Management Plan prepared by Patrick Machado, dated September 10, 2021; Stanislaus County Zoning Ordinance (Title 21); 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 Incorporated**	**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 as "extreme non-attainment" for ozone, "attainment" for respirable particulate matter (PM-10), and "non-attainment" for PM 2.5, as defined by the Federal Clean Air Act.

This is a request to expand the herd size of an existing dairy from 1,985 mature cows to 3,990 and to allow construction of three loafing barns totaling 236,000± square feet. The request includes an increase of 1,055 milk and 210 dry cows and support stock numbers by 800 and a reduction of 60 calves on-site for a total of 90 calves to remain on-site under this request. The existing facility is currently improved with: 548,285 square feet of free stall barns, loafing barns, and other accessory structures associated with the dairy, a dry manure storage area, two feed storage areas, 12 exercise pens, and two wastewater ponds. Additionally, eight single-family residences have been developed on the property, two of which are utilized by the property owner and six are utilized by employees, who live on-site. The applicant proposes to construct three new loafing barns for animal housing totaling 236,000± square feet in size, and to convert one existing 76,700 square-foot loafing barn to a free stall barn, within the existing dairy production area boundary. The applicant anticipates an increase of 3,385 cubic feet of additional manure per-day generated from the proposed herd expansion for a total of 6,094 cubic feet of manure per-day for the entire dairy operation. Nutrients produced from the herd will be used to fertilize 897 acres of irrigated cropland on parcels located in both Stanislaus and Merced Counties on land owned by the diary operator. Hours of operation are up to 24 hours per-day, seven days a week. There are currently eight employees on a maximum shift. The proposed request is expected to increase the number of employees by four for a total of 12 employees on a maximum shift: eight employees will continue to live on-site, and four employees will live off-site. No new employee housing is proposed as part of this request. The applicant does not anticipate any customers on-site. If all truck trips for tallow, feed, veterinary service, and milk were to fall on the same day a total of 28 truck trips (14 trucks entering and leaving the project site), and eight vehicle trips (four employees entering and leaving the project site) are anticipated per-day for a maximum of 36 trips per-day which is an increase of 14 trips per-day from existing operations which includes 22 truck trips and no employee vehicle trips in and out of the facility.

A referral response was received from the SJVAPCD which recommended that a more detailed preliminary review of the project be conducted for the project's construction and operational emissions to determine whether the project will exceed the District's thresholds of significance for carbon monoxide (CO), oxides of nitrogen (NOx), reactive organic gases (ROG), oxides of sulfur (SOx), and particulate matter (PM10 and PM2.5). Further, the SJVAPCD recommended other potential air impacts related to Toxic Air Contaminants, Ambient Air Quality Standards, and Hazards and Odors be addressed. The SJVAPCD recommended the project be evaluated for potential health impacts to surrounding receptors (on-site and off-

site) resulting from operational and multiyear construction Toxic Air Contaminants (TAC) emissions and stated that a Health Risk Assessment should evaluate the risk associated with sensitive receptors in the area and mitigate any potentially significant risk to help limit emission exposure to sensitive receptors. The SJVAPCD also recommended the County advise the applicant to utilize zero emission equipment. Additionally, SJVAPCD recommended that if emissions exceed 100 pounds per-day of any pollutant, an Ambient Air Quality Analysis (AAQA) be performed. The SJVAPCD also recommended the environmental document include a discussion on nuisance odors; 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 SJVAPCD response indicated the project will be subject to District Rule 2010 (Permits Required), Rule 2201 (New and Modified Stationary Source Review), and Rule 4002 (National Emissions Standards for Hazardous Air Pollutants). The project may also be subject to the following rules: Regulation VIII, (Fugitive PM10 Prohibitions), Rule 4102 (Nuisance), Rule 4601 (Architectural Coatings), Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations), Rule 4550 (Conservation Management Practices), and Rule 4570 (Confined Animal Facilities). The SJVAPCD defines a stationary source as “any building, structure, facility, or installation which emits or may emit any affected pollutant directly or as a fugitive emission” under Section 3.43 of Rule 2201 New and Modified Stationary Source Review Rule. Stationary sources include dairies. The project may be subject to other applicable District permits and rules, which must be met as part of the District’s Authority to Construct (ATC) and Permit to Operate (PTO) permitting process.

In response to the Air District comments, a Health Risk Assessment (HRA) and Ambient Air Quality Analysis (AAQA) were prepared by Trinity Consultants, dated April 2023 and revised October 2023 and February 2024. The HRA evaluated the potential risk to the population attributable to emissions of hazardous air pollutants from the proposed dairy expansion and the AAQA evaluated the criteria pollutants compared to the California and national ambient air quality standards. Emissions of hazardous air pollutants attributable to the proposed 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 2020.4.0 (CalEEMod). Construction emissions were evaluated assuming construction would occur within one phase, to be conservative, and be completed within five to ten years of issuance of a use permit. The actual total construction activities were estimated to be two months.

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 heavy industrial usages were utilized. Default horsepower, daily operating hours, and load factors were also used. Operational mobile sources include diesel-fueled milk delivery trucks, solids manure removal trucks, commodity delivery trucks, a manure scraping tractor, a manure loading tractor, a bedding delivery tractor, feed loading tractor and a feed delivery tractor. There will also be emissions from the housing barns, milk barn, lagoons, solid manure storage and land application areas associated with increased herd size.

The air dispersion model, which calculates the concentration of selected pollutants at specific downwind points such as residential or off-site workplace receptors, used for this HRA was the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD), which is the model recommended by the SJVAPCD. The construction activities, animal housing areas, milk barn, lagoons, solid manure storage, and land application areas were modeled as area sources. The travel route for the feed delivery tractor, bedding delivery tractor, commodity delivery trucks, and manure removal trucks were modeled as line sources. The feed loading tractor, the manure loading tractor, commodity truck idling, and manure removal truck idling were modeled as point sources. A total of eight on-site residential receptor, and 147 off-site receptors, consisting of residences and workers, were assessed in the HRA modeling. The nearest off-site sensitive receptor is approximately 35± feet from the dairy.

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 health hazard indexes, which are the ratio of expected exposure to acceptable exposure. The Air District has set the level of significance for carcinogenic risk to 20 in one million and the maximum predicted cancer risk among the modeled receptors is 19.8 in one million. The level of significance for acute and chronic non-cancer risk is a hazard index of 1.0, and the maximum predicted acute and chronic non-cancer hazard index among the modeled receptors are 0.277 and 0.529, respectively. As both levels are below the SJVAPCD’s level of significance, the potential health risk attributable to the proposed project is determined to be less than significant.

As stated previously, the Air District recommended that an AAQA be performed for all criteria pollutants when emissions of any criteria pollutant resulting from project construction or operational activities exceed the 100 pounds per-day screening level, after compliance with Rule 9510 requirements and implementation of all enforceable mitigation measures. The proposed project's construction emissions were estimated to be 7.18 NOx, 0.85 VOC, 8.20 CO, 0.02 SOx, 0.00 NH3, 1.18 PM10, and 0.61 PM2.5 (pounds per-day). Operational emissions were estimated to be 0.23 NOx, 76.39 VOC, 2.09 CO, 0.004 SOx, 94.20 NH3, 20.49 PM10, and 2.34 PM2.5 (pounds per-day). The proposed project's construction and operational activities will not exceed 100 pounds per-day of any criteria pollutant that has an ambient air quality standard. Therefore, the proposed project is considered less than significant for ambient air quality impacts.

The SJVAPCD reviewed the HRA dated April 2023, which originally did not include an AAQA, and responded with comments requesting multiple revisions to the HRA to ensure the analysis is representative and adequately reflects the project's potential air quality impacts, that an AAQA be performed, and that the operational emissions analysis using the dairy calculator be updated based on their comments. The revised HRA with AAQA (revised October 2023) was subsequently submitted to the Air District for review, and the Air District responded to the October 2023 HRA/AAQA with comments stating that there were no critical issues or substantial changes to be made and requested minor changes for improvements and project data consistency. The HRA/AAQA was revised again, dated February 2024, and the Air District responded stating that the District had no further comments.

Mitigation: None.

References: Application information; San Joaquin Valley Air Pollution Control District - Regulation VIII Fugitive Dust/PM-10 Synopsis; www.valleyair.org; Referral response from San Joaquin Valley Air Pollution Control District, dated November 29, 2021; Email correspondence from the San Joaquin Valley Air Pollution Control District, dated May 25, 2023, December 14, 2023, and March 06, 2024; San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 2201, as amended on April 20, 2023 and in effect August 9, 2023; Health Risk Assessment (HRA) and Ambient Air Quality Analysis (AAQA) prepared by Trinity Consultants, dated April 2023, and revised October 2023 and February 2024; Stanislaus County General Plan and Support Documentation[1].

IV. BIOLOGICAL RESOURCES. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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: The project is located within the Hatch Quad of the California Natural Diversity Database (CNDDB). There are seven species of animals and plants which are state or federally listed, threatened, or identified as species of special concern within the Hatch California Natural Diversity Database Quad. These species include the following: Swainson's hawk, cackling goose, tricolored blackbird, green sturgeon - southern DPS, steelhead - Central Valley DPS, northwestern pond turtle, and California alkali grass. According to the CNDDB, none of the species have been sited within the project area. The western pond turtle has been sited approximately 1.7± miles north of the project site and the Swainson's hawk has been sited approximately 1.7± miles southwest of the project site. Tricolored blackbirds have been observed 1.5 miles to the southwest of the project site. The project site is developed with an existing dairy and the area where the proposed construction will be located is already disturbed. There are no known Waters of the United States on-site. It does not appear that this project will result in impacts to endangered species or habitats, locally designated species, wildlife dispersal, or mitigation corridors as the site is disturbed and improved. The project is anticipated to have a less than significant impact to biological resources.

The project was referred to the California Department of Fish and Wildlife, and no comments have been received to date.

Mitigation: None.

References: Application information; California Department of Fish and Wildlife's Natural Diversity Database Quad Species List; California Natural Diversity Database, Planning and Community Development GIS, accessed May 5, 2026; Stanislaus County General Plan and Support Documentation[1].

V. CULTURAL RESOURCES. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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: As this project is not a General Plan Amendment it was not referred to the tribes listed with the Native American Heritage Commission (NAHC), in accordance with SB 18. Tribal notification of the project was not referred to any tribes in conjunction with AB 52 requirements, as Stanislaus County has not received any requests for consultation from the tribes listed with the NAHC. It does not appear this project will result in significant impacts to any archaeological or cultural resources. The existing facility is currently improved with 548,285 square feet of free stall barns, loafing barns, and other accessory structures associated with the dairy, a dry manure storage area, two feed storage areas, 12 exercise pens, and two wastewater ponds. Additionally, eight single-family residences have been developed on the property. The applicant proposes to construct three new loafing barns for animal housing totaling 236,000± square feet in size, and to convert one existing 76,700 square-foot loafing barn to a free stall barn, within the existing dairy production area boundary. Standard conditions of approval will be placed on the project requiring that any future construction activities shall be halted if any resources are found, until appropriate agencies are contacted, and an archaeological survey is completed. No significant impacts to cultural resources are anticipated to occur as a result of this project.

Mitigation: None.

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

VI. ENERGY. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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 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, total estimated daily vehicle trips to be generated by the project, and the additional energy consumed per trip by mode, which shall be taken into consideration when evaluating energy impacts. Additionally, the project's compliance with applicable state or local energy legislation, policies, and standards must be considered.

All construction activities shall be in compliance with all SJVAPCD regulations and with Title 24, Green Building Code, which includes energy efficiency requirements. The operation proposes to operate out of existing buildings and proposes to construct three new loafing barns for animal housing totaling 236,000± square feet in size, an anaerobic digester, and to convert one existing 76,700 square-foot loafing barn to a free stall barn, for which building permits will be required. Any future construction activities will be required to occur in compliance with all SJVAPCD regulations.

There are currently eight employees on a maximum shift. The proposed request is expected to increase the number of employees by four for a total of 12 employees on a maximum shift: eight employees will continue to live on-site, and four employees will live off-site. No new employee housing is proposed as part of this request. The applicant does not anticipate

any customers on-site. The dairy currently receives a total of two milk truck trips per-day, four feed truck trips per week, three truck trips for tallow per week, and two trips for veterinary services per month. The proposed request is expected to increase the number of feed truck trips by two for a total of six per-week and increase milk truck trips by one for a total of three per-day. The number of tallow truck and veterinary trips are not expected to increase as part of this request. If all truck trips for tallow, feed, veterinary service, and milk were to fall on the same day a total of 28 truck trips (14 trucks entering and leaving the project site), and eight vehicle trips (a total of four employees entering and leaving the project site) are anticipated per-day for a maximum of 36 trips per-day which is an increase of 14 trips per-day from existing operations which includes 22 truck trips and no employee vehicle trips in and out of the facility.

Energy consuming equipment and processes include construction and operational equipment, trucks, and the employee vehicles. As discussed in Section III – Air Quality, a referral response was received from the SJVAPCD indicating that emissions resulting from construction and/or operation of the project may exceed the District's thresholds of significance for carbon monoxide (CO), oxides of nitrogen (NOx), reactive organic gases (ROG), oxides of sulfur (SOx), (PM10), and particulate matter. The SJVAPCD recommended that a more detailed preliminary review of the project be conducted for the project's construction and operational emissions. A Health Risk Assessment (HRA) and Ambient Air Quality Analysis (AAQA) was performed by Trinity Consultants, dated April 2023 and as revised October 2023 and February 2024, to study the health-related impacts and air quality impacts of the proposed project. Construction and operational emissions were analyzed with the California Emissions Estimator Model (CalEEMOD). The analysis evaluated construction and operational ROG, NOx, CO, SO2, PM10, PM2.5, CO2, CH4, and N2O emissions. CalEEMod default equipment listing for general heavy industrial usages were utilized. Default horsepower, daily operating hours, and load factors were also used. According to the analysis, construction equipment sources evaluated included: diesel-fueled dozers, loaders, backhoes, excavators, graders, cranes, forklifts, generator sets, concrete/industrial saws, and welders. Operational mobile sources include: diesel-fueled milk delivery trucks, solids manure removal trucks, commodity delivery trucks, a manure scraping tractor, a manure loading tractor, a bedding delivery tractor, a feed loading tractor, and a feed delivery tractor. The actual total construction activities were estimated to be over the course of 12 months. The analysis found the average daily emissions for construction and operational activities associated with this project would not exceed 100 pounds per-day for any criteria pollutant that has an ambient air quality standard and therefore are below the Air District's thresholds of significance. The construction equipment will be temporary in nature and is not anticipated to consume a significant amount of energy resources. The equipment to be utilized under the project will not have the potential to significantly contribute to an exceedance of state or federal Ambient Air Quality Standards. A more detailed discussion may be found in the Air Quality section of this checklist.

A Greenhouse Gas (GHG) Analysis was also performed by Trinity Consultants upon the County's request, dated February 2025, and as revised April 2025, October 2025 and March 2026, to study the GHG emissions resulting from the proposed dairy herd expansion. The analysis identified GHG emissions resulting from both construction and operational activities under the proposed request. Construction emissions include contributions from on-site construction equipment, worker commutes, vendor trips, and material hauling to and from the project site. Operational emissions include long term emissions resulting from dairy operations, including utility usage and mobile sources as well. GHG emissions resulting from construction are estimated to be approximately 292 metric tons MTCO2e during the first year of construction and approximately 215 MTCO2e during the second year of construction. Under existing conditions, the operation of the dairy emits a total of 12,132.86 MTCO2e per year. The total operational emissions post-project for the dairy resulting from daily operations, utility usage, and mobile sources (with the proposed digester on-site) would result in a total of 13,404.64 MTCO2e per year for the dairy facility which is a net increase of 1,271.78 MTCO2e per year from existing conditions.

As discussed in further detail in Section VIII – *Greenhouse Gas Emissions*, for the construction phase of the project, the Sacramento Metropolitan Air Quality Management District's (SMAQMD) threshold of 1,100 MTCO2e per year of GHG emissions is being used to evaluate significance of the construction emissions resulting from the project. For operational emissions, the GHG Analysis uses a combination of the following significance thresholds: individual incremental increase in GHG emissions is below the 10,000 MTCO2e/yr threshold; and the total facility-wide emissions post-project would remain below the 25,000 MTCO2e/yr threshold. According to the GHG Analysis prepared by Trinity Consultants, the proposed project's individual incremental increase in GHG emissions will be 1,271.78 MTCO2e per year which is below the 10,000 MTCO2e/yr threshold. The total post-project facility-wide emissions would be 13,404.64 which would remain below the 25,000 MTCO2e/yr threshold. Therefore, the proposed project's GHG impact from consumption of energy resources and during operation would be considered less than significant.

As specified within the GHG Analysis regarding utility usage, California's regulatory framework, including the Cap-and-Trade Program, LCFS, and Renewable Portfolio, ensures that electricity and fuel consumption align with statewide climate policies. As noted in South Coast Air Quality Management District's (AQMD's) Final Negative Declaration for the Phillips

66 Los Angeles Refinery Carson Plant Project (2014), energy consumers operate within a regulated system designed to reduce GHG emissions. Similarly, this Project would source energy and fuel from California's regulated market, where production and supply chains are subject to emissions reduction mandates.

Additionally, operational equipment consisting of the vehicle and truck trips would not significantly increase Vehicle Miles Traveled (VMT), due to the number of vehicle trips not exceeding a total of 110 vehicle trips per-day. As stated previously, if all truck trips for tallow, feed, veterinary service, and milk were to fall on the same day, a maximum of 28 truck trips and eight vehicle trips per-day is anticipated which is an increase of 14 trips per-day for the dairy. The trucks are the main consumers of energy associated with this project but shall be required to meet all Air District regulations, including rules and regulations that increase energy efficiency for heavy trucks. Consequently, emissions would be minimal. Therefore, consumption of energy resources would be less-than significant without mitigation for the proposed project.

The project was referred to Turlock Irrigation District (TID) which responded with no comment.

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.

Impacts to energy are considered to be less than significant.

Mitigation: None.

References: Application information; CEQA Guidelines; Title 16 of County Code; CA Building Code; Governor's Office of Planning and Research Technical Advisory, December 2018; Referral response from San Joaquin Valley Air Pollution Control District, dated November 29, 2021; Email correspondence from the San Joaquin Valley Air Pollution Control District, dated May 25, 2023, December 14, 2023, and March 06, 2024; Health Risk Assessment (HRA) and Ambient Air Quality Analysis (AAQA) prepared by Trinity Consultants, dated April 2023, and revised October 2023 and February 2024; Greenhouse Gas Analysis prepared by Trinity Consultants, dated February 2025, and revised April 2025, October 2025 and March 2026; Referral response from Turlock Irrigation District, dated May 20, 2024; Sacramento Metropolitan Air Quality Management District's (SMAQMD) Justification for Greenhouse Gas Emissions Thresholds of Significance, dated September 2014; Stanislaus County General Plan and Support Documentation[1].

VII. GEOLOGY AND SOILS. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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			**X**	

	landslide, lateral spreading, subsidence, liquefaction or collapse?				
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 United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS) Web Soil Survey indicates that the soil consists of Hilmar loamy sand, Delhi loamy sand, Delhi sand, and Dinuba sandy loam. As contained in Chapter 5 of the General Plan Support Documentation, the areas of the County subject to significant geologic hazard are located in the Diablo Range, west of Interstate 5; however, as per the California Building Code, all of Stanislaus County is located within a geologic hazard zone (Seismic Design Category D, E, or F) and a soils test may be required at the building permit application. Results from the soils test will determine if unstable or expansive soils are present. If such soils are present, special engineering of the structure will be required to compensate for the soil deficiency. Any structures resulting from this project will be designed and built according to building standards appropriate to withstand shaking for the area in which they are constructed. Any earth moving is subject to Public Works Standards and Specifications, which consider the potential for erosion and run-off prior to permit approval. Likewise, any addition or expansion of a septic tank or alternative wastewater 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 was referred to the Stanislaus County Department of Environmental Resources (DER) who requested any new building requiring an on-site wastewater treatment system (OWTS) shall meet all Local Agency Management Program (LAMP) standards and be designed according to type and/or maximum occupancy of the proposed structure to the estimated waste/sewage design flow. DER also stated the applicant(s) shall submit a site plan that includes the location, layout, and design of all-existing and proposed on-site wastewater treatment systems (OWTS) and the future 100% expansion (replacement) Areas. No new septic system, or well is proposed under this project. DER's comments will be added to the project as conditions of approval.

An Early Consultation referral response received from the Department of Public Works indicated that a grading, drainage, and erosion/sediment control plan will be required, subject to Public Works review and Standards and Specifications. Public Works' comment will be applied to the project as a condition of approval.

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. Accordingly, the potential impacts to the soil are considered to be less-than significant.

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. Impacts to Geology and Soils are anticipated to be less than significant.

Mitigation: None.

References: Application information; USDA – NRCS Web Soil Survey; Referral response from the Department of Environmental Resources (DER), dated May 20, 2024; Referral response received from Stanislaus County Department of Public Works dated, November 17, 2021; Stanislaus County Zoning Ordinance (Title 21); Stanislaus County General Plan and Support Documentation[1].

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

Discussion: The principal Greenhouse Gasses (GHGs) are carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF6), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and water vapor (H2O). CO2 is the reference gas for climate change because it is the predominant greenhouse gas emitted. To account for the varying warming potential of different GHGs, GHG emissions are often quantified and reported as CO2 equivalents (CO2e). In 2006, California passed the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] No. 32), which requires the California Air Resources Board (ARB) design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020. Two additional bills, SB 350 and SB32, were passed in 2015 further amending the states Renewables Portfolio Standard (RPS) for electrical generation and amending the reduction targets to 40 percent of 1990 levels by 2030. Senate Bill (SB) 1383 (Lara) was enacted in 2015 to address short-lived climate pollutants (SLCP), such as methane, and requires the dairy and livestock sector to reduce its methane emissions by 40 percent below 2013 levels by 2030.

The California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (California Mandatory Reporting Rule) approved in 2007, requires certain large emitters and suppliers that emit 10,000 metric tons of CO2e (MTCO2e) or more per year to report their GHG data on an annual basis. While the California Mandatory Reporting Rule excludes GHG emissions related to livestock manure management systems, Stanislaus County conducted a County-wide GHG inventory analysis of GHGs in 2013 which summarized inventory levels captured in 2005 which reported agriculture emissions from livestock as 18% of total GHGs within the County at a total of 1,113,647 MTCO2e. From the mid-2000s into the 2020s, milk cow numbers within the County have fluctuated between 175,000 milk cows at the lowest end to 185,000 milk cows at the highest. In 2005, Stanislaus County had 183,762 milk cows. In the California Department of Food and Agriculture's (CDFA) most recent Agricultural Statistics for 2023-2024, the County had 155,000 milk cows. The fluctuating trend of milk cows within the County is the result of many dairies having either merged, or larger dairies purchasing milk cows from smaller dairies that have left the industry throughout the state. State-wide, the number of milk cows in California has decreased overall from 2005 to 2023 from 1,757,661 milk cows (2005) to 1,715,000 milk cows (2023), resulting in an overall decrease of 42,661 milk cows within the state.

This is a request to expand the herd size of an existing dairy from 1,985 mature cows to 3,990 and to allow construction of three loafing barns totaling 236,000± square feet. The request includes an increase of 1,055 milk and 210 dry cows and support stock numbers by 800 and a reduction of 60 calves on-site for a total of 90 calves to remain on-site under this request. The existing facility is currently improved with: 548,285 square feet of free stall barns, loafing barns, and other accessory structures associated with the dairy, a dry manure storage area, two feed storage areas, 12 exercise pens, and two wastewater ponds. Additionally, eight single-family residences have been developed on the property, two of which are utilized by the property owner and six are utilized by employees, who live on-site. The applicant proposes to construct three new loafing barns for animal housing totaling 236,000± square feet in size, and to convert one existing 76,700 square-foot loafing barn to a free stall barn, and to install an anerobic digester within the existing dairy production area boundary.

Dairy and livestock methane emissions originate from two primary sources, manure management and enteric fermentation (the digestive process within a cow). As a result of this request for additional cows on-site, methane emissions will increase for the facility. Reductions in methane emissions can primarily be achieved through modifications to manure management activities such as the installation of an anaerobic digester or solid separation, and strategies to reduce enteric methane emissions such as incorporating methane inhibiting feed additives. The California Air Resources Board (CARB) 2017 Scoping Plan was adopted in November of 2017 in order to meet the reduction requirements under SB 1383. CARB is only authorized to implement regulations to meet the SB 1383 2030 target (as of January 1, 2024) provided that CARB, in consultation with the California Department of Food and Agriculture (CDFA), determine the regulations are technologically and economically feasible, cost-effective, include provisions to minimize and mitigate potential leakage, and include an evaluation of the achievements made by incentive-based programs. While further research is being conducted regarding enteric methane reduction options, the dairy and livestock sector has predominantly relied on manure management

strategies to achieve the methane emissions reductions required under SB 1383. The CDFA provides financial assistance to dairies through the Alternative Manure Management Program (AMMP) to implement alternative manure management strategies in order to reduce methane emissions from manure and achieve the SB 1383 reduction target. The Jordao Dairy was awarded funds from the CDFA's 2019 AMMP funding for a mechanical solids separator (solid separation) to reduce methane on-site which resulted in a reduction of 4,707 MTCO2e from 2020-2025 and has an annual reduction rate of 941 MTCO2e for a herd size of up to 3,000. As part of this request, an anerobic digester is proposed to further reduce the number of emissions resulting from the herd increase. The dairy facility will be in compliance with SB 1383 reduction targets as the dairy proposes to install the anaerobic digester to reduce methane emissions on-site for the ultimate herd size of 3,990 cows.

The proposed request is expected to increase the number of employees by four for a total of 12 employees on a maximum shift: eight employees will continue to live on-site, and four employees will live off-site. There are currently eight employees on a maximum shift. No new employee housing is proposed as part of this request. If all truck trips for tallow, feed, veterinary service, and milk were to fall on the same day a total of 28 truck trips (14 trucks entering and leaving the project site), and eight vehicle trips (a total of four employees entering and leaving the project site) are anticipated per-day for a maximum of 36 trips per-day which is an increase of 14 trips per-day from existing operations which includes 22 truck trips and no employee vehicle trips in and out of the facility.

A referral response was received from the SJVAPCD indicating that emissions resulting from construction and/or operation of the project may exceed the District's thresholds of significance for carbon monoxide (CO), oxides of nitrogen (NOx), reactive organic gases (ROG), oxides of sulfur (SOx), (PM10), and particulate matter. The SJVAPCD recommended that a more detailed preliminary review of the project be conducted for the project's construction and operational emissions. The SJVAPCD response indicated the project will be subject to District Rule 2010 (Permits Required) and Rule 2201 (New and Modified Stationary Source Review) and Rule 4002 (National Emissions Standards for Hazardous Air Pollutants). The project may also be subject to the following rules: Regulation VIII, (Fugitive PM10 Prohibitions), Rule 4102 (Nuisance), Rule 4601 (Architectural Coatings), Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations), Rule 4550 (Conservation Management Practices), and Rule 4570 (Confined Animal Facilities).. The SJVAPCD defines a stationary source as "any building, structure, facility, or installation which emits or may emit any affected pollutant directly or as a fugitive emission" under Section 3.43 of Rule 2201 New and Modified Stationary Source Review Rule. Stationary sources include dairies. The project may be subject to other applicable District permits and rules, which must be met as part of the District's Authority to Construct (ATC) and Permit to Operate (PTO) permitting process.

A Health Risk Assessment (HRA) and Ambient Air Quality Analysis (AAQA) was performed by Trinity Consultants, dated April 2023 and as revised October 2023 and February 2024, to study the health-related impacts and air quality impacts of the proposed project. Construction and operational emissions were analyzed with the California Emissions Estimator Model (CalEEMOD). The analysis evaluated construction and operational ROG, NOx, CO, SO2, PM10, PM2.5, CO2, CH4, and N2O emissions. CalEEMod default equipment listing for general heavy industrial usages were utilized. Default horsepower, daily operating hours, and load factors were also used. According to the analysis, construction equipment sources evaluated included: diesel-fueled dozers, loaders, backhoes, excavators, graders, cranes, forklifts, generator sets, concrete/industrial saws, and welders. Operational mobile sources include: diesel-fueled milk delivery trucks, solids manure removal trucks, commodity delivery trucks, a manure scraping tractor, a manure loading tractor, a bedding delivery tractor, a feed loading tractor, and a feed delivery tractor. The actual total construction activities were estimated to be over the course of 12 months. The analysis found the average daily emissions for construction and operational activities associated with this project would not exceed 100 pounds per-day for any criteria pollutant that has an ambient air quality standard and therefore are below the Air District's thresholds of significance. The project will not have the potential to significantly contribute to an exceedance of state or federal Ambient Air Quality Standards. A more detailed discussion may be found in the Air Quality section of this checklist.

A Greenhouse Gas (GHG) Analysis was also performed by Trinity Consultants, dated February 2025, and as revised April 2025, October 2025 and March 2026, at the request of the County to study the GHG emissions resulting from the proposed dairy herd expansion. The analysis identified GHG emissions resulting from both construction and operational activities under the proposed request. Construction emissions include contributions from on-site construction equipment, worker commutes, vendor trips, and material hauling to and from the project site. Operational emissions include long term emissions resulting from dairy operations, including utility usage and mobile sources as well. The construction-related GHG emissions for the Project were estimated using CalEEMod Version 2020.4.0. For the dairy operations, the San Joaquin Valley Air Pollution Control District Dairy Calculator was used to estimate manure spreading and enteric GHG emissions from the existing and proposed herd; the 2019 Refinement to the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories methodology (IPCC, 2019) was used to evaluate emissions from

lagoon and solid manure storage, which aligns with CARB's Low Carbon Fuel Standard (LCFS) Tier 1 Simplified CI Calculator for Biomethane from Anaerobic Digestion of Dairy and Swine Manure; GHG emissions from electricity and natural gas (utility usage) were calculated using default CalEEMod Version 2022.1 emission factors, with electricity factors specific to the Turlock Irrigation District and natural gas factors corresponding to non-residential land use types. Emissions resulting from existing operations for the facility as well as construction and post-project operational emissions were analyzed under the GHG analysis. GHG emissions resulting from construction are estimated to be approximately 292 MTCO2e during the first year of construction and approximately 215 MTCO2e during the second year of construction.

Under existing conditions, the operation of the dairy emits a total of 12,132.86 MTCO2e per year. The GHG Analysis estimated total operational emissions post-project for the dairy under two scenarios: emissions resulting from the project without the installation of the proposed digester, and emissions resulting from the proposed project with the installation of the digester. Emissions resulting from daily operations, utility usage, and mobile sources without the proposal of installing a digester on-site would result in a total of 24,797.80 MTCO2e per year. Emissions resulting from daily operations, utility usage, and mobile sources with the installation of the digester on-site would result in total facility emissions of 13,404.64 MTCO2e per year which would be a net increase of 1,271.78 MTCO2e per year from existing baseline emissions (12,132.86 MTCO2e per year). The net increase associated with each additional cow to be located on-site under this current request which includes the installation of a digester would be an increase of 0.63430 MTCO2e per cow per year.

In determining the significance of a project's impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, or with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction of greenhouse gas emissions, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is consistent with those plans, goals, or strategies (CEQA Guidelines Section 15064.4 (b)(3)). At this time, there is no regional or Stanislaus County GHG reduction plan or climate action plan. Therefore, there is no local, regional, or statewide plan regulating global warming by which the proposed project can be measured. The SJVAPCD guidance does not limit the lead agency from establishing its own methodology in determining the significance of project-related greenhouse gas emissions and global climate change impacts. Further, the State CEQA Guidelines specify that thresholds adopted by other agencies may be considered by lead agencies when determining project significance. For the construction phase of the project, the Sacramento Metropolitan Air Quality Management District's (SMAQMD) threshold of 1,100 MTCO2e per year of GHG emissions is being used to evaluate significance of the construction emissions resulting from the project. For operational emissions, the GHG Analysis used a combination of the following significance thresholds: individual incremental increase in GHG emissions is below the 10,000 MTCO2e/yr threshold; and the total facility-wide emissions post-project would remain below the 25,000 MTCO2e/yr threshold. The proposed project's individual incremental increase in GHG emissions will be 1,271.78 MTCO2e per year which is below the 10,000 MTCO2e/yr threshold. The total post-project facility-wide emissions would be 13,404.64 which would remain below the 25,000 MTCO2e/yr threshold. Therefore, the proposed Project's GHG impact would be considered less than significant.

As discussed previously within Section VI – *Energy*, the 2016 California Green Building Standards Code (CALGreen Code) went into effect on January 1, 2017, and includes mandatory provisions applicable to all new residential, commercial, and school buildings. The intent of the CALGreen Code is to establish minimum statewide standards to significantly reduce the GHG emissions from new construction. With the requirements of meeting the Title 24, Green Building Code energy impacts from the project are considered to be less-than significant. A condition of approval will be added to this project that the construction resulting from the project will comply with Title 24, Green Building Code, which includes energy efficiency requirements, prior to issuance of a building permit in order to meet statewide standards.

Impacts associated with greenhouse gas emissions are expected to have a less than significant impact.

Mitigation: None.

References: California Air Resources Board 2019 Edition, California Greenhouse Gas Emission Inventory: 2000 – 2017; Application information; Senate Bill (SB) 1383 (Lara); Stanislaus Countywide Regional Community Greenhouse Gas Inventory, prepared by ICF International, July 2013; California Department of Food and Agriculture's California Agriculture Statistics Review, 2023-2024; United States Department of Agriculture, California Agricultural Statistics, October 2006; California Air Resources Board 2017 Scoping Plan; California Air Resources Board's Final Analysis of Progress toward Achieving the 2030 Dairy and Livestock Methane Emissions Target, dated March 2022; California Department of Food and Agriculture 2022 Alternative Manure Management Program Projects Selected for Award of Funds, as updated on March, 2019; Governor's Office of Planning and Research Technical Advisory, December 2018; San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 2201, as amended on April 20, 2023 and in effect August 9, 2023; Referral response from

the San Joaquin Valley Air Pollution Control District (SJVAPCD) referral response, dated November 29, 2021; Health Risk Assessment (HRA) and Ambient Air Quality Analysis (AAQA) prepared by Trinity Consultants, dated April 2023, and revised October 2023 and February 2024; Greenhouse Gas Analysis prepared by Trinity Consultants, dated February 2025, and revised April 2025, October 2025 and March 2026; CA Building Code; Sacramento Metropolitan Air Quality Management District's (SMAQMD) Justification for Greenhouse Gas Emissions Thresholds of Significance, dated September 2014; Stanislaus County General Plan and Support Documentation[1].

IX. HAZARDS AND HAZARDOUS MATERIALS. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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: Cleaning chemicals are used to regularly clean the existing milk processing equipment in the milking parlor. These chemicals include acids, chlorine, and detergents which, after cleaning is complete, are discharged to the milking parlor sanitary sewer system after the equipment is rinsed. Iodine is applied to the cows' udders after milking; however, iodine is applied directly to the cows and is not discharged. The County Department of Environmental Resources – Hazardous Materials Division (DER HazMat) is responsible for overseeing hazardous materials. This project was referred to the DER HazMat who responded that the applicant should contact DER if the project involves installation of monitoring wells and/or drilling of soil borings. This will be added as a condition of approval to the project. Pesticide exposure is a risk in areas located in the vicinity of agriculture. Sources of exposure include contaminated groundwater from drift from spray applications. Application of sprays is 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 submitted to the Central Valley Regional Water Quality Control Board (CVRWQCB).

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 airport. The site is located in a Local Responsibility Area (LRA) for fire protection and is served by

Mountain View Fire Protection District. The project site is not within the vicinity of any airstrip or wildlands. No significant impacts associated with hazards or hazardous materials are anticipated to occur as a result of the proposed project.

Mitigation: None.

References: Application Information; Referral response from Stanislaus County Department of Environmental Resources – Hazardous Materials Division, dated November 17, 2021; Waste Management Plan prepared by Sousa Engineering, dated August 2021; Nutrient Management Plan prepared by Patrick Machado, dated September 10, 2021; Department of Toxic Substances Control's data management system (EnviroStar); Stanislaus General Plan and Support Documentation[1].

X. HYDROLOGY AND WATER QUALITY. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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:			**X**	
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: Dairies pose a number of potential risks to water quality, primarily related to the amount of manure and wastewater that they generate. Manure and wastewater from animal confinement facilities can contribute pollutants such as nutrients (nitrogen), ammonia, phosphorus, organic matter, sediments, pathogens, hormones, antibiotics, and total dissolved solids (salts). These pollutants, if uncontrolled, can cause several types of water quality impacts, including contamination of drinking water, interference with irrigation systems, and impairment of surface water and groundwater quality. Federal, state, and local regulations have been implemented to protect the quality of surface water and groundwater resources. The primary federal laws for protection of water quality are the Clean Water Act (CWA) and the Safe Drinking Water Act (SDWA). Federal and state regulations based on this underlying legislation range from establishing maximum contaminant levels to setting antidegradation policies.

The primary regulatory program for implementing water quality standards is the federal National Pollutant Discharge Elimination System (NPDES) Program. The United States Environmental Protection Agency (EPA) has delegated NPDES enforcement and administration to the State of California Regional Water Quality Control Board (RWQCB). The Central

Valley RWQCB (CVRWQCB) administers the federal NPDES program for dairies within Stanislaus County. The CVRWQCB adopted the General Waste Discharge Requirements and General NPDES Permit for Existing Milk Cow Dairy Concentrated Animal Feeding Operations (CAFO) within the Central Valley Region, Revised Order No. R5-2011-0091, in December 2011. The CAFO Order serves as a NPDES permit. Under the CAFO Order, owners and operators ("dischargers") of dairies are required to apply for and receive an NPDES permit if the dairy is an operation that stables or confines 700 or more mature dairy cows, whether milked or dry (a Large CAFO) and the operator discharges, or proposes to discharge, pollutants to the waters of the United States. This project requests to expand the herd from 1,035 to 2,300 mature cows, which includes an increase of 1,065 milk and 230 dry cows. Additionally, the applicant proposes to increase support stock numbers by 740 for a total of 1,690 heifers, 15-24 months old. The CAFO Order was written to follow the format of the 2007 General Order for Existing Milk Cow Dairies and Individual Waste Discharge Requirements as closely as possible, while incorporating requirements of the Federal CAFO rule.

Large CAFOs are required to prepare and implement a Nutrient Management Plan (NMP) and Waste Management Plan (WMP), which describe the regulatory requirements for the facility, and together they serve as the primary tool to prevent groundwater contamination and to establish best management practices (BMP) for dairy waste management. The General Order establishes a schedule for dischargers to develop and implement their WMP and NMP, and requires them to make facility modifications as necessary to protect surface water, improve storage capacity, and improve the facility's nitrogen balance before all infrastructure changes are completed. In addition, BMPs intended to minimize surface water discharges and subsurface discharges at dairies are required.

The WMP and NMP have been submitted to the CVRWQCB staff to determine if the amount of wastewater generated 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 124,277 gallons per-day under normal precipitation. The existing and required storage capacities were calculated to be 15,897,750 and 13,571,671 gallons, respectively. CVRWQCB staff is responsible for determining 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.

In May 2018, the CVRWQCB approved new Salt and Nitrate Control Programs. The Nitrate Control Program was developed to address widespread nitrate pollution in the Central Valley. The Board identified areas, referred to as Priority 1 and Priority 2 basins, where nitrates pose a high risk based on the presence of nitrates in groundwater that is being used for drinking water. The site is located within the Turlock Subbasin, which was included in one of these priority areas. Most nitrates in the Turlock Subbasin groundwater are from anthropogenic sources, such as nitrogen fertilizer, feedlot and dairy drainage, septic systems, or wastewater drainage. Nitrate concentrations are generally highest at shallow depths in the unconfined aquifer system but can reach deeper portions of aquifers by downward vertical hydraulic gradients, which can be exacerbated by pumping, or by intra-borehole flow through wells screened at multiple aquifer depths. During Water Year (WY) 2022, 174 of the 318 representative monitoring wells (RMWs) in the Groundwater Sustainability Plan (GSP) monitoring network were sampled for nitrate. In addition, 76 RMWs are classified in the western principal aquifers (western wells screened in both the upper and lower principal aquifers). Nitrate concentrations in the Turlock Subbasin groundwater ranged from not detected (ND) to 56 mg/L. In total, 31 wells (18 percent of all wells) had baseline values that are greater than the 10 mg/L minimum threshold (MT), and four of the wells had the maximum nitrate concentration measured for the first-time during WY 2022. Most of the WY 2022 RMWs are located in the Western Principal Aquifers. In total, 60 RMWs are in the Eastern Subbasin Principal Aquifer, 29 are in the Western Lower Principal Aquifer, and 23 are in the Western Upper Principal Aquifer.

An email provided by CVRWQCB dated January 20, 2022, which was a direct response to the project which included information relating to all current dairy projects, stated the proposed NMP is in agreement with the current Dairy General Order; however, data collected by the Central Valley Dairy Representative Monitoring Program (CVDRMP) has indicated that these nutrient management practices are not sufficient to prevent the pollution of groundwater from cropland. CVRWQCB is placing the review of all NMP and WMP on hold and operators are to proceed at their own discretion; therefore, the proposed project could result in degradation of groundwater resources. The CVRWQCB suggested the CAFO enrolls in the Central Valley Dairy Representative Monitoring Program (CVDRMP) to meet the requirements for groundwater monitoring. While the proposed dairy expansion is not anticipated to increase the potential for impacts to groundwater quality, because elevated nitrate levels have been observed from agricultural operations in general in the Central Valley. Mitigation measures have been incorporated into the project requiring implementation of BMPs, compliance with their WMP

and NMP, and enrollment in the CVDRMP. With mitigation in place, impacts to hydrology and water quality are considered to be less than significant.

Stanislaus County adopted a Groundwater Ordinance in November 2014 (Chapter 9.37 of the County Code, hereinafter, the "Ordinance") that codifies requirements, prohibitions, and exemptions intended to help promote sustainable groundwater extraction in unincorporated areas of the County. The Ordinance prohibits the unsustainable extraction of groundwater and makes issuing permits for new wells, which are not exempt from this prohibition, discretionary. For unincorporated areas covered in an adopted GSP pursuant to SGMA, the County can require permit holders for wells as it reasonably concludes, are withdrawing groundwater unsustainably to provide substantial evidence that continued operation of such wells does not constitute unsustainable extraction and has the authority to regulate future groundwater extraction. The project site utilizes an existing septic system and on-site well and no additional septic systems or wells are included in the request. The project was referred to the Department of Environmental Resources and Environmental Review Committee, who had no comments regarding the project. Any future proposals for new wells will be subject to review under the County's Groundwater Ordinance and Well Permitting Program.

The Sustainable Groundwater Management Act (SGMA), passed in 2014 requires the formation of local Groundwater Sustainability Agencies (GSAs) to oversee the development and implementation of Groundwater Sustainability Plans (GSPs), with the ultimate goal of achieving sustainable management of the state's groundwater basins. Stanislaus County is a participating member in five GSAs across four groundwater subbasins, including: the Eastern San Joaquin Groundwater Subbasin, which covers a portion of Stanislaus County occurring north of the Stanislaus River; commonly referred to as the "northern triangle"; the Modesto Groundwater Subbasin, which covers an area of land located between the Stanislaus and Tuolumne rivers, occurring west of the Sierra Nevada foothills and east of the San Joaquin River; the Turlock Groundwater Subbasin which covers an area of land located between the Tuolumne and Merced rivers, occurring west of the Sierra Nevada Foothills and occurring east of the San Joaquin River; and the Delta-Mendota Groundwater Subbasin which covers an area of land within Stanislaus County located west of the San Joaquin River and east of the basement rock of the Coast Range. Public and private water agencies and user groups within each of the four groundwater subbasins work together as GSAs to implement SGMA. The project site is located in West Turlock Subbasin, which is administered by the West Turlock Subbasin GSA. The project was referred to the West Turlock Subbasin GSA, and no comments were received regarding the proposed project.

Stanislaus County adopted a Groundwater Ordinance in November 2014 (Chapter 9.37 of the County Code, hereinafter, the "Ordinance") that codifies requirements, prohibitions, and exemptions intended to help promote sustainable groundwater extraction in unincorporated areas of the County. The Ordinance prohibits the unsustainable extraction of groundwater and makes issuing permits for new wells, which are not exempt from this prohibition, discretionary. For unincorporated areas covered in an adopted GSP pursuant to SGMA, the County can require holders of permits for wells it reasonably concludes are withdrawing groundwater unsustainably to provide substantial evidence that continued operation of such wells does not constitute unsustainable extraction and has the authority to regulate future groundwater extraction. The site has an existing private well and septic system. There are no additional wells proposed as part of this request.

The project was referred to DER's Groundwater Resources Division and the Environmental Review Committee which responded that the existing water source (well) meets the definition of a state small water system as defined by California Health and Safety Code (CA HSC), Section 116275(n) and Title 22 California Code of Regulations (CCR) Section 64211. Prior to receiving occupancy of any building permit, the property owner must obtain a Water Supply Permit from the Department of Environmental Resources' (DER) Division of Environmental Health (EH) in accordance to CCR Title 22. The property owner shall complete, and provide to the Department of Environmental Resources a water system classification determination and application package for a state small water supply permit. A condition of approval regarding DER's requirements will be placed on the project and required to be completed prior to final of a building permit.

Areas subject to flooding have been identified in accordance with the Federal Emergency Management Act (FEMA). Runoff 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 percent 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 for any on-site work that will alter the building footprint for the site. Consequently, run-off associated with the construction of any new structure will be reviewed as part of the overall building permit review process.

The project site is located within the boundaries of the Turlock Irrigation District (TID). The project was referred to TID which responded stating they had no comments.

Impacts to hydrology and water quality are considered to be less-than significant with mitigation.

Mitigation:

1. The following Best Management Practices shall be implemented as applicable:
    - Positive drainage shall be included in project design and construction to ensure that excessive ponding does not occur. The design shall comply with Title 3, Division 2, Chapter 1, Article 22, Section 646.1 of the Food and Agriculture Code for construction and maintenance of dairy or facility surroundings, corrals, and ramps, as described below.
    - Dirt or unpaved corrals, or unpaved lanes, shall not be located closer than 25-feet from the milking barn or closer than 50-feet from the milk house. Corral drainage must be provided.
    - A paved (concrete or equivalent) ramp or corral shall be provided to allow the animals to enter and leave the milking barn. This paved area shall be curbed (minimum of six inches high and six inches wide) and sloped to a drain. Cow washing areas shall be paved (concrete or equivalent) and sloped to a drain. The perimeter of the area shall be constructed in a manner that will retain the wash water to a paved drained area. Paved access shall be provided to permanent feed racks, mangers, and water troughs. Water troughs shall be provided with: (1) a drain to carry the water from the corrals; and (2) pavement (concrete or equivalent) which is at least ten-feet-wide at the drinking area.
    - The cow standing platform at permanent feed racks shall be paved with concrete or equivalent for at least ten-feet-back of the stanchion line.
    - As unpaved areas are cleaned, depressions tend to form, allowing ponding and increased infiltration. Regular maintenance shall include filling of depressions. Personnel shall be taught the correct use of manure collection machines (wheel loaders or elevating scrapers).

    The dairy operator/property owner shall be responsible for verifying, to the satisfaction of the Planning Director, implementation of the aforementioned Best Management Practices. The dairy operator/property owner shall be responsible for paying the County's actual costs of verifying compliance. If the County finds any of the applicable Best Management Practices have not been implemented, the dairy operator/property owner shall implement said Best Management Practices within the time frame specified in writing by the County. The dairy operator/property owner's verification shall be submitted to the Stanislaus County Planning Department within 60-days of written notice being delivered to the dairy operator/property owner.

2. The applicant shall comply with requirements of the Nutrient Management Plan (NMP) and Waste Management Plan (WMP) submitted to the County, as part of the Use Permit approval. The application rates of liquid and/or solid manure identified within the NMP shall not result in total nitrogen applied to the land application areas exceeding 1.65 times total nitrogen that will be removed from the field in the harvested portion of the crop. Upon request, compliance shall be verified by the collection of nutrient samples for nitrogen, potassium, phosphorus, and salts prior to and during application periods to confirm agronomic rates within all portions of cropped areas receiving manure, and to protect water supplies. The dairy operator/property owner shall be responsible for hiring a qualified professional, approved by the Planning Director, to collect nutrient samples, interpret the results, and provide said results to the County for review. If determined necessary by the Planning Director, the dairy operator/property owner shall pay for the County's actual costs to hire a third party to review the annual results.

3. The applicant shall enroll in the Central Valley Dairy Representative Monitoring Program (CVDRMP) to meet the requirements for groundwater monitoring prior to increasing the herd.

References: Application information; Waste Management Plan prepared by Sousa Engineering, dated August 2021; Nutrient Management Plan prepared by Patrick Machado, dated September 10, 2021; Email from the Central Valley Regional Water Quality Control Board (CVRWQCB), dated January 20, 2022; West Turlock Subbasin and East Turlock Subbasin Groundwater Sustainability Agencies (GSAs) Turlock Subbasin Groundwater Sustainability Plan (GSP) First Annual Report Water Year 2022; Valley Water Collaborative Interactive Ambient Nitrate Map; Referral Response received from the Department of Environmental Resources, dated November 29, 2021; Referral response received from Stanislaus County Department of Public Works, dated November 17, 2021; Stanislaus County General Plan and Support Documentation[1].

XI. LAND USE AND PLANNING. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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 project site is currently enrolled in California Land Conservation Act ("Williamson Act") Contract No. 73 1344. It is not anticipated that the proposed project will impact agricultural operations on the project site or the surrounding parcels that are also under contract and in agricultural production.

Dairies are considered to be a permitted agricultural use in the A-2 zoning district in Stanislaus County. Use permits are only processed for the expansion of dairy facilities when the Regional Water Quality Control Board (RWQCB) determines that Waste Discharge Requirements (WDRs) are required. The RWQCB has determined that the proposed project required amended Waste Discharge Requirements (WDR) which 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. 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 Agricultural Element of the General Plan includes a requirement for an agricultural buffer to protect the long-term health of local agriculture by minimizing conflicts resulting from normal agricultural practices as a consequence of new or expanding uses approved in or adjacent to the A-2 (General Agriculture) zoning district. These guidelines apply to all new or expanding uses approved by discretionary permit in the A-2 zoning district or on a parcel adjoining the A-2 zoning district. Dairies are considered a permitted use under the A-2 Zoning Ordinance. Use permits are only processed for the expansion of dairy facilities when the Regional Water Quality Control Board (RWQCB) determines that Waste Discharge Requirements (WDRs) are required, which requires CEQA compliance. Therefore, an agricultural buffer is not required for this project as the use of a dairy facility is a permitted use within the A-2 zoning district.

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.

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

Mitigation: None.

References: Application information; Waste Management Plan prepared by Sousa Engineering, dated August 2021; Nutrient Management Plan prepared by Patrick Machado, dated September 10, 2021; E-mail correspondence Regional Water Quality Control Board, dated January 20, 2022; Stanislaus County Zoning Ordinance (Title 21); Stanislaus County General Plan and Support Documentation[1].

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

Discussion: The location of all commercially viable mineral resources in Stanislaus County has been mapped by the State Division of Mines and Geology in Special Report 173. There are no known significant resources on the site, 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 Incorporated	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 groundborne vibration or groundborne 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. The Stanislaus County General Plan identifies noise levels for residential or other noise-sensitive land uses of up to 55 hourly Leq, dBA and 75 Lmax, dBA from 7 a.m. to 10 p.m. and 45 hourly Leq, dBA and 65 Lmax, dBA from 10 p.m. to 7 a.m. Pure tone noises, such as music, shall be reduced by five dBA; however, when ambient noise levels exceed the standards, the standards shall be increased to the ambient noise levels. The closest sensitive noise receptors is a residence under the same ownership located adjacent to the project site to the north. On-site grading and construction may result in a temporary increase in the area's ambient noise levels; 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 noise generated by vehicular traffic on South Central Avenue, and neighboring dairy operations.

The site is not located within an airport land use plan. Impacts associated with noise are considered to be less than significant.

Mitigation: None.

References: Application information; Stanislaus County Noise Control Ordinance (Title 10); Stanislaus County General Plan and Support Documentation[1].

XIV. POPULATION AND HOUSING. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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 2023 Stanislaus County Housing Element, which covers the 6th cycle Regional Housing Needs Allocation (RHNA) for the County and will therefore not impact the County's ability to meet their RHNA. No population growth will be induced, nor will any existing housing be displaced as a result of this project.

Mitigation: None.

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

XV. PUBLIC SERVICES. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) 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:			X	
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 one for Fire Facility Fees on behalf of the appropriate fire district, to address impacts to public services. Such fees are required to be paid at the time of building permit issuance.

The project was referred to the appropriate public service agencies. This project was circulated to all applicable school, fire, police, irrigation, public works departments, and districts including Chatom Union School District, Turlock Unified School District, Mountain View Fire Protection District, Stanislaus County Sheriff's Office, Turlock Irrigation District and Stanislaus County Public Works Department during the Early Consultation referral period and no concerns were identified with regard to public services. A referral response received from TID for the project stated that the District has no comment on the project.

The Department of Public Works indicated in a referral response to the project that a grading, drainage, and erosion/sediment control plan for the project shall be submitted prior to the issuance of any building permit. A Storm Water

Pollution Prevention Plan (SWPPP) will be required for future construction prior to the approval of any grading. Public Works requested an Encroachment Permit for the unpaved driveways that access the dairy site from Hultberg Road; the driveways will need to be installed as per Public Works' Standards and Specifications. Public Works also requested a road dedication be provided for Central Avenue which is classified as an 80-foot Major Collector Road. The required half width of Central Avenue is 40-foot west of the centerline of the roadway. The existing right-of-way is 20-feet west of the centerline of the roadway. The remaining 20-feet west of the centerline shall be dedicated as an Irrevocable Offer of Dedication. These comments will be applied as conditions of approval.

Mitigation: None.

References: Application information; Referral response from Turlock Irrigation District, dated May 20, 2024; Referral response from Stanislaus County Environmental Review Committee, dated November 29, 2021; Referral response received from Stanislaus County Public Works Department, dated November 17, 2021; Stanislaus County General Plan and Support Documentation[1].

XVI. RECREATION.	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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.

Impacts to recreation are considered to be less than significant.

Mitigation: None.

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

XVII. TRANSPORTATION. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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: The project site has access to County-maintained S. Central Avenue, which is classified as 80-foot-wide major collector road. It is not anticipated that the project would substantially affect the level of service on S. Central Avenue. 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 road reservations, and a grading, drainage, and sediment management plan. These conditions will be applied to the project.

Section 15064.3 of the CEQA Guidelines establishes specific considerations for evaluating a project's transportation impacts. The CEQA Guidelines identify vehicle miles traveled (VMT), which is the amount and distance of automobile travel attributable to a project, as the most appropriate measure of transportation impacts. A technical advisory on evaluating transportation impacts in CEQA published by the Governor's Office of Planning and Research (OPR) in December of 2018 clarified the definition of automobiles as referring to on-road passenger vehicles, specifically cars and light trucks. While heavy trucks are not considered in the definition of automobiles for which VMT is calculated for, heavy duty truck VMT could be included for modeling convenience. According to the same technical advisory from OPR, projects that generate or attract fewer than 110 trips per-day generally may be assumed to cause a less-than significant transportation impact.

If all truck trips for tallow, feed, veterinary service, and milk were to fall on the same day a total of 28 truck trips (14 trucks entering and leaving the project site), and eight vehicle trips (four employees entering and leaving the project site) are anticipated per-day for a maximum of 36 trips per-day which is an increase of 14 trips per-day from existing operations which includes 22 truck trips and no employee vehicle trips in and out of the facility. VMT increase associated with the proposed project is less-than significant as the number of vehicle trips will not exceed 110 per-day.

Transportation impacts associated with the project are considered to be less than significant.

Mitigation: None.

References: Application information; Governor's Office of Planning and Research Technical Advisory, December 2018; Referral response received from Stanislaus County Department of Public Works, dated November 17, 2021; Stanislaus County General Plan and Support Documentation[1].

XVIII. TRIBAL CULTURAL RESOURCES.	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California native American tribe, and that is:			**X**	
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or			**X**	
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set for the in subdivision (c) of Public Resource Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			**X**	

Discussion: It does not appear that this project will result in significant impacts to any archaeological or cultural resources. In accordance with SB 18, this project was not referred to the tribes listed with the Native American Heritage Commission (NAHC) as the project is not a General Plan Amendment. The Muwekma Ohlone Tribe of the San Franscisco (S.F.) Bay Area has requested consultation in accordance with AB 52 for all projects located west of the San Joaquin River. This project is not located in that area. Accordingly, this project is not being sent to the Muwekma Ohlone S.F. Bay Area

Tribe. If any resources are found during construction, construction activities would halt until a qualified survey takes place and the appropriate authorities are notified. A condition of approval regarding the discovery of cultural resources during any future construction process will be added to the project. Impacts to tribal and cultural resources are considered to be less than significant.

Mitigation: None.

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

XIX. UTILITIES AND SERVICE SYSTEMS. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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: The project proposes to utilize an existing private well for water and an existing septic system. The Department of Environmental Resources (DER) Environmental Health Division commented that any new building requiring an on-site wastewater treatment system (OWTS) shall be designed according to type and/or maximum occupancy of the proposed structure to the estimated waste/sewage design flow rate. All applicable County Local Agency Management Program (LAMP) standards and required setbacks are to be met, and prior to issuance of any grading or building permit, the applicant(s) shall submit a site plan that includes the location of the existing on-site water well(s), and the location, layout and design of all existing on-site wastewater treatment systems (OWTS) and the Future 100% Expansion (Replacement) Areas. Conditions of approval will be added to the project to reflect these requirements, which will be triggered if a building permit is applied for in the future.

The Turlock Irrigation District (TID) provided a referral response of no comment.

The project was referred to DER's Groundwater Resources Division and the Environmental Review Committee which responded that the existing water source (well) meets the definition of a state small water system as defined by California Health and Safety Code (CA HSC), Section 116275(n) and Title 22 California Code of Regulations (CCR) Section 64211. Prior to receiving occupancy of any building permit, the property owner must obtain a Water Supply Permit from the Department of Environmental Resources' (DER) Division of Environmental Health (EH) in accordance to CCR Title 22. The property owner shall complete and provide to the Department of Environmental Resources a water system classification determination and application package for a state small water supply permit. A condition of approval regarding DER's requirements will be placed on the project and required to be completed prior to final of a building permit.

Impacts to utilities and services are considered to be less than significant.

Mitigation: None.

References: Application information; Referral response received from Turlock Irrigation District, dated May 20, 2024; Referral response received from Stanislaus County Department of Environmental Resources, dated November 29, 2021; Referral Response received from Stanislaus County Environmental Review Committee, dated November 29, 2021; 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 Incorporated	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 Stanislaus County Local Hazard Mitigation Plan identifies risks posed by disasters and identifies ways to minimize damage from those disasters. The terrain of the site is relatively flat, and the site has access to a County-maintained road. The site is located in a Local Responsibility Area (LRA) for fire protection and is served by Mountain View Fire Protection District. The project was referred to the District, and no comments have been received to date. California Building and Fire Code establishes minimum standards for the protection of life and property by increasing the ability of a building to resist intrusion of flame and burning embers. The building permits for the construction of three new animal housing structures (roof only) totaling 236,000± square feet in size will be reviewed by the County's Building Permits Division and Fire Prevention Bureau to ensure all State of California Building and Fire Code requirements are met prior to construction. Wildfire risk and risks associated with postfire land changes are considered to be less-than significant.

Mitigation: None.

References: Application information; California Fire Code Title 24, Part 9; California Building Code Title 24, Part 2, Chapter 7; Stanislaus County Local Hazard Mitigation Plan; Stanislaus County General Plan and Support Documentation[1].

XXI. MANDATORY FINDINGS OF SIGNIFICANCE.	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	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: The project has a General Plan designation of Agriculture and zoning designation of General Agriculture with a 40-acre minimum (A-2-40) which allows dairies as a permitted agricultural use; however, a use permit is required if a dairy is expanding and a new or modified permit, waiver, order, or waste discharge requirement is needed from the Regional Water Quality Control Board which requires CEQA compliance. In this case, discretionary approval is required for the expansion of the dairy to allow for amendments to the operation's Waste Discharge Requirements.

The project site is currently enrolled in California Land Conservation Act ("Williamson Act") Contract No. 73-1344. It is not anticipated that the proposed project will impact agricultural operations on the project site or the surrounding parcels that are also under contract and in agricultural production.

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.

It does not appear that this project will result in significant impacts to any archaeological or cultural resources. The project site is already developed with the dairy operation and associated structures. The project site has already been disturbed. Standard conditions of approval regarding the discovery of cultural resources during construction resulting from this request will be added to the project.

The project will not physically divide an established community. The site is surrounded by A-2-40 zoned parcels improved with agricultural uses, including dairies and other confined animal facilities, irrigated cropland, orchards, and scattered single-family dwellings in all directions. Development of the surrounding area is subject to the permitted uses and uses allowed when a use permit is obtained as permitted by the A-2 zoning district. Additionally, the majority of the surrounding parcels located within Stanislaus County are restricted by Williamson Act Contracts and are limited to the uses found to be compatible with the Williamson Act. Any uses beyond the uses permitted in the A-2 zoning district would require a General Plan Amendment and rezoning of the property which would be evaluated through additional environmental review and would take into consideration impacts from the loss of farmland and the potential for farmland conversion and cumulative impacts to the surrounding area.

The proposed project will generate a low amount of vehicle trips. If all truck trips for tallow, feed, veterinary service, and milk were to fall on the same day, at most there will be an anticipated maximum total of 28 truck trips (trucks entering and leaving the facility) and a total of eight vehicle trips per-day (employees entering and leaving the facility) per-day which is

an increase of 14 trips per-day. As this is below the threshold of significance for vehicle and heavy truck trips as discussed in Section XVII - *Transportation*, no significant impacts from the one vehicle trip to transportation are anticipated.

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

Mitigation: None.

References: Application information; 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 December 9, 2025.

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: Jordao Dairy

Physical address of dairy:

6025 S Central AVE	Turlock	Stanislaus	95380
Number and Street	City	County	Zip Code

Street and nearest cross street (if no address):

Date facility was originally placed in operation: 04/01/2007

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

County Assessor Parcel Number(s) for dairy facility:

0045-0030-0013-0000 0045-0030-0022-0000 0057-0004-0013-0000 0057-0004-0014-0000

B. OPERATOR NAME: Jordao, Joe Telephone no.: Landline (209) 678-1705 Cellular

6025 S Central AVE	Turlock	CA	95380
Mailing Address Number and Street	City	State	Zip Code

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

C. LEGAL OWNER NAME: Jordao, Joe Telephone no.: Landline (209) 678-1705 Cellular

6025 S Central AVE	Turlock	CA	95380
Mailing Address Number and Street	City	State	Zip Code

Owner should receive Regional Board correspondence (check): [X] Yes [ ] 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

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

Title: CCA/Dairy Specialist

624 E Service RD	Modesto	CA	95358
Mailing Address Number and Street	City	State	Zip Code

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:

2,500 *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	2,000	300	500	800	300	90
Maximum count	2,000	300	500	800	300	90
Avg live weight (lbs)	1,400	1,450	900	600		
Daily hours on flush	22	20	20	20	12	24

Predominant milk cow breed: Jersey-Holstein Cross

Average milk production: 70 *pounds per cow per day*

B. IRRIGATION SOURCES

Irrigation Source Name	Type	Nitrogen (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Discharge Rate
River Pump	Surface water (canal, river)	0.10	0.00	0.00	3,400 *gpm*
TID Canal	Surface water (canal, river)	0.05	0.00	0.00	15 *cfs*

C. NUTRIENT IMPORTS

No nutrient imports entered.

D. NUTRIENT EXPORTS

No nutrient exports entered.

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: 0045-0002-0037-0000
Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0045-0004-0047-0000
Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0045-0030-0013-0000
Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0045-0030-0022-0000
Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0057-0001-0010-0000
Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0057-0004-0013-0000
Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0057-0004-0014-0000
Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0057-0025-0010-0000
Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0058-0023-0002-0000
Legal owner of parcel: Owned by Dairy

B. FIELD NAME: 1

Cropable acres: 37

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 top of field

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Middle November	Late April	37
Corn, silage	Early May	Middle August	37
Sudangrass, silage	Late August	Middle October	37

FIELD NAME: 2

Cropable acres: 37

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 top of field

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Middle November	Late April	37
Corn, silage	Early May	Middle August	37
Sudangrass, silage	Late August	Middle October	37

FIELD NAME: 3

Cropable acres: 39

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 Pond if req'd

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Middle November	Late April	39
Corn, silage	Early May	Middle August	39

Sudangrass, silage	Late August	Middle October	39

FIELD NAME: 4

Cropable acres: 98

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: Discharged to surface water (drainage ditch, creek, etc.)

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Early October	Early April	98
Corn, silage	Late April	Middle August	98

FIELD NAME: 5

Cropable acres: 75

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: Discharged to surface water (drainage ditch, creek, etc.)

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Alfalfa, hay	Late August	Late November	75

FIELD NAME: Carpenter

Cropable acres: 260

Predominant soil type: Loamy sand

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? [ ] Yes [X] No

Tailwater management method: Bermed

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Early October	Late April	260
Corn, silage	Early May	Middle August	260

FIELD NAME: Crowslanding

Cropable acres: 71

Predominant soil type: Loamy sand

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? [ ] Yes [X] No

Tailwater management method: Bermed

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Middle November	Late April	71
Corn, silage	Early May	Early September	71

FIELD NAME: Hogan South

Cropable acres: 150

Predominant soil type: Clay 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? [ ] Yes [X] No

Tailwater management method: Bermed

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Wheat, silage, soft dough	Middle November	Late April	150
Corn, silage	Early May	Early September	150

FIELD NAME: The 65

Cropable acres: 65

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
Alfalfa, hay	Late August	Late November	65

C. LAND APPLICATION AREA FIELDS AND PARCELS

Field name	Cropable acres	Total harvests	Parcel number
1	37	3	0057-0004-00140000
2	37	3	0057-0004-00140000
3	39	3	0057-0004-00130000
4	98	2	0045-0030-00130000
5	75	8	0045-0030-00220000
Carpenter	260	2	0058-0023-00020000
Crowslanding	71	2	0057-0001-00100000
Hogan South	150	2	0057-0025-00100000
The 65	65	8	0045-0002-00370000 0045-0004-00470000
Land application area totals	897	41	

NUTRIENT BUDGET

A. NUTRIENT BUDGET FOR CROP: 1 / 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	0.0	0.1	0.0	0.0
Nutrient source: Soil		50%	50%	50%	
Application method: Lab results					
In season irrigation (no fertilizer)	1	0.0	0.0	0.0	0.0
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.0	0.0	0.0	10.0
	0.0	0.0	0.0	

In season irrigation (with fertilizer)	1	160.0	30.0	360.0	160.0
Nutrient source: Retention pond (lagoon)		35%	50%	85%	
Application method: Pipeline					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.0	0.0	0.0	10.0
	0.0	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.1	0.0	0.0
Existing soil nutrient content	0.0	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	160.0	30.0	360.0
Other	0.0	0.0	0.0
Atmospheric deposition	4.7		
Nutrients applied	164.8	30.1	360.0
Potential crop nutrient removal	160.0	25.6	132.8
Nutrient balance	4.8	4.5	227.2
Applied to removal ratio	1.03	1.18	2.71

Fresh water applied: 0.67 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 1 / 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	0.0	0.1	0.0	0.0
Nutrient source: Soil		50%	50%	50%	
Application method: Lab results					

NUTRIENT BUDGET FOR CROP (CONTINUED): 1 / 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) *Nutrient source:* Water only *Application method:* Surface	4	0.0 0%	0.0 0%	0.0 0%	0.2

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.0	0.0	0.0	10.0
	0.0	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) *Nutrient source:* Retention pond (lagoon) *Application method:* Pipeline	5	50.0 35%	10.0 50%	140.0 85%	250.2

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.0	0.0	0.0	10.0
	0.0	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.4	0.0	0.0
Existing soil nutrient content	0.0	0.1	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	250.0	50.0	700.0
Other	0.0	0.0	0.0
Atmospheric deposition	4.7		
Nutrients applied	255.1	50.1	700.0
Potential crop nutrient removal	256.0	48.0	211.2
Nutrient balance	-0.9	2.1	488.8
Applied to removal ratio	1.00	1.04	3.31

Fresh water applied: 3.02 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 1 / Sudangrass, silage

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) *Nutrient source:* Retention pond (lagoon) *Application method:* Pipeline	2	55.0 35%	15.0 50%	100.0 35%	110.1

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.1	0.0	0.0	14.0
	0.1	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.1	0.0	0.0
Existing soil nutrient content	0.0	0.0	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	110.0	30.0	200.0
Other	0.0	0.0	0.0
Atmospheric deposition	4.7		
Nutrients applied	114.8	30.0	200.0
Potential crop nutrient removal	88.0	13.6	96.0
Nutrient balance	26.8	16.4	104.0
Applied to removal ratio	1.30	2.21	2.08

Fresh water applied: 0.94 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 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	0.0	0.1	0.0	0.0
Nutrient source: Soil		50%	50%	50%	
Application method: Lab results					
In season irrigation (no fertilizer)	1	0.0	0.0	0.0	0.0
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.0	0.0	0.0	10.0
	0.0	0.0	0.0	

In season irrigation (with fertilizer)	1	160.0	30.0	360.0	160.0
Nutrient source: Retention pond (lagoon)		35%	50%	85%	
Application method: Pipeline					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.0	0.0	0.0	10.0
	0.0	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.1	0.0	0.0

Existing soil nutrient content	0.0	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	160.0	30.0	360.0
Other	0.0	0.0	0.0
Atmospheric deposition	4.7		
Nutrients applied	164.8	30.1	360.0
Potential crop nutrient removal	160.0	25.6	132.8
Nutrient balance	4.8	4.5	227.2
Applied to removal ratio	1.03	1.18	2.71

Fresh water applied: 0.67 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 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 *Nutrient source:* Soil *Application method:* Lab results	1	0.0 50%	0.1 50%	0.0 50%	0.0
In season irrigation (no fertilizer) *Nutrient source:* Water only *Application method:* Surface	4	0.0 0%	0.0 0%	0.0 0%	0.2

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.0	0.0	0.0	10.0
	0.0	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) *Nutrient source:* Retention pond (lagoon) *Application method:* Pipeline	5	50.0 35%	10.0 50%	140.0 85%	250.2

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.0	0.0	0.0	10.0
	0.0	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.4	0.0	0.0
Existing soil nutrient content	0.0	0.1	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	250.0	50.0	700.0
Other	0.0	0.0	0.0
Atmospheric deposition	4.7		

Nutrients applied	255.1	50.1	700.0
Potential crop nutrient removal	256.0	48.0	211.2
Nutrient balance	-0.9	2.1	488.8
Applied to removal ratio	1.00	1.04	3.31

Fresh water applied: 3.02 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 2 / Sudangrass, silage

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) *Nutrient source:* Retention pond (lagoon) *Application method:* Pipeline	2	55.0 35%	15.0 50%	100.0 35%	110.1

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.1	0.0	0.0	14.0
	0.1	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.1	0.0	0.0
Existing soil nutrient content	0.0	0.0	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	110.0	30.0	200.0
Other	0.0	0.0	0.0
Atmospheric deposition	4.7		
Nutrients applied	114.8	30.0	200.0
Potential crop nutrient removal	88.0	13.6	96.0
Nutrient balance	26.8	16.4	104.0
Applied to removal ratio	1.30	2.21	2.08

Fresh water applied: 0.94 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 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 *Nutrient source:* Soil *Application method:* Lab results	1	0.0 50%	0.1 50%	0.0 50%	0.0

NUTRIENT BUDGET FOR CROP (CONTINUED): 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	0.1
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.1	0.0	0.0	12.0
	0.1	0.0	0.0	

In season irrigation (with fertilizer)	1	160.0	30.0	360.0	160.1
Nutrient source: Retention pond (lagoon)		35%	50%	85%	
Application method: Pipeline					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.1	0.0	0.0	12.0
	0.1	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.1	0.0	0.0
Existing soil nutrient content	0.0	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	160.0	30.0	360.0
Other	0.0	0.0	0.0
Atmospheric deposition	4.7		
Nutrients applied	164.8	30.1	360.0
Potential crop nutrient removal	160.0	25.6	132.8
Nutrient balance	4.8	4.5	227.2
Applied to removal ratio	1.03	1.18	2.71

Fresh water applied: 0.76 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 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	0.0	0.1	0.0	0.0
Nutrient source: Soil		50%	50%	50%	
Application method: Lab results					

NUTRIENT BUDGET FOR CROP (CONTINUED): 3 / 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) *Nutrient source:* Water only *Application method:* Surface	4	0.0 0%	0.0 0%	0.0 0%	0.2

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.0	0.0	0.0	10.0
	0.0	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) *Nutrient source:* Retention pond (lagoon) *Application method:* Pipeline	5	50.0 35%	10.0 50%	140.0 85%	250.2

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.0	0.0	0.0	10.0
	0.0	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.4	0.0	0.0
Existing soil nutrient content	0.0	0.1	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	250.0	50.0	700.0
Other	0.0	0.0	0.0
Atmospheric deposition	4.7		
Nutrients applied	255.1	50.1	700.0
Potential crop nutrient removal	256.0	48.0	211.2
Nutrient balance	-0.9	2.1	488.8
Applied to removal ratio	1.00	1.04	3.31

Fresh water applied: 2.86 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 3 / Sudangrass, silage

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) *Nutrient source:* Retention pond (lagoon) *Application method:* Pipeline	2	55.0 35%	15.0 50%	100.0 35%	110.1

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.1	0.0	0.0	14.0
	0.1	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.1	0.0	0.0
Existing soil nutrient content	0.0	0.0	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	110.0	30.0	200.0
Other	0.0	0.0	0.0
Atmospheric deposition	4.7		
Nutrients applied	114.8	30.0	200.0
Potential crop nutrient removal	88.0	13.6	96.0
Nutrient balance	26.8	16.4	104.0
Applied to removal ratio	1.30	2.21	2.08

Fresh water applied: 0.89 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 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	0.0	0.1	0.0	0.0
Nutrient source: Soil		50%	50%	50%	
Application method: Lab results					
Dry manure	1	160.0	30.0	360.0	160.0
Nutrient source: From dairy		25%	50%	85%	
Application method: Broadcast/incorporate					
In season irrigation (no fertilizer)	1	0.0	0.0	0.0	0.1
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.1	0.0	0.0	40.0
	0.1	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.1	0.0	0.0
Existing soil nutrient content	0.0	0.1	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	160.0	30.0	360.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0

Atmospheric deposition	7.0		
Nutrients applied	167.1	30.1	360.0
Potential crop nutrient removal	160.0	25.6	132.8
Nutrient balance	7.1	4.5	227.2
Applied to removal ratio	1.04	1.18	2.71

Fresh water applied: 0.51 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 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	0.0	0.1	0.0	0.0
Nutrient source: Soil		50%	50%	50%	
Application method: Lab results					
Dry manure	1	260.0	80.0	650.0	260.0
Nutrient source: From dairy		25%	50%	85%	
Application method: Broadcast/incorporate					
In season irrigation (no fertilizer)	7	0.0	0.0	0.0	0.4
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.1	0.0	0.0	35.0
	0.1	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.4	0.0	0.0
Existing soil nutrient content	0.0	0.1	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	260.0	80.0	650.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	267.4	80.1	650.0
Potential crop nutrient removal	248.0	46.5	204.6
Nutrient balance	19.4	33.6	445.4
Applied to removal ratio	1.08	1.72	3.18

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

NUTRIENT BUDGET FOR CROP: 5 / 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	2	300.0	100.0	800.0	600.0
Nutrient source: From dairy		25%	50%	85%	
Application method: Broadcast/incorporate					
In season irrigation (no fertilizer)	9	0.0	0.0	0.0	0.7
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.1	0.0	0.0	35.0
	0.1	0.0	0.0	

In season irrigation (with fertilizer)	1	50.0	0.0	0.0	50.1
Nutrient source: Commercial fertilizer		50%	0%	0%	
Application method: Pipeline					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.1	0.0	0.0	35.0
	0.1	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.8	0.0	0.0
Existing soil nutrient content	0.0	0.1	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	50.0	0.0	0.0
Dry manure	600.0	200.0	1,600.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	14.0		
Nutrients applied	664.8	200.1	1,600.0
Potential crop nutrient removal	600.0	54.0	420.0
Nutrient balance	64.8	146.1	1,180.0
Applied to removal ratio	1.11	3.71	3.81

Fresh water applied: 5.79 *feet* Total harvests: 8

NUTRIENT BUDGET FOR CROP: Carpenter / 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): Carpenter / 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	0.0	0.1	0.0	0.0
Nutrient source: Soil		50%	50%	50%	
Application method: Lab results					
Dry manure	1	200.0	45.0	260.0	200.0
Nutrient source: From dairy		25%	50%	85%	
Application method: Broadcast/incorporate					
In season irrigation (no fertilizer)	1	0.0	0.0	0.0	0.0
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.0	0.0	0.0	50.0
	0.0	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.0	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	200.0	45.0	260.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	207.0	45.1	260.0
Potential crop nutrient removal	160.0	25.6	132.8
Nutrient balance	47.0	19.5	127.2
Applied to removal ratio	1.29	1.76	1.96

Fresh water applied: 0.24 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: Carpenter / 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	0.0	0.1	0.0	0.0
Nutrient source: Soil		50%	50%	50%	
Application method: Lab results					
Dry manure	1	325.0	80.0	500.0	325.0
Nutrient source: Imported		25%	50%	85%	
Application method: Broadcast/incorporate					

NUTRIENT BUDGET FOR CROP (CONTINUED): Carpenter / 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) *Nutrient source:* Water only *Application method:* Surface	9	0.0 0%	0.0 0%	0.0 0%	0.1

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.0	0.0	0.0	20.0
	0.0	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.1	0.0	0.0
Existing soil nutrient content	0.0	0.1	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	325.0	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	332.1	80.1	500.0
Potential crop nutrient removal	248.0	46.5	204.6
Nutrient balance	84.1	33.6	295.4
Applied to removal ratio	1.34	1.72	2.44

Fresh water applied: 0.86 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: Crowslanding / 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 *Nutrient source:* Soil *Application method:* Lab results	1	0.0 50%	0.1 50%	0.0 50%	0.0
Dry manure *Nutrient source:* From dairy *Application method:* Broadcast/incorporate	1	200.0 25%	45.0 50%	260.0 85%	200.0
In season irrigation (no fertilizer) *Nutrient source:* Water only *Application method:* Surface	1	0.0 0%	0.0 0%	0.0 0%	0.0

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.0	0.0	0.0	15.0
	0.0	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.0	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	200.0	45.0	260.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	207.0	45.1	260.0
Potential crop nutrient removal	160.0	25.6	132.8
Nutrient balance	47.0	19.5	127.2
Applied to removal ratio	1.29	1.76	1.96

Fresh water applied: 0.26 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: Crowslanding / 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	0.0	0.1	0.0	0.0
Nutrient source: Soil		50%	50%	50%	
Application method: Lab results					
Dry manure	1	325.0	80.0	500.0	325.0
Nutrient source: Imported		25%	50%	85%	
Application method: Broadcast/incorporate					
In season irrigation (no fertilizer)	9	0.0	0.0	0.0	0.4
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.0	0.0	0.0	20.0
	0.0	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.4	0.0	0.0
Existing soil nutrient content	0.0	0.1	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	325.0	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	332.4	80.1	500.0
Potential crop nutrient removal	248.0	46.5	204.6
Nutrient balance	84.4	33.6	295.4
Applied to removal ratio	1.34	1.72	2.44

Fresh water applied: 3.14 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: Hogan South / Wheat, 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	0.0	0.1	0.0	0.0
Nutrient source: Soil		50%	50%	50%	
Application method: Lab results					
Dry manure	1	160.0	30.0	360.0	160.0
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	0.1
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
River Pump	0.1	0.0	0.0	100.0
	0.1	0.0	0.0	

In season irrigation (no fertilizer)	1	0.0	0.0	0.0	0.1
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
River Pump	0.1	0.0	0.0	100.0
	0.1	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.2	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	160.0	30.0	360.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	167.2	30.1	360.0
Potential crop nutrient removal	160.0	25.6	132.8
Nutrient balance	7.2	4.5	227.2
Applied to removal ratio	1.05	1.18	2.71

Fresh water applied: 0.83 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: Hogan South / 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 *Nutrient source:* Soil *Application method:* Lab results	1	0.0 50%	0.1 50%	0.0 50%	0.0
Dry manure *Nutrient source:* From dairy *Application method:* Broadcast/incorporate	1	270.0 25%	70.0 50%	400.0 85%	270.0
Pre-irrigation prior to planting (no fertilizer) *Nutrient source:* Water only *Application method:* Surface	1	0.0 0%	0.0 0%	0.0 0%	0.1

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
River Pump	0.1	0.0	0.0	100.0
	0.1	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) *Nutrient source:* Water only *Application method:* Surface	5	0.0 0%	0.0 0%	0.0 0%	0.7

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
River Pump	0.1	0.0	0.0	120.0
	0.1	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.8	0.0	0.0
Existing soil nutrient content	0.0	0.1	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	270.0	70.0	400.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	277.8	70.1	400.0
Potential crop nutrient removal	248.0	46.5	204.6
Nutrient balance	29.8	23.6	195.4
Applied to removal ratio	1.12	1.51	1.96

Fresh water applied: 2.92 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: The 65 / 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	2	300.0	100.0	800.0	600.0
Nutrient source: From dairy		25%	50%	85%	
Application method: Broadcast/incorporate					
In season irrigation (no fertilizer)	9	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)
TID Canal	0.1	0.0	0.0	35.0
	0.1	0.0	0.0	

In season irrigation (with fertilizer)	1	50.0	0.0	0.0	50.1
Nutrient source: Commercial fertilizer		50%	0%	0%	
Application method: Pipeline					

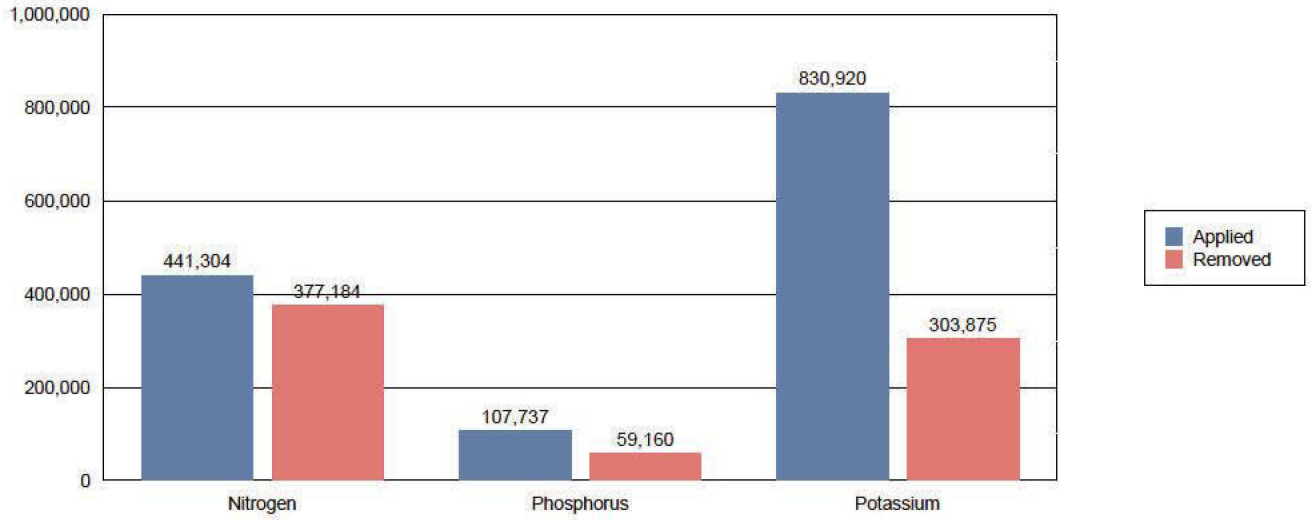
Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.1	0.0	0.0	35.0
	0.1	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	0.9	0.0	0.0
Existing soil nutrient content	0.0	0.1	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	50.0	0.0	0.0
Dry manure	600.0	200.0	1,600.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	14.0		
Nutrients applied	664.9	200.1	1,600.0
Potential crop nutrient removal	600.0	54.0	420.0
Nutrient balance	64.9	146.1	1,180.0
Applied to removal ratio	1.11	3.71	3.81

Fresh water applied: 6.68 *feet* Total harvests: 8

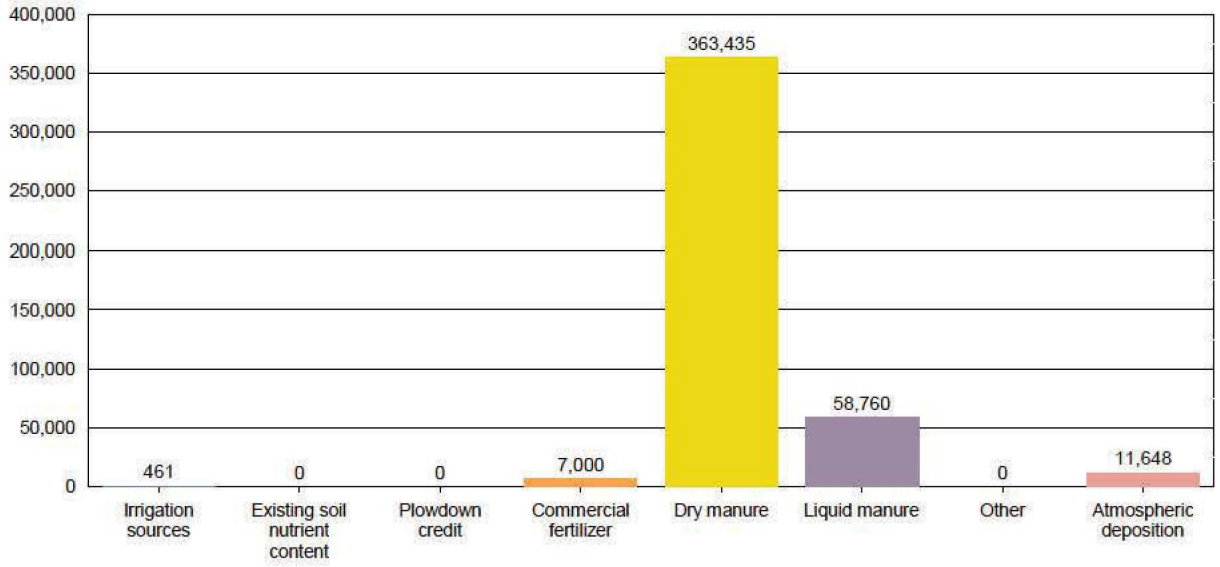
NUTRIENT APPLICATIONS, POTENTIAL REMOVAL, AND BALANCE

A. POUNDS OF NUTRIENT APPLIED VS. CROP REMOVAL POTENTIAL



	Total N (lbs)	Total P (lbs)	Total K (lbs)
Irrigation sources	461.3	0.0	0.0
Existing soil nutrient content	0.0	152.4	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	7,000.0	0.0	0.0
Dry manure	363,435.0	95,155.0	688,540.0
Liquid manure	58,760.0	12,430.0	142,380.0
Other	0.0	0.0	0.0
Atmospheric deposition	11,648.0		
Nutrients applied to all crops	441,304.3	107,737.4	830,920.0
Potential crop nutrient removal	377,184.0	59,159.5	303,874.6
Nutrient balance	64,120.3	48,577.9	527,045.4
Applied to removal ratio	1.17	1.82	2.73

B. POUNDS OF NITROGEN APPLIED BY NUTRIENT SOURCE



	Total N (lbs)	Total P (lbs)	Total K (lbs)
Irrigation sources	461.3	0.0	0.0
Existing soil nutrient content	0.0	152.4	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	7,000.0	0.0	0.0
Dry manure	363,435.0	95,155.0	688,540.0
Liquid manure	58,760.0	12,430.0	142,380.0
Other	0.0	0.0	0.0
Atmospheric deposition	11,648.0		
Nutrients applied to all crops	441,304.3	107,737.4	830,920.0
Potential crop nutrient removal	377,184.0	59,159.5	303,874.6
Nutrient balance	64,120.3	48,577.9	527,045.4
Applied to removal ratio	1.17	1.82	2.73

NUTRIENT BALANCE

A. WHOLE FARM BALANCE

	Total N (lbs)	Total P (lbs)	Total K (lbs)
Nutrients in storage from herd*			
Daily gross	2,380.3	392.0	1,049.4
Annual gross	868,809.2	143,069.9	383,018.5
Net to pond storage after ammonia losses (30% loss applied)	542,892.6	128,380.8	351,100.2
Net to drylot storage after ammonia losses (30% loss applied)	65,273.8	14,689.2	51,993.2
Net in storage (30% loss applied)	608,166.4	143,069.9	403,093.5
Irrigation sources	461.3	0.0	0.0
Atmospheric deposition	11,648.0		
Imports	0.0	0.0	0.0
Exports	0.0	0.0	0.0
Potential crop nutrient removal	377,184.0	59,159.5	303,874.6
Nutrient balance	243,091.8	83,910.4	99,218.9
Nutrient balance ratio	1.64	2.42	1.33

* 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 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. For each manure source exported, a scaled weight by truckload will be recorded.	List individual manure sources, e.g.: Corral solids Settling basin solids Freestall scrapings	Date exported and total weight (tons) exported	Percent moisture
Each application to each land application area	For each applied manure source, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. For each applied manure source, a scaled weight by truckload will be recorded.	List individual manure sources, e.g.: Corral solids Settling basin solids Freestall scrapings	Date applied and total weight (tons) applied	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: Dry weight applied from a source to a crop per application event = weight applied * (1 - (percent moisture / 100)) Dry weight applied to crop per application event = sum of dry weights applied from each source Dry weight applied to a crop = sum of dry weights applied during each application Dry weight applied to a field = sum of dry weights applied to each crop Annual estimation for total manure dry weight exported will be quantified using the following: Dry weight exported from a source per event = weight exported * (1 - (percent moisture / 100)) Dry weight exported per event = sum of dry weights exported from each source Dry weight exported to any offsite destination = sum of dry weights exported per event	List individual manure sources, e.g.: Corral solids Settling basin solids Freestall scrapings	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 Settling basin solids Freestall scrapings	None required	Total nitrogen, total phosphorus, total potassium, and 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. For each manure source exported, a scaled weight by truckload will be recorded.	Corral solids Settling basin solids Freestall scrapings	Date exported and total weight (tons) exported	Percent moisture

B. PROCESS WASTEWATER SAMPLING AND ANALYSIS PLAN

			Minimum data collection requirements	
Frequency	Sampling Methods	Source	Field Analytes	Lab Analytes
Anually	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.	Lagoon	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.	Lagoon	None required	General minerals, including: calcium, magnesium, sodium, bicarbonate, carbonate, sulfate, and chloride
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.	Lagoon	Date applied and volume (gallons or acre-inches) applied	None required
Quarterly during one application event	For field measurement: For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. For laboratory analyses: For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Lagoon	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

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Once every five years for each land application area (may be distributed over a 5-year period by sampling 20% of the land application areas annually)	For each field, a composite sample per the “Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies” will be collected.	See LAA Table	None required	Soluble phosphorus
Fall pre-plant for each crop	For each field, a composite sample per the “Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies” will be collected.	See LAA Table	None required	0 to 1 foot: Electrical conductivity, nitrate-nitrogen, soluble phosphorus, potassium, and organic matter 1 to 2 feet: Nitrate-nitrogen
Spring pre-plant for each crop	For each field, a composite sample per the “Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies” will be collected.	See LAA Table	None required	0 to 1 foot: Nitrate-nitrogen and organic matter 1 to 2 foot: Nitrate-nitrogen

D. PLANT TISSUE SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Each crop harvest from each land application area	For each field and crop, a composite sample per the “Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies” will be collected. For each field and crop, a scaled weight by truckload will be recorded.	See LAA Table	Date harvested and total weight (tons) of harvested material removed from each land application area	Percent wet weight of harvested plant removed Laboratory analyses for total nitrogen, total phosphorus, total potassium (expressed on a dry weight basis), fixed solids (ash), and percent moisture

D. PLANT TISSUE SAMPLING AND ANALYSIS PLAN (CONTINUED)

			Minimum data collection requirements	
Frequency	Sampling Methods	Source	Field Analytes	Lab Analytes
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 LAA Table.	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	List individual irrigation sources and the measurement method, e.g.: Irrigation Well 1 - inline totalizing flow meter Irrigation Well 2 - flow rate multiplied by runtime Canal 1 - flow rate multiplied by runtime	TID Canal River Pump	Date applied and volume (gallons or acre-inches) applied	None required
One irrigation event during each irrigation season during actual irrigation events – for each irrigation water source (well and canal)	For each irrigation source, a grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. In lieu of sampling the irrigation water, the Discharger may provide equivalent data from the local irrigation district.	TID Canal River Pump	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:	09/10/2021	
Person who approved the final NMP:	Machado, Patrick	*See above for contact information.*
Date of NMP implementation:	09/10/2021	

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: LAP

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: LAP

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).

SAMPLING AND ANALYSIS PLAN CERTIFICATION

A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: Jordao Dairy

Physical address of dairy:

6025 S Central AVE	Turlock	Stanislaus	95380
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

9/10/2021

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
Joe Jordao	
PRINT OR TYPE NAME	PRINT OR TYPE NAME
9-15-21	
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: Jordao Dairy

Physical address of dairy:

6025 S Central AVE	Turlock	Stanislaus	95380
Number and Street	City	County	Zip Code

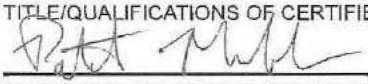
Street and nearest cross street (if no address):

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



SIGNATURE OF TRAINED PROFESSIONAL — DATE: 9/10/2021

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
Joe Jordao	
PRINT OR TYPE NAME	PRINT OR TYPE NAME
9-15-21	
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: Jordao Dairy

6025 S Central AVE	Turlock	Stanislaus	95380
Number and Street	City	County	Zip Code

Street and nearest cross street (if no address):

Operator name: _____ Telephone no.: _____ (Landline) _____ (Cellular)

Mailing Address Number and Street	City	State	Zip Code

Legal owner name: Jordao, Joe Telephone no.: _____ (Landline) (209) 678-1705 (Cellular)

6025 S Central AVE	Turlock	CA	95380
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
Joe Jordao	
PRINT OR TYPE NAME	PRINT OR TYPE NAME
9-15-21	
DATE	DATE

Waste Management Plan
For
Joe Jordao Dairy
Stanislaus County, CA

Prepared For:
Joe Jordao Dairy
6025 S. Central Avenue
Turlock, CA 95380

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WASTE MANAGEMENT PLAN
FOR
JOE JORDAO DAIRY
STANISLAUS COUNTY, CA

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   b. Compliance Criteria
   c. Results and Conclusions
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   b. Sheet 2 – Site Map – Land Application Areas
   c. Sheet 3 – Site Map – Land Application Areas
   d. Sheet 4 – Site Map – Land Application Areas
   e. Sheet 5 – Site Map – Land Application Areas
   f. Sheet 6 – Site Map – Production Area
   g. Sheet 7 – Production Area Hydrologic Map
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   a. Waste Management Plan Report / Process Wastewater Calculations
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1. NARRATIVE

INTRODUCTION

This Waste Management Plan (WMP) has been prepared at the request of the subject dairy's owner and/or operator 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, General Specifications B.1 through B.3, Pond Specifications C.1 through C.3, and Production Area Specifications D.1, D.4, and D.5. 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, General Specifications B.1 through B.3, Pond Specifications C.1 through C.3, and Production Area Specifications D.1, D.4, and D.5. 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.

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)."*

Section 3.a. of this plan contains calculations that demonstrate 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.

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 relevant Flood Zone Map published by the Federal Emergency Management Agency (FEMA) is Panel No. 06099C0800E. This map indicates that the existing dairy facility is in Zone X and is thus outside of the 1% annual chance, or 100-year, floodplain.

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.

Pond Specification C.1: *"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 wastewater retention ponds WWS1 and WWS2 as all have been constructed above grade.

Pond Specification C.2: *"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 in Section 3.a. and is hereby made a part of this plan.

Pond Specification C.3: "*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 the facility's ponds by the compliance date.

Production Area Specification D.1: *"All dirt or unpaved corrals shall be graded to promote drainage. Cow washing areas shall be paved (concrete or equivalent) and sloped to a drain. Water troughs, permanent feed racks, and mangers shall have paved access, and water troughs shall have a drain to carry water away from the corrals. (Cal Code Regs., title 3, § 646.1.)."*

Dirt or unpaved areas are graded to promote drainage.

All cow washing areas are paved with Portland Cement Concrete (PCC) and sloped to a drain which conveys wastewater to the retention ponds.

Water troughs, feed racks, and mangers have access paved with PCC. Water troughs have drains which convey wastewater to the retention ponds.

Production Area Specification D.4: *"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 ponds. (Title 27, § 22562(b).)."*

The production area is designed such that rainwater that is not diverted away from manured areas and waste containment facilities is collected and conveyed to the wastewater retention ponds.

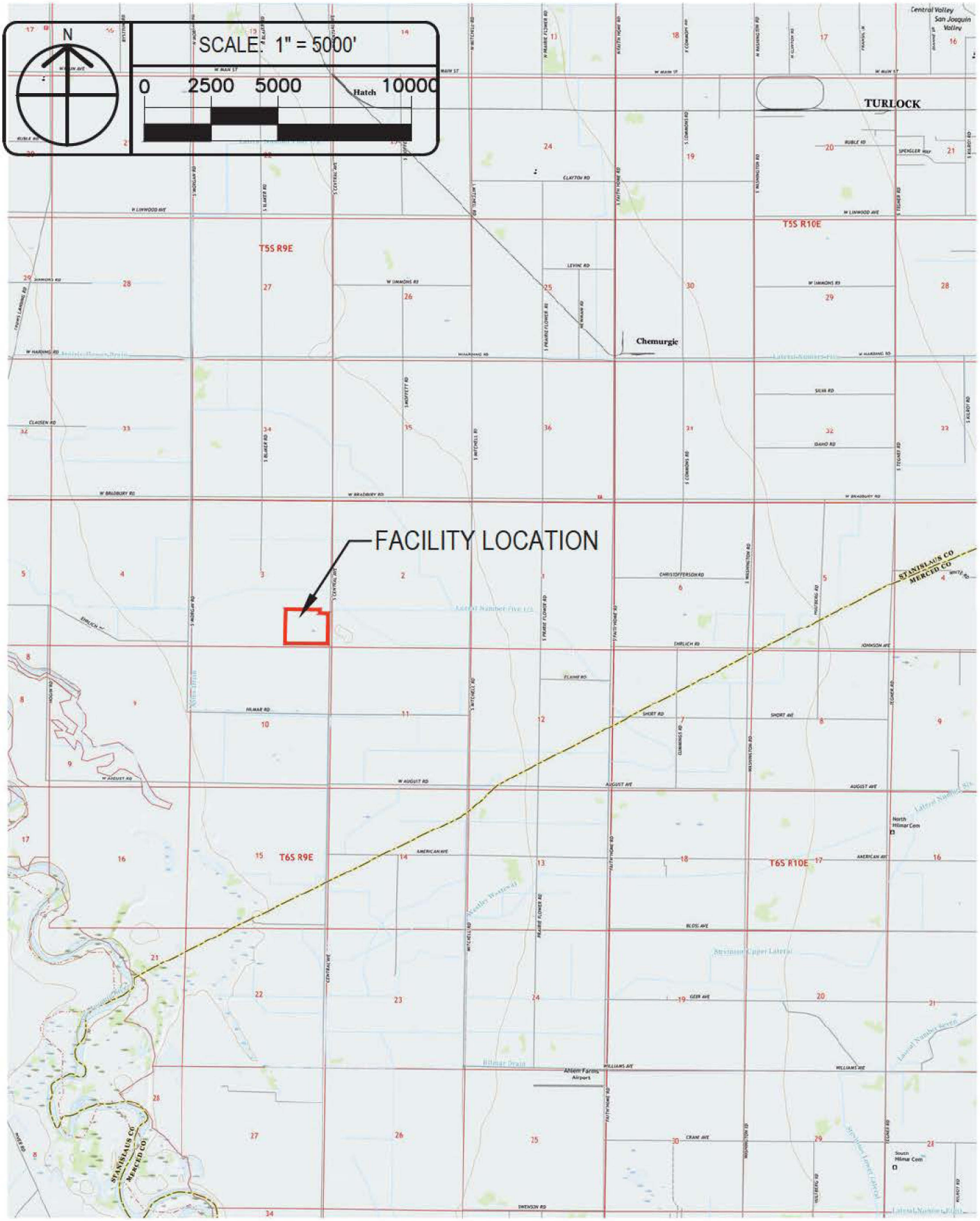
Production Area Specification D.5: *"Roof drainage from barns, milk houses, or shelters shall not drain into the corrals unless the corrals are properly graded and drained. (Cal Code Regs., title 3, § 661.)."*

Roof drainage is collected by gutters, downspouts, and drains and is conveyed to the wastewater retention ponds or diverted to adjacent fields as indicated in the calculations in Section 3.a.

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 Section 3.a. 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



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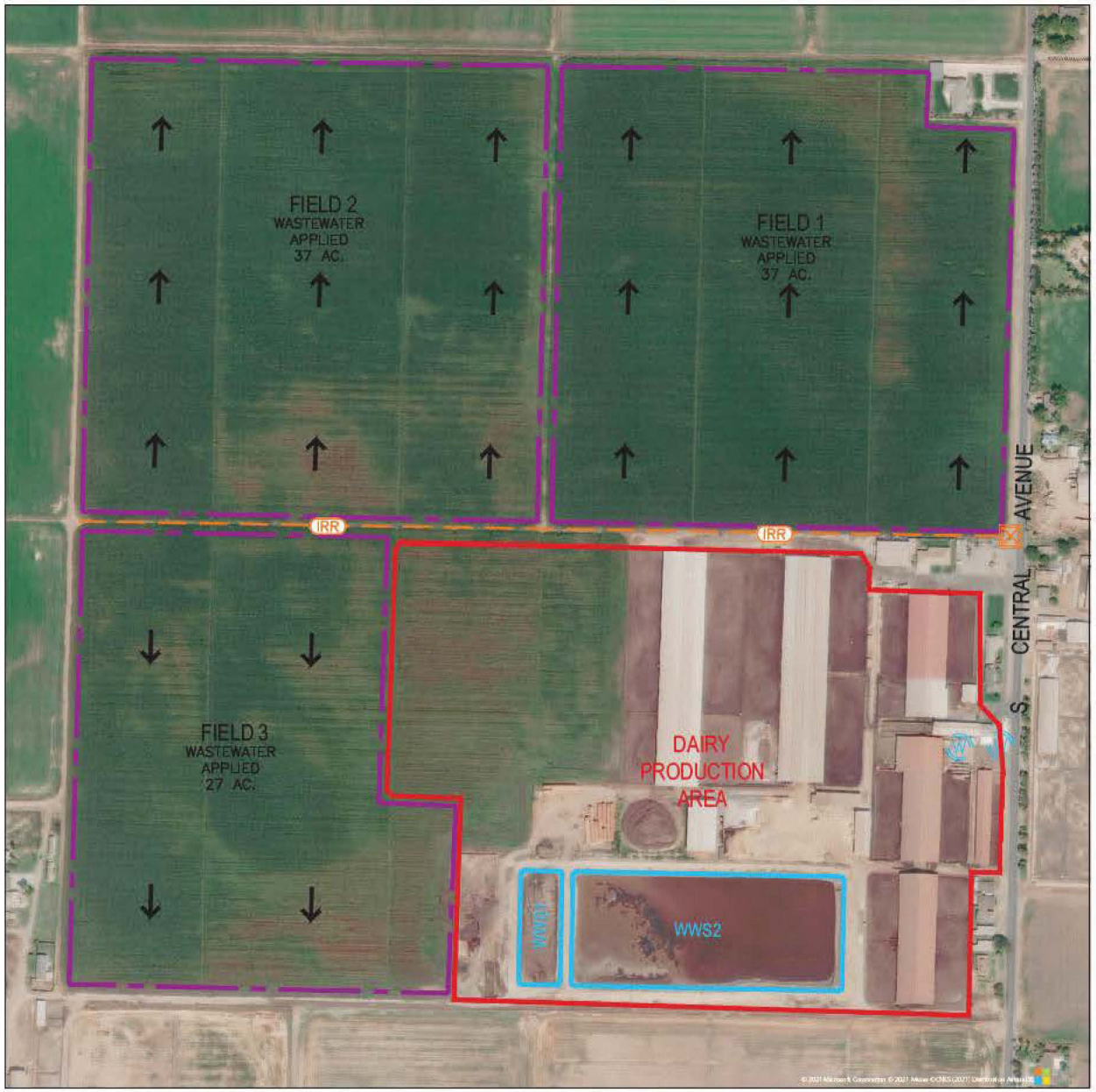
VICINITY MAP
JOE JORDAO DAIRY

STANISLAUS COUNTY, CA



LEGEND

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

DISCHARGE POINTS		
LAND APP. AREA	LATITUDE	LONGITUDE
FIELD 1	N37° 26' 22.14"	W120° 57' 38.83"
FIELD 2	N37° 26' 22.50"	W120° 57' 54.70"
FIELD 3	N37° 26' 09.80"	W120° 57' 57.30"

N

SCALE: 1" = 300'

0 150 300 600

SHEET 2 OF 8

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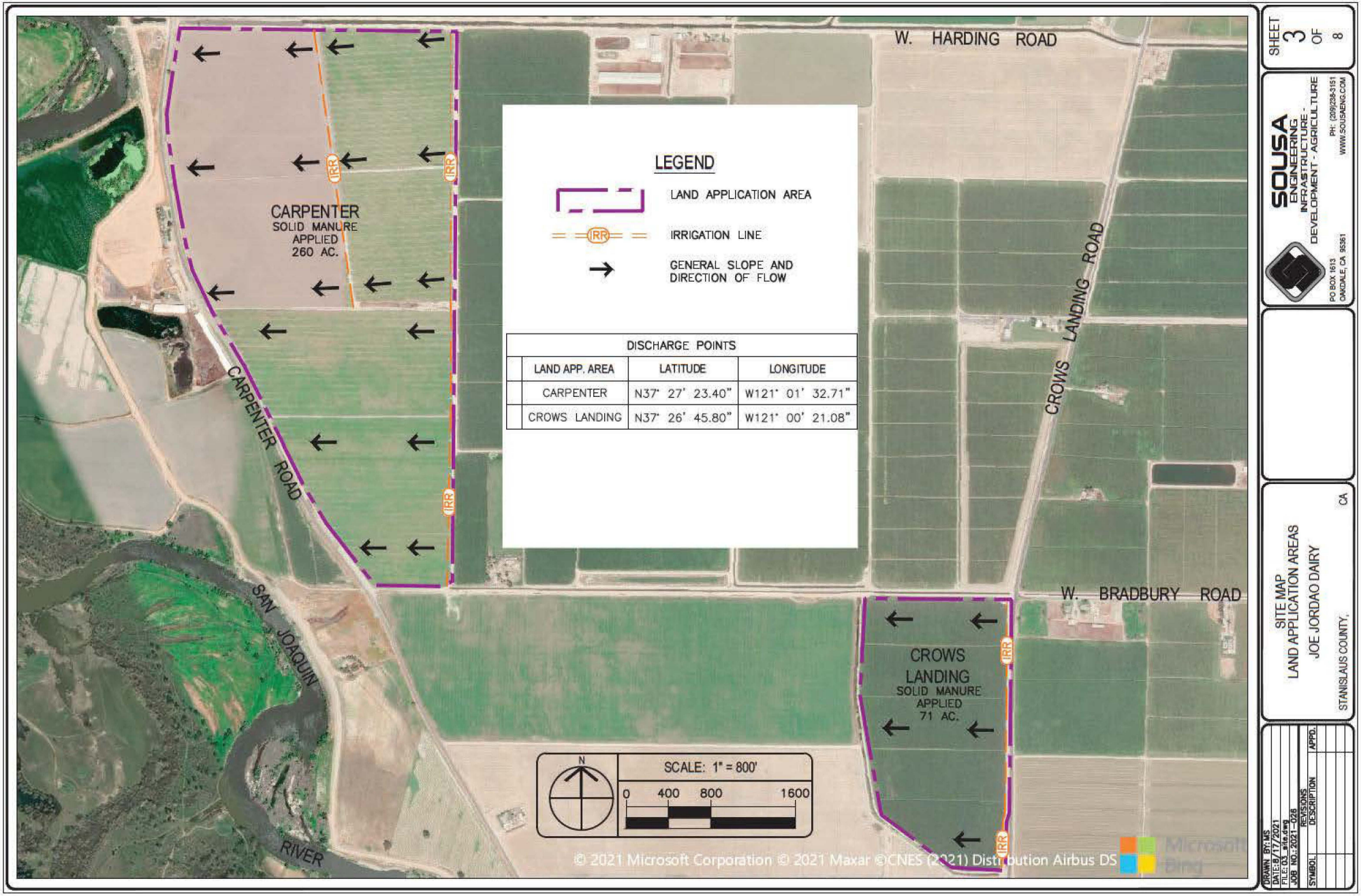
SITE MAP
LAND APPLICATION AREAS
JOE JORDAO DAIRY
STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 8/17/2021
FILE: 02_site.dwg
JOB NO.: 2021-026

SYMBOL	REVISIONS DESCRIPTION	APPD.



SHEET 3 OF 8

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SITE MAP
LAND APPLICATION AREAS
JOE JORDAO DAIRY
STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 8/17/2021
FILE: 03_site.dwg
JOB NO.: 2021-026

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
HOGAIN SOUTH	N37° 24' 50.81"	W120° 59' 17.92"

N

SCALE: 1" = 800'

0 400 800 1600

SHEET 4 OF 8

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SITE MAP
LAND APPLICATION AREAS
JOE JORDAO DAIRY
STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 8/17/2021
FILE: 04_site.dwg
JOB NO.: 2021-026

SYMBOL	REVISIONS DESCRIPTION	APPD.

LEGEND

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

DISCHARGE POINTS		
LAND APP. AREA	LATITUDE	LONGITUDE
THE 65	N37° 24' 17.70"	W120° 57' 24.16"
FIELD 4	N37° 23' 45.71"	W120° 57' 54.74"
FIELD 5	N37° 23' 33.52"	W120° 57' 49.80"

N

SCALE: 1" = 600'

0 300 600 1200

SHEET 5 OF 8

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SITE MAP
LAND APPLICATION AREAS
JOE JORDAO DAIRY
STANISLAUS COUNTY, CA

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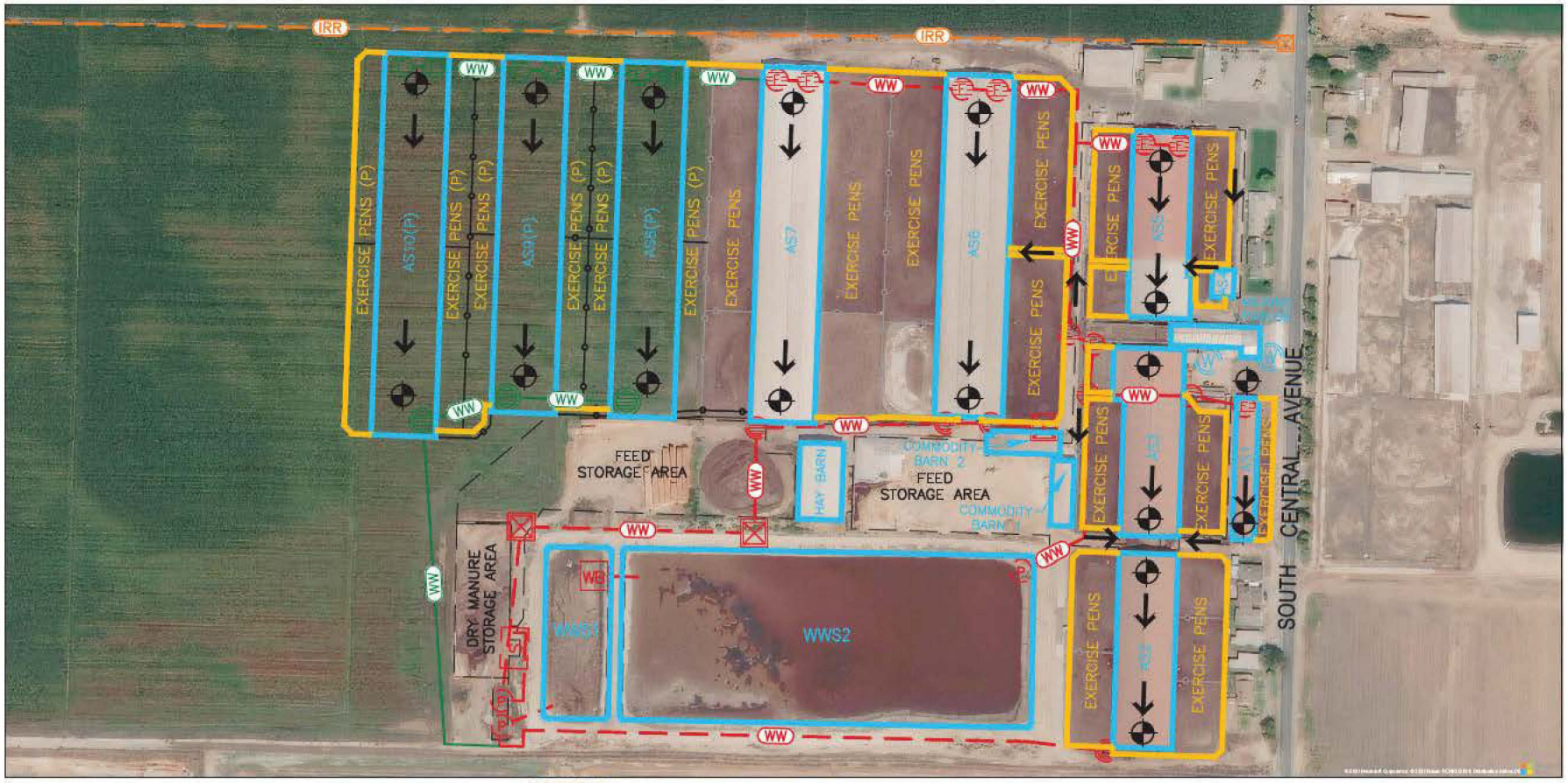
SYMBOL	DESCRIPTION	APPD.
	REVISIONS	



LEGEND

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

N

SCALE: 1" = 200'

0 100 200 400

SHEET 6 OF 8

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SITE MAP - PRODUCTION AREA

JOE JORDAO DAIRY

STANISLAUS COUNTY, CA

DRAWN BY: MS
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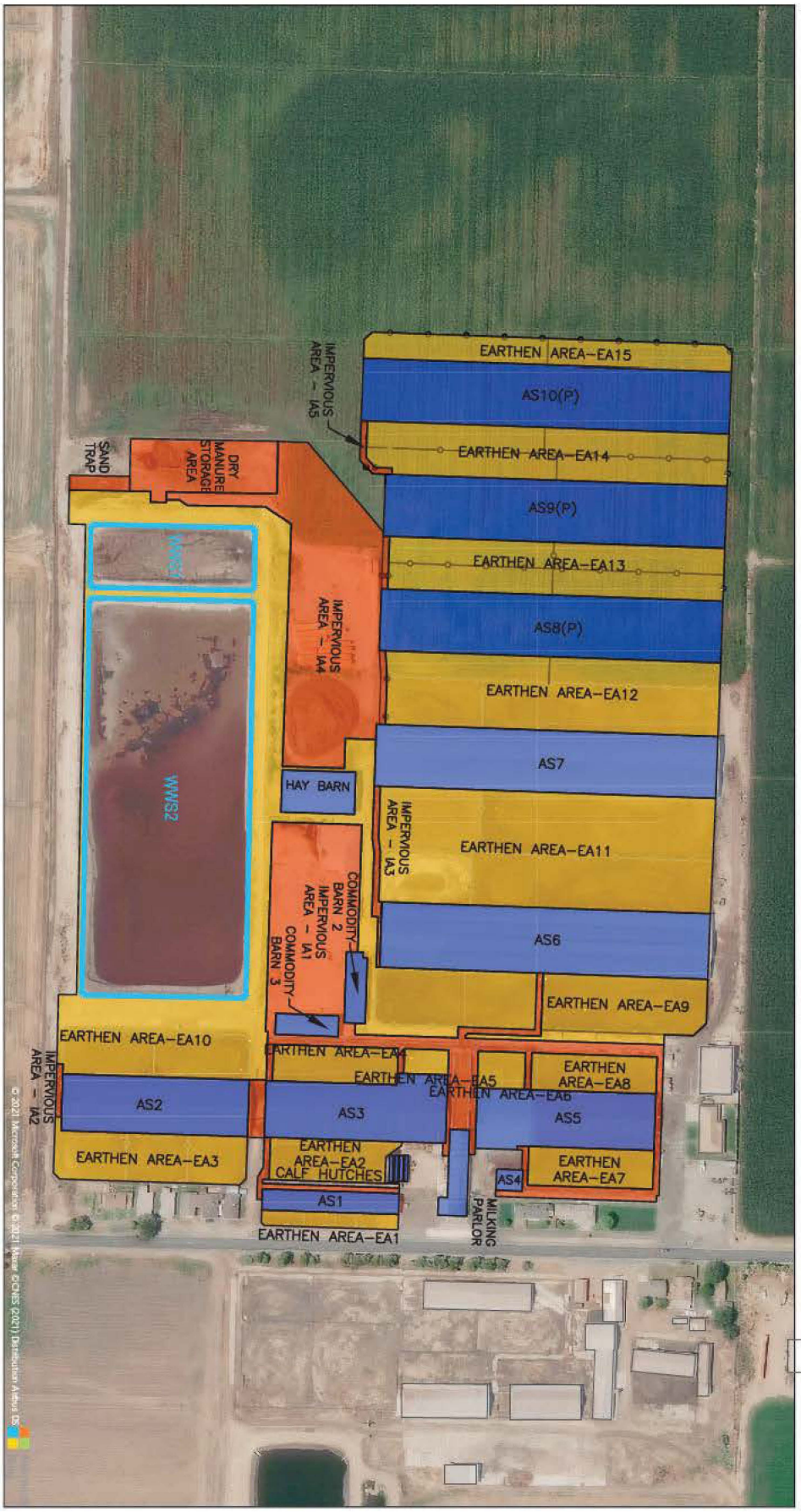
FILE: 06_sfpp.dwg
JOB NO.: 2021-026

SYMBOL	REVISIONS DESCRIPTION	APPD.



LEGEND

ROOF AREA

EARTHEN AREA

IMPERVIOUS AREA

N

0 100 200 400

SCALE: 1" = 200'

DRAWN BY: MS
DATE: 8/25/2021
FILE: 07_hydro.dwg
JOB NO.: 2021–026

REVISIONS		
SYMBOL	DESCRIPTION	APPD.

PRODUCTION AREA
HYDROLOGIC MAP

JOE JORDAO DAIRY

STANISLAUS COUNTY, CA

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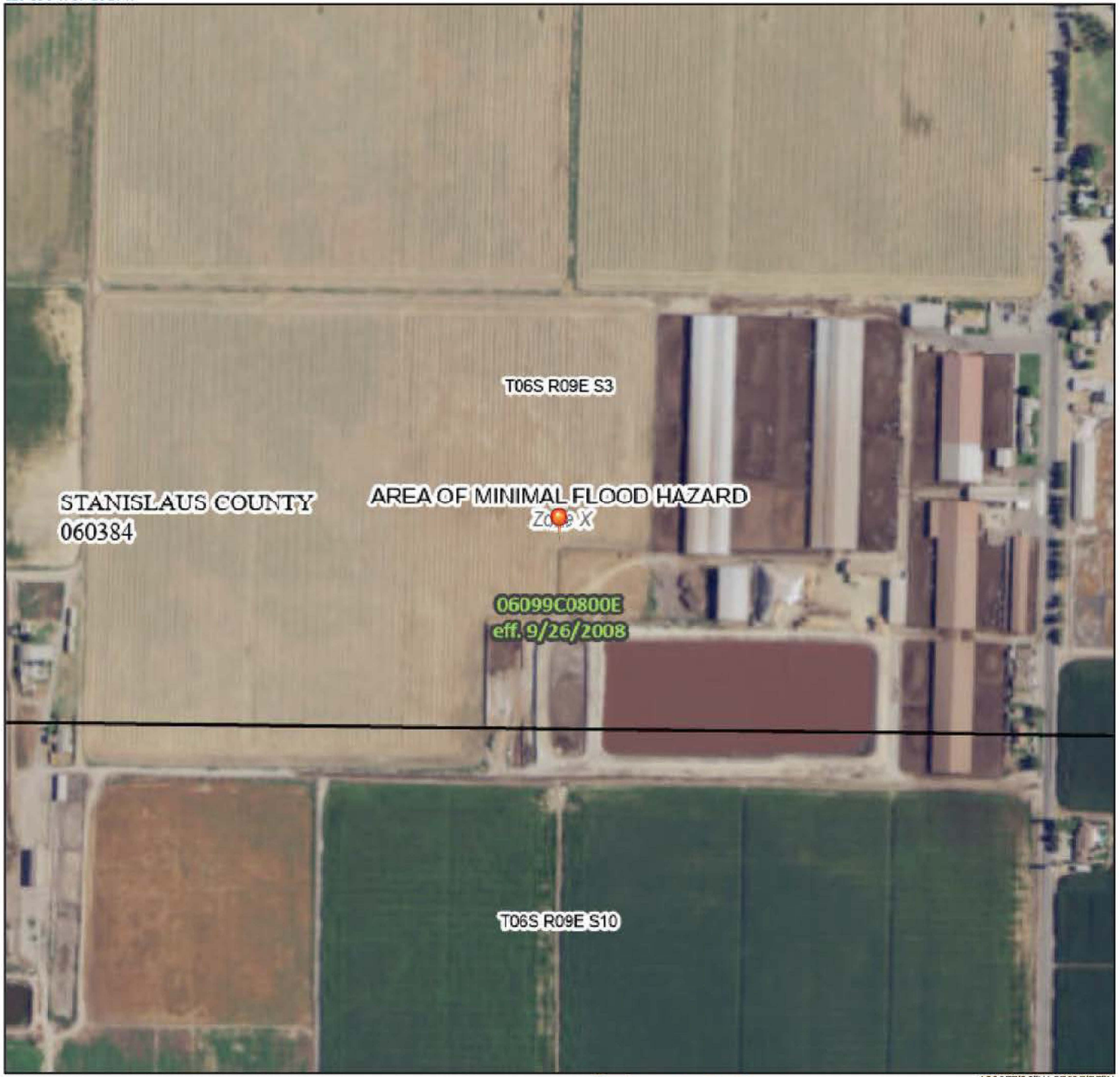
SHEET 7 OF 8

National Flood Hazard Layer FIRMette

FEMA

120°58'6"W 37°26'24"N



120°57'28"W 37°25'55"N

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

1:6,000

109

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

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 *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

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 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 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

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/11/2021 at 6:46 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: basemap 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: Joe Jordao Dairy

Physical address of dairy:

6025 S Central AVE	Turlock	Stanislaus	95380
Number and Street	City	County	Zip Code

Street and nearest cross street (if no address):

TRS Data and Coordinates:

6S	9E	3	Mt. Diablo	37° 26' 10.71" N	120° 57' 31.42" W
Township (T_)	Range (R_)	Section (S_)	Baseline meridian	Latitude (N)	Longitude (W)

Date facility was originally placed in operation: 04/01/2007

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

County Assessor Parcel Number(s) for dairy facility:

0057-0004-0013-0000

B. OPERATOR NAME: Jordao, Joe Telephone no.: Landline Cellular

6025 S Central AVE	Turlock	CA	95380
Mailing Address Number and Street	City	State	Zip Code

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

C. LEGAL OWNER NAME: Jordao, Joe Telephone no.: Landline Cellular

6025 S Central AVE	Turlock	CA	95380
Mailing Address Number and Street	City	State	Zip Code

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

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

2,500 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	2,000	2,000	22	1,400
Dry Cows	300	300	20	1,450
Bred Heifers (15-24 mo.)	500	500	20	900
Heifers (7-14 mo.)	800	800	20	600
Calves (4-6 mo.)	300	300	12	
Calves (0-3 mo.)	90	90	24	

Predominant milk cow breed: Jersey-Holstein Cross

Average milk production: 70 pounds per cow per day

Average number of milk cows per string sent to the milkbarn: 200 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: 40 gallons/cycle

Bulk tank wash wastewater: 320.0 gallons/day

Pipeline wash and sanitizing: 4.0 run cycles/wash

Pipeline wash vat volume: 45 gallons/cycle

Pipeline wash wastewater: 360.0 gallons/day

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

Milkbarn / parlor floor wash volume: 4,000 gallons/day

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

Plate coolers volume: 32,558 gallons/day

Vacuum pumps / air compressors / chillers type: Well Water Cooled (Water Reused/Recycled)

Vacuum pumps / air compressors / chillers volume: 3,000 gallons/day

Milkbarn and equipment wastewater volume generated daily: 36,238 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 *of 2,000*	0 *of 300*	0 *of 500*	0 *of 800*	0 *of 300*	0 *of 90*
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: 0.1 minutes

Number of sprinkler pen runs/milking: 0 cycles/milking

Flow rate for each sprinkler head: 0.1 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: 35,558 gallons/day

Recycled water reused: 4,000 gallons/day

Recycled water leaving system: 0 gallons/day

Reusable water balance: 31,558 gallons/day

Volume of milkbarn and equipment wastewater generated for storage period: 4,348,560 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	290	40.0	50%	7,250
			Total:	7,250

B. SOLIDS SEPARATION PROCESS

Combined manure solids separation efficiency (weight basis): 40 %

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

Sand Trap and Solid Manure Separator

C. MANURE AND BEDDING SOLIDS SUMMARY

	cubic feet		gallons	
	day	storage period	day	storage period
Manure generated by the herd (pre-separation):	6,093.80	731,257	45,584.82	5,470,179
Manure generated by the herd sent to pond(s):	4,684.61	562,153	35,043.31	4,205,197
Manure generated by the herd sent to dry lot(s):	666.33	79,960	4,984.50	598,140
Manure solids (herd) removed by separation:	359.62	43,154	2,690.13	322,815
Liquid component in separated solids not send to pond(s):	383.25	45,990	2,866.88	344,026
Imported and facility generated bedding sent to pond(s):	60.42	7,250	451.95	54,234
Total manure and bedding sent to pond(s):	4,745.03	569,403	35,495.26	4,259,431
Residual manure solids and bedding sent to pond(s) w/factor:	299.92	35,991	2,243.57	269,228
	cubic feet per year		gallons per year	
Residual manure solids and bedding sent to pond(s) w/factor:	109,471		818,903	

RAINFALL AND RUNOFF

A. RAINFALL ESTIMATES

Rainfall station nearest the facility: Turlock

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): 8.56 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
Dry Manure Storage Area	28,600	1	0.95	0.50	Drains into pond(s).
Impervious Area 1 - IA1	111,800	1	0.95	0.50	Drains into pond(s).
Impervious Area 2 - IA2	1,200	1	0.95	0.50	Drains into pond(s).
Impervious Area 3 - IA3	3,700	1	0.95	0.50	Drains into pond(s).
Impervious Area 4 - IA4	105,900	1	0.95	0.50	Drains into pond(s).
Impervious Area 5 - IA5	1,650	1	0.95	0.50	Drains into pond(s).
Sand Trap	3,220	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):	256,070	sq. ft.
Total surface area:	256,070	sq. ft.
Runoff from normal storage period rainfall:	683,208	gallons/storage period
Runoff from normal storage period rainfall with 1.5 factor:	1,024,812	gallons/storage period
25 year/24 hour storm event runoff:	379,117	gallons/storage period
Total surface area runoff:	1,062,325	gallons/storage period
Total surface area runoff with 1.5 factor:	1,403,929	gallons/storage period

C. ROOF AREAS

Name	Surface Area (sq. ft.)	Quantity	Runoff Destination
Animal Shelter 1 - AS1	10,400	1	Wastewater pond
Animal Shelter 10 - AS10	82,600	1	Adjacent Field
Animal Shelter 2 - AS2	38,340	1	Wastewater pond
Animal Shelter 3 - AS3	39,400	1	Wastewater pond
Animal Shelter 4 - AS4	2,000	1	Wastewater pond
Animal Shelter 5 - AS5	37,300	1	Wastewater pond
Animal Shelter 6 - AS6	78,125	1	Wastewater pond
Animal Shelter 7 - AS7	76,700	1	Wastewater pond
Animal Shelter 8 - AS8	76,700	1	Adjacent Field
Animal Shelter 9 - AS9	76,700	1	Adjacent field
Calf Hutches (Total)	3,500	1	Wastewater pond
Commodity Barn 1	4,800	1	Wastewater pond
Commodity Barn 2	5,320	1	Wastewater pond
Hay Barn	11,200	1	Wastewater pond
Milking Parlor	5,200	1	Wastewater pond

Surface area that does not run off into pond(s):	236,000	sq. ft.
Surface area that runs off into pond(s):	312,285	sq. ft.
Total surface area:	548,285	sq. ft.
Runoff from normal storage period rainfall:	1,666,385	gallons/storage period
Runoff from normal storage period rainfall with 1.5 factor:	2,499,578	gallons/storage period
25 year/24 hour storm event runoff:	486,678	gallons/storage period
Total surface area runoff:	2,153,063	gallons/storage period
Total surface area runoff with 1.5 factor:	2,986,256	gallons/storage period

D. EARTHEN AREAS

Name	Surface Area (sq. ft.)	Quantity	25yr/24 Storm Coefficient	Storage Period Coefficient	Runoff Destination
Earthen Area 1 - EA1	7,500	1	0.35	0.20	Drains into pond(s).
Earthen Area 10 - EA10	203,000	1	0.35	0.20	Drains into pond(s).
Earthen Area 11 - EA11	139,300	1	0.35	0.20	Drains into pond(s).
Earthen Area 12 - EA12	88,750	1	0.35	0.20	Drains into pond(s).
Earthen Area 13 - EA13	63,800	1	0.35	0.20	Drains into pond(s).
Earthen Area 14 - EA14	67,700	1	0.35	0.20	Drains into pond(s).
Earthen Area 15 - EA15	34,775	1	0.35	0.20	Drains into pond(s).
Earthen Area 2 - EA2	18,100	1	0.35	0.20	Drains into pond(s).
Earthen Area 3 - EA3	34,000	1	0.35	0.20	Drains into pond(s).
Earthen Area 4 - EA4	16,400	1	0.35	0.20	Drains into pond(s).
Earthen Area 5 - EA5	4,000	1	0.35	0.20	Drains into pond(s).
Earthen Area 6 - EA6	6,300	1	0.35	0.20	Drains into pond(s).
Earthen Area 7 - EA7	17,500	1	0.35	0.20	Drains into pond(s).
Earthen Area 8 - EA8	16,600	1	0.35	0.20	Drains into pond(s).
Earthen Area 9 - EA9	39,400	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):	757,125	sq. ft.
Total surface area:	757,125	sq. ft.
Runoff from normal storage period rainfall:	808,020	gallons/storage period
Runoff from normal storage period rainfall with 1.5 factor:	1,212,029	gallons/storage period
25 year/24 hour storm event runoff:	412,977	gallons/storage period
Total surface area runoff:	1,220,997	gallons/storage period
Total surface area runoff with 1.5 factor:	1,625,007	gallons/storage period

E. TAILWATER MANAGEMENT

No fields with tailwater entered.

LIQUID STORAGE

A. POND OR BASIN DESCRIPTION: WWS1

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

Dimensions			
Earthen Length (EL):	115 ft.	Earthen Depth (ED):	13 ft.
Earthen Width (EW):	313 ft.	Side Slope (S):	3.0 ft. (h:1v)
Free Board (FB):	2 ft.	Dead Storage Loss (DS):	1.0 ft.

Calculations			
Liquid Length (LL):	103 ft.	Storage Volume Adjusted for Dead Storage Loss:	200,830 cu. ft.
Liquid Width (LW):	301 ft.		
Pond Surface Area:	35,995 sq. ft.	Pond Marker Elevation:	10.0 ft.
Storage Volume:	210,353 cu. ft.	Evaporation Volume:	160,390 gals/period
		Adjusted Surface Area:	29,831 sq. ft.

POND OR BASIN DESCRIPTION: WWS2

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

Dimensions			
Earthen Length (EL):	751 ft.	Earthen Depth (ED):	13 ft.
Earthen Width (EW):	313 ft.	Side Slope (S):	3.0 ft. (h:1v)
Free Board (FB):	2 ft.	Dead Storage Loss (DS):	1.0 ft.

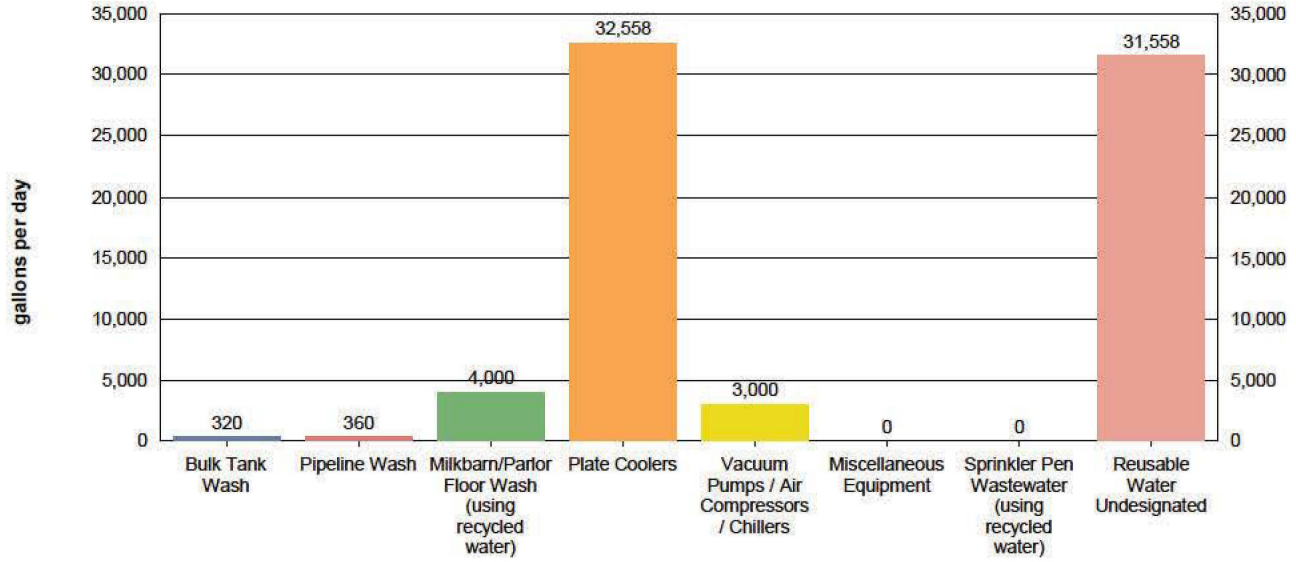
Calculations			
Liquid Length (LL):	739 ft.	Storage Volume Adjusted for Dead Storage Loss:	1,924,390 cu. ft.
Liquid Width (LW):	301 ft.		
Pond Surface Area:	235,063 sq. ft.	Pond Marker Elevation:	10.1 ft.
Storage Volume:	2,085,281 cu. ft.	Evaporation Volume:	1,181,136 gals/period
		Adjusted Surface Area:	219,680 sq. ft.

Potential storage losses (due to dead storage):	170,414.0 cubic feet - or -	1,274,785.2 gallons
Liquid storage surface area:	253,442 sq. ft.	
Rainfall onto retention pond(s):	1,446,394 gallons/storage period	
Rainfall runoff into retention pond(s):	3,157,613 gallons/storage period	
Normal rainfall onto retention pond(s) with 1.5 factor:	2,169,590 gallons/storage period	
Normal rainfall runoff into retention pond(s) with 1.5 factor:	4,736,419 gallons/storage period	
Storage period evaporation (default):	11.50 inches/storage period	
Storage period evaporation (user-override):	inches/storage period	

Storage period evaporation volume:	1,341,526	gallons/storage period
Manure and bedding sent to pond(s):	4,259,431	gallons/storage period
Milkbarn water sent to pond(s):	4,348,560	gallons/storage period
Fresh flush water for storage period:	0	gallons/storage period

CHARTS

A. MILKBARN WASTEWATER SENT TO POND(S)

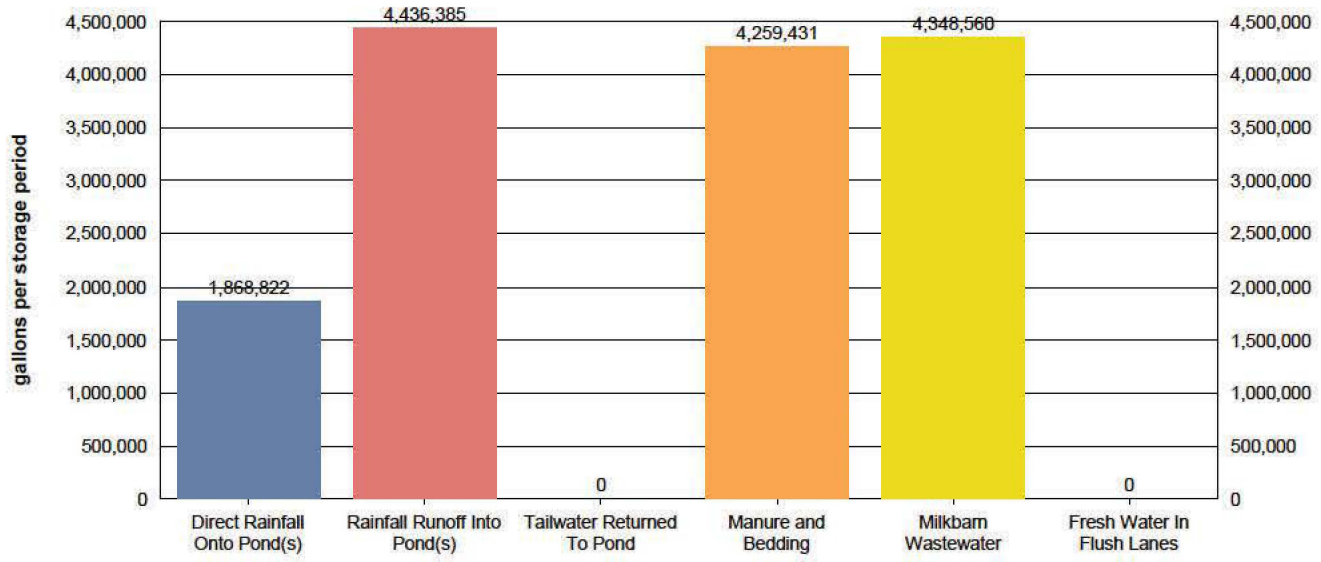


Values shown in chart are approximate values per day.

Total milkbarn wastewater generated daily: 36,238 gallons/day

Total milkbarn wastewater generated per period: 4,348,560 gallons/storage period

B. PROCESS WASTEWATER (NORMAL PRECIPITATION)

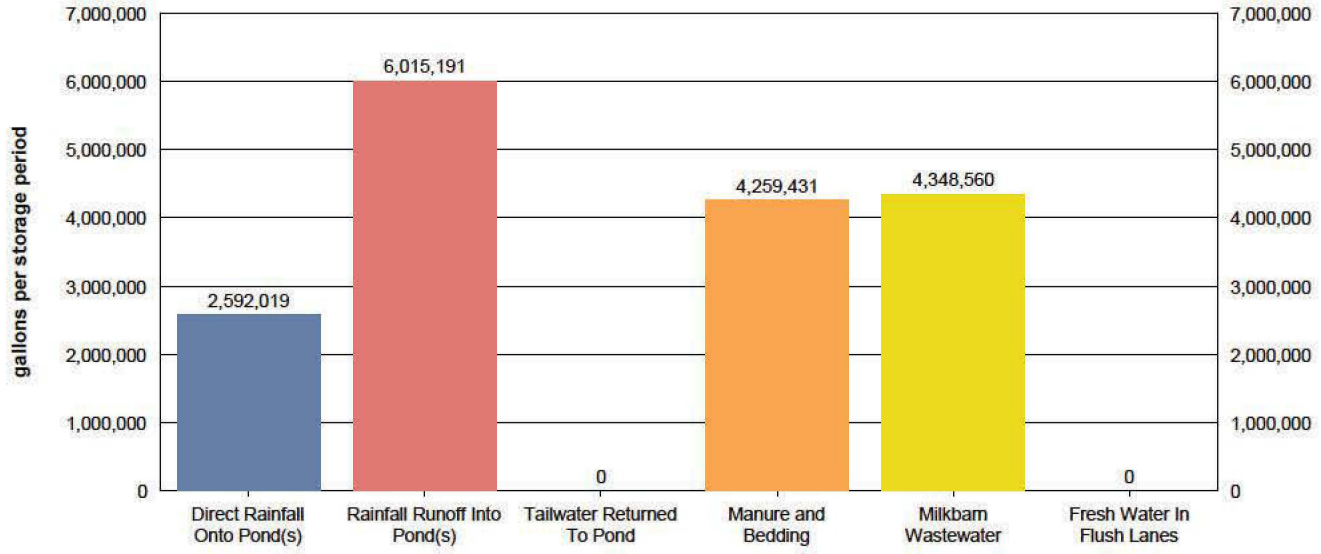


Values shown in chart are approximate values for storage period.

Storage period:	120	days
Total process wastewater generated daily:	124,277	gallons/day
Total process wastewater generated per period:	14,913,197	gallons/storage period
Total process wastewater removed due to evaporation:	1,341,526	gallons/storage period
Total storage capacity required:	13,571,671	gallons
	1,814,269	cu. ft.
Existing storage capacity (adjusted for dead storage loss):	15,897,750	gallons
	2,125,220	cu. ft.

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

C. PROCESS WASTEWATER (NORMAL PRECIPITATION WITH 1.5 FACTOR)

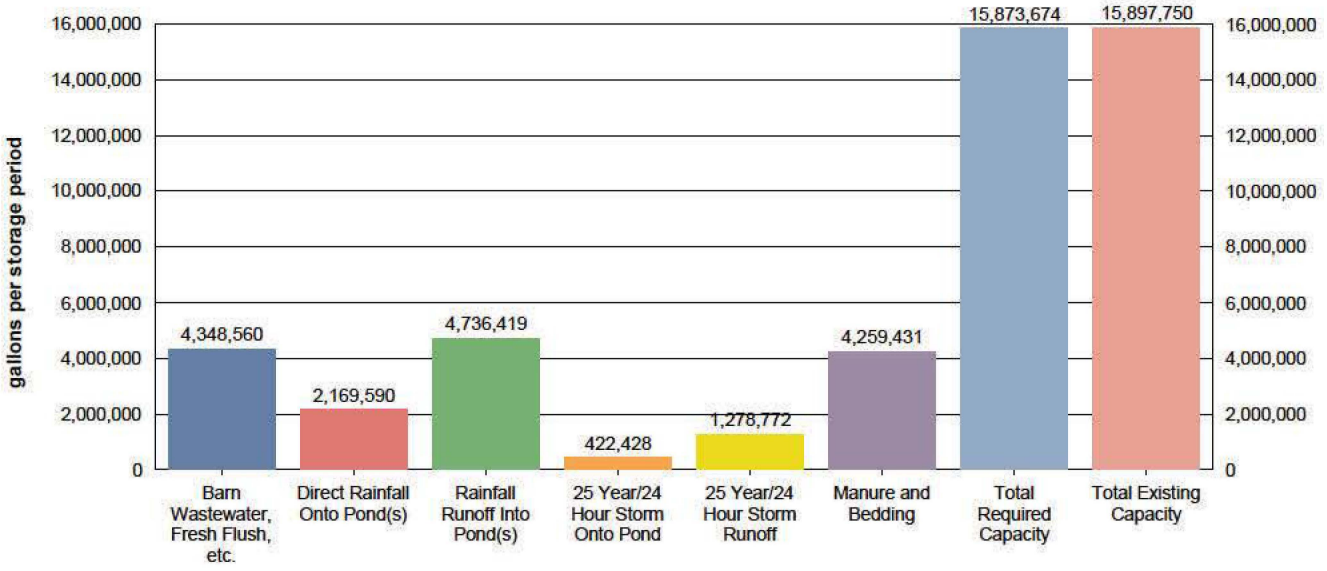


Values shown in chart are approximate values for storage period.

Storage period:	120	days
Total process wastewater generated daily:	143,460	gallons/day
Total process wastewater generated per period:	17,215,200	gallons/storage period
Total process wastewater removed due to evaporation:	1,341,526	gallons/storage period
Total storage capacity required:	15,873,674	gallons
	2,122,002	cu. ft.
Existing storage capacity (adjusted for dead storage loss):	15,897,750	gallons
	2,125,220	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:	4,348,560	gallons/storage period
Manure and bedding sent to pond:	4,259,431	gallons/storage period
Precipitation onto pond:	2,169,590	gallons/storage period
Precipitation runoff:	4,736,419	gallons/storage period
25 year/24 hour storm onto pond:	422,428	gallons/storage period
25 year/24 hour storm runoff:	1,278,772	gallons/storage period
Residual solids after liquids have been removed (liquid equivalent):	269,228	gallons/storage period
Total process wastewater removed due to evaporation:	1,341,526	gallons/storage period
Total required capacity:	15,873,674	gallons/storage period
Total existing capacity:	15,897,750	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: WWS2

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

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

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

Sludge accumulation will be measured annually.

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

Solids will be measured manually after lowering of the liquid pond level.

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 will be removed with an excavator.

OPERATIONS AND MAINTENANCE PLAN FOR POND: WWS1

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

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

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

Sludge accumulation will be measured annually.

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

Solids will be measured manually after lowering of the liquid pond level.

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 will be removed with an 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 1 - AS1	1	10,400
Animal Shelter 10 - AS10	1	82,600
Animal Shelter 2 - AS2	1	38,340
Animal Shelter 3 - AS3	1	39,400
Animal Shelter 4 - AS4	1	2,000
Animal Shelter 5 - AS5	1	37,300
Animal Shelter 6 - AS6	1	78,125
Animal Shelter 7 - AS7	1	76,700
Animal Shelter 8 - AS8	1	76,700
Animal Shelter 9 - AS9	1	76,700
Calf Hutches (Total)	1	3,500
Commodity Barn 1	1	4,800
Commodity Barn 2	1	5,320
Hay Barn	1	11,200
Milking Parlor	1	5,200

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

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

Description of how rainfall collection systems will be assessed:

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

C. CORRAL MAINTENANCE

i. Monthly from June 1st through September 30th (dry season) and weekly from October 1st through May 31st (wet season), the perimeter of the corrals and pens will be assessed to ensure that 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:

Solids will be removed with scrapers and/or loaders. Regrading will be performed as necessary after solids removal to ensure proper drainage.

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: 2nd of October

Animal housing area drainage system assessment and maintenance methods:

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

G. MORTALITY MANAGEMENT

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

Rendering company or landfill name: Sisk Tallow

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

H. ANIMALS AND SURFACE WATER MANAGEMENT

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

Does a stream or any other surface water cross or adjoin the corrals? [ ] Yes [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: Annually

J. CHEMICAL MANAGEMENT

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

No chemicals entered.

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 4

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 2 & 3

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 Sheets 2,3,4

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 Sheet 1

B. PROCESS WASTEWATER MAP(S)

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

Production infrastructure system area map reference number: Exhibit Sheet 4

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 2 & 3

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 3

E. FLOOD PROTECTION / INUNDATION REPORT

Provide a published flood zone map that shows the facility is outside the relevant flood zones.

Flood zone map and/or document reference number: Exhibit Sheet 5

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 1.b.

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: Joe Jordao Dairy

Physical address of dairy:

6025 S Central AVE	Turlock	Stanislaus	95380
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

Digitally signed by Manny Sousa
Date: 2021.09.15 15:25:53 -07'00'

9/15/2021

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
Joe Jordao	
PRINT OR TYPE NAME	PRINT OR TYPE NAME
9-15-21	
DATE	DATE

SOUSA
ENGINEERING
INFRASTRUCTURE-DEVELOPMENT-
AGRICULTURE

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

VECTOR CONTROL PLAN
FOR
JOE JORDAO DAIRY
STANISLAUS COUNTY, CA

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1. INTRODUCTION
2. BEST MANAGEMENT PRACTICES
    a. Land Application Areas
    b. Dairy Production Area (DPA)
3. CONTACT INFORMATION

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

Health Risk Assessment and Ambient Air Quality Analysis

Jordao Dairy Facility

1707 S. Mitchell Road
Turlock, CA 95380
Stanislaus County

Prepared By:

Matt Daniel – Senior Consultant

TRINITY CONSULTANTS
4900 California Avenue, Suite 420A
Bakersfield, CA 93309
661-282-2200

April 2023
(Revised October 2023)
(Revised February 2024)

Project 220505.0180

Trinity Consultants

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1. EXECUTIVE SUMMARY

This document contains the health risk assessment (HRA) and ambient air quality analysis (AAQA) performed on behalf of Sousa Engineering for the Jordao Dairy facility 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 and an ambient air quality analysis of the criteria pollutants compared to the California and national ambient air quality standards.

Emissions of hazardous air pollutants attributable to proposed 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 2020.4.0 (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 (20×10^{-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 19.8 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 0.277 and 0.529, 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.

Emissions of criteria pollutants attributable to proposed construction activities animal movement, manure management and on-site mobile sources were calculated using generally accepted emission factors. The SJVAPCD has developed screening levels for requiring an AAQA. The SJVAPCD recommends that an AAQA be performed for all criteria pollutants when emissions of any criteria pollutant resulting from project construction or operational activities exceed the 100 pounds per day screening level, after compliance with Rule 9510 requirements and implementation of all enforceable mitigation measures. The proposed project's construction and operational activities will not exceed 100 pounds per day of any criteria pollutant that has an ambient air quality standard. Therefore, an AAQA is not required, and the proposed Project is considered less than significant for ambient air quality impacts.

2. INTRODUCTION

This Health Risk Assessment (HRA) is provided as a service of Trinity Consultants, performed on behalf of Sousa Engineering for the Jordao Dairy facility operation in Stanislaus County, California (**Figure 2-1**). As part of the development requirements for the property, an HRA and AAQA are required.

Figure 2-1. Location Map

2.1. PROJECT DESCRIPTION

The existing dairy is located at 60257 S Central Avenue in Turlock, 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 in up to three phases, however, since construction was modeled as one phase to be conservative. Construction would include the construction of a new animal housing structure totaling 236,000 square feet. Construction was estimated to take approximately twelve months. All construction is expected to be completed within a five-to-ten-year period after the issuance of a Conditional Use Permit (CUP).

After modification, the dairy will house approximately 3,990 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

Cow Type	Current	Proposed	Increment
Milk Cows	945	2,000	1,055
Dry Cows	90	300	210
Support Stock	800	1,600	800
Calves	150	90	-60
TOTAL	**1,985**	**3,990**	**2,005**

As stated in the GAMAQI (2015, p 96-97), SJVAPCD has developed screening levels for requiring an Ambient Air Quality Analysis (AAQA). The SJVAPCD recommends that an AAQA be performed for all criteria pollutants when emissions of any criteria pollutant resulting from project construction or operational activities exceed the 100 pounds per day screening level, after compliance with Rule 9510 requirements and implementation of all enforceable mitigation measures.

As shown below in **Table 3-1**, average daily emissions for construction and operational activities associated with this Project would not exceed 100 pounds per day for any criteria pollutant or ammonia. *Therefore, an AAQA is not required for this Project.*

Table 3-1. Average Daily Criteria Pollutant Emissions

Emissions Source	Pollutant (lbs/day)						
	NOX	VOC	CO	SOX	PM_{10}	$PM_{2.5}$	NH3
Construction Emissions							
Year 2023	7.18	0.85	8.20	0.02	1.18	0.61	0.00
Year 2024	4.53	0.56	5.94	0.01	0.62	0.29	0.00
Operational Emissions							
Milk Parlor	-	1.10	-	-	-	-	0.30
Cow Housing	-	29.50	-	-	20.48	2.33	79.50
Liquid Manure	-	1.94	-	-	-	-	9.40
Solid Manure	-	0.80	-	-	-	-	5.00
Feed Handling	-	42.80	-	-	-	-	0.00
Mobile Sources	0.23	0.25	2.09	0.004	0.01	0.01	0.00
Total Average Daily Operational Emissions	**0.23**	**76.39**	**2.09**	**0.004**	**20.49**	**2.34**	**94.20**
SJVAPCD AAQA Screening Threshold	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Is Threshold Exceeded?	No	No	No	No	No	No	No

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.

4.1. HAZARD IDENTIFICATION

The basis for evaluating potential health risk is the identification of sources of hazardous air pollutants (HAPs). The proposed dairy expansion will include sources with the potential to emit HAPs.

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 heavy industrial usages were utilized. Default horsepower, daily operating hours, and load factors were also used. Operational mobile sources include a diesel-fueled milk delivery trucks, solids manure removal trucks, commodity delivery trucks, a manure scraping tractor, a manure loading tractor, a bedding delivery tractor, feed loading tractor and a feed delivery tractor. There will also be emissions from the housing barns, milk barn, lagoons, solid manure storage and land application areas associated with increased herd size. HRA emission sources are listed in **Table 4-1**.

Table 4-1. Sources of Potential Emissions

Source ID	Description
SMTI	Solid Manure Truck Idling
SMTT	Solid Manure Truck Travel
MTI	Milk Truck Idling
MTT	Milk Truck Travel
MLT	Manure Loading Tractor
FLT	Feed Load Tractor
FBDT1-3	Feed and Bedding Delivery Tractor
LB2, 4-7	Loafing Barns
FS1-4	Free Stall Barns
CH1	Calf Hutches
MILK1	Milk Parlor
LAGOON	Lagoon
SMS	Solid Manure Storage
LLA	Liquid Land Application
CTI	Commodity Truck Idling
CTT	Commodity Truck Travel
MST	Manure Scraping Tractor
CONST	Construction Activities
OSTT	Off-Site Truck Travel (1/4 Mile)

Table 4-2 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 4-2. 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
108907	Chlorobenzene	Animal Movement			X
110543	Hexane	Animal Movement			X
110827	Cyclohexane *	Animal Movement, Lagoons			
115071	Propylene	Lagoons			X

CAS	Pollutant	Source	Cancer	Non-Cancer	
				Acute	Chronic
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.

4.2. EXPOSURE ASSESSMENT

4.2.1. 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 project applicant provided 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 EMFAC2021 emission factors specific to Stanislaus County for vehicle category "T7 Single Other Class 8." Diesel trucks were assumed to have 15 minutes of idling per visit.

The actual total construction activities were estimated to be twelve months. Therefore, a one-year exposure HRA was conducted and added to the operational HRA results. Construction emissions will be restricted to occur between the hours of 7am and 5pm.

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 in **Appendix B**.

4.2.2. 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 dairy expansion. The construction activities, animal housing areas, milk barn, lagoons, solid manure storage, manure scraping tractor 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 delivery tractor, bedding delivery tractor, commodity delivery trucks milk trucks, and manure removal 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, the manure loading tractor, commodity truck idling, milk truck idling and manure removal truck idling were modeled as point sources, with a unit emission rate of 1 g/sec. Modeled sources are identified in **Table 4-1**.

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 in **Appendix B.**

4.2.2.1. Meteorological Data

The SJVAPCD provided meteorological data for Modesto, California to be used for projects within Stanislaus County. SJVAPCD-approved, AERMET processed meteorological datasets for calendar years 2013 through 2017[1] was input into AERMOD. This was the most recent available dataset available at the time the modeling runs were conducted.

4.2.2.2. Receptors

Existing land uses in the area where the proposed dairy expansion 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 8 on-site residential receptors and 147 off-site receptors of residences and workers were assessed during the preparation of this HRA. Coordinates for the point of maximum impact (PMI) receptors are provided in **Table 4-3**.

4.2.3. HARP Post-Processing

The files generated in AERMOD were uploaded to the Air Dispersion Modeling and Risk Assessment Tool (ADMRT) program in the Hotspots Analysis and Reporting Program Version 2 (HARP2) (CARB 2015). ADMRT post-processing was used to assess the potential for excess cancer risk and chronic and acute 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 with the addition of the homegrown produce pathway as recommended by the SJVAPCD for carcinogenic risk. The deposition rate was set to 0.02 m/s.

[1] Provided via website, San Joaquin Valley Air Pollution Control District (SJVAPCD), ftp://12.219.204.27/public/Modeling/Meteorological_Data/AERMET_v16216/Modesto_23258/

As a recommendation by OEHHA the Fraction of time at home option (FAH) should be selected for age bins less than 16 years whenever there is not a school within the 1 in a million-risk isopleth. This recommendation has been adopted by most air districts throughout California as to not overestimate cancer risk from dispersion modeling. Not selecting this option would model the receptor as always being present at home for 70 years. Since there was not a school within the 1 in a million-risk isopleth and the FAH option is shown as a TIER 3 option in the SJVAPCD Guidance document the SJAPCD was contacted for approval. The SJVAPCD stated that they currently do not approve of the FAH option because it cannot confirm the residents are not home schooled. The residents in this case were contacted and it was confirmed that the children present at the on-site residences are not home schooled and therefore the FAH option should be deemed appropriate. The SJVAPCD's other objection to using the FAH option after confirming the children were not homeschooled was that they couldn't guarantee that future residents wouldn't be homeschooled. Therefore, in this case we feel the following are appropriate:

1. FAH option allowed for current residents.
2. FAH option not allowed for unknown future residents who cannot be confirmed to be attending school outside of the home.

Two risk scenarios were analyzed. The first scenario analyzed the current residents who will most likely be present for the construction and operation of the project with the FAH option selected. The second scenario analyzed potential future residents who may be present for construction and operation of the project without the FAH option selected. Risk reports were generated for carcinogenic risk, non-carcinogenic chronic risk and non-carcinogenic acute risk. Site parameters are included in the HARP2 output files.

4.3. 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).

HARP2 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 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 (20×10^{-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 4-3**. The HARP2 output files for cancer, acute, and chronic risks are provided in electronic format on **Appendix B.**

As shown below in **Table 4-3 and 4-4,** the maximum predicted cancer risk is 19.8E-06. Cancer risks are primarily attributable to emissions of naphthalene through the inhalation pathway. Carcinogenic risks are tabulated by pollutant in **Table 4-5**.

The maximum predicted acute non-cancer hazard index is 0.277. Acute risks are primarily attributable to emissions of ammonia, which affects the respiratory system and eyes. Acute risks are tabulated by pollutant in **Table 4-6**.

The maximum predicted chronic non-cancer hazard index is 0.529. Chronic risks, tabulated by pollutant in **Table 4-7**, are primarily attributable to emissions of arsenic which affect the respiratory system, the skin, cardiovascular system and the central nervous system.

Table 4-3. Risk Predicted By HARP – Current Residents with FAH

	Maximum Lifetime Excess Cancer Risk	Maximum Non-Cancer Chronic Hazard Index	Maximum Non-Cancer Acute Hazard Index
Construction	1.44E-06	1.62E-03	0.00E+00
Operational	17.6E-06	5.27E-01	2.77E-01
Total	19.0E-06	5.29E-01	2.77E-01
Receptor #, Name	3, On-Site Residence	3, On-Site Residence	3, On-site Residence
UTM Easting (m)	680594.67	680594.67	680594.67
UTM Northing (m)	4145095.30	4145095.30	4145095.30

Table 4-4. Risk Predicted By HARP – Future Residents without FAH

	Maximum Lifetime Excess Cancer Risk	Maximum Non-Cancer Chronic Hazard Index	Maximum Non-Cancer Acute Hazard Index
Construction	NA*	1.62E-03	0.00E+00
Operational	19.8E-06	5.27E-01	2.77E-01
Total	19.8E-06	5.29E-01	2.77E-01
Receptor #, Name	3, On-Site Residence	3, On-Site Residence	3, On-site Residence
UTM Easting (m)	680594.67	680594.67	680594.67
UTM Northing (m)	4145095.30	4145095.30	4145095.30

**If future residents with children move into on-site residences prior to construction activities then and it cannot be confirmed that the children attend school outside of the home then the family will need to temporarily relocate during construction activities.*

Table 4-5. Risk by Pollutant – Maximum Cancer Risk at Receptor #3

CHEM	INHAL	SOIL	DERM	MOTHER	WATER	FISH	CROP	BEEF	DAIRY	PIG	CHICK	EGG	TOTAL
DieselExhPM	1.33E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E-06
Arsenic	4.39E-07	2.97E-06	1.26E-07	0.00E+00	0.00E+00	0.00E+00	2.83E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.36E-06
Cr(VI)	1.33E-06	1.75E-08	6.14E-10	0.00E+00	0.00E+00	0.00E+00	8.67E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.22E-06
Lead	3.36E-09	3.68E-08	7.83E-10	6.10E-10	0.00E+00	0.00E+00	1.11E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.27E-08
Nickel	2.38E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.38E-08
TetraClEthane	5.43E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.43E-07
1,1,2TriClEthan	1.07E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-07
DBCP	1.94E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.94E-06
1,4-Dioxane	2.66E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.66E-07
p-DiClBenzene	2.78E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.78E-07
Acetaldehyde	1.47E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-07
Acrylonitrile	1.93E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-06
Benzene	2.01E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-07
Benzyl Chloride	6.89E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.89E-07
CCl4	4.93E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.93E-08
Chloroform	1.39E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.39E-08
Ethyl Benzene	2.37E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.37E-08
EDB	7.08E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.08E-07
EDC	4.65E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.65E-08
Formaldehyde	6.01E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.01E-08
Naphthalene	2.53E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-06
Perc	3.63E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.63E-07
TCE	6.10E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.10E-09
SUM	1.30E-05	3.02E-06	1.28E-07	6.10E-10	0.00E+00	0.00E+00	3.70E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E-05

Table 4-6. Risk by Pollutant – Maximum Acute Noncancer Risk at Receptor #3

CHEM	CV	CNS	IMMUN	KIDNEY	GILV	REPRO /DEVEL	RESP	SKIN	EYE	BONE /TEETH	ENDO	BLOOD	ODOR	GENERAL	MAX
NH3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-01	0.00E+00	2.63E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-01
Arsenic	1.23E-02	1.23E-02	0.00E+00	0.00E+00	0.00E+00	1.23E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-02
SULFATES	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.30E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.30E-03
Nickel	0.00E+00	0.00E+00	5.37E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.37E-03
Benzene	0.00E+00	0.00E+00	3.01E-03	0.00E+00	0.00E+00	3.01E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.01E-03	0.00E+00	0.00E+00	3.01E-03
Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.40E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.40E-03
Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-03	0.00E+00	1.22E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-03
Benzyl Chloride	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-03	0.00E+00	1.12E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-03
Mercury	0.00E+00	1.02E-03	0.00E+00	0.00E+00	0.00E+00	1.02E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-03
MEK	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-04	0.00E+00	2.25E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-04
Copper	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.02E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.02E-04
Chloroform	0.00E+00	1.69E-04	0.00E+00	0.00E+00	0.00E+00	1.69E-04	1.69E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E-04
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-04	0.00E+00	1.53E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-04
1,4-Dioxane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.48E-04	0.00E+00	1.48E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.48E-04
CS2	0.00E+00	1.21E-04	0.00E+00	0.00E+00	0.00E+00	1.21E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-04
Isopropyl Alcoh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-04	0.00E+00	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-04
Perc	0.00E+00	6.57E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.57E-05	0.00E+00	6.57E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.57E-05
Toluene	0.00E+00	5.84E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.84E-05	0.00E+00	5.84E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.84E-05
Xylenes	0.00E+00	2.16E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.16E-05	0.00E+00	2.16E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.16E-05
Styrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.56E-06	8.56E-06	0.00E+00	8.56E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.56E-06
CCl4	0.00E+00	5.99E-06	0.00E+00	0.00E+00	5.99E-06	5.99E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.99E-06
SUM	1.23E-02	1.37E-02	8.38E-03	0.00E+00	5.99E-06	1.66E-02	2.76E-01	0.00E+00	2.69E-01	0.00E+00	0.00E+00	3.01E-03	0.00E+00	0.00E+00	2.77E-01

Table 4-7. Risk by Pollutant – Maximum Chronic Noncancer Risk at Receptor #3

CHEM	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/ DEVEL	RESP	SKIN	EYE	BONE/ TEETH	ENDO	BLOOD	ODOR	GENERAL	MAX
Arsenic	4.07E-01	4.07E-01	0.00E+00	0.00E+00	0.00E+00	4.07E-01	4.07E-01	4.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.07E-01
NH3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-01
Manganese	0.00E+00	3.31E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.31E-02
EDB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.29E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.29E-03
Naphthalene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.32E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.32E-03
Mercury	0.00E+00	2.14E-03	0.00E+00	2.14E-03	0.00E+00	2.14E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.14E-03
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.93E-05	1.96E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-03	0.00E+00	0.00E+00	1.96E-03
Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.84E-04	0.00E+00	0.00E+00	5.84E-04
Perc	0.00E+00	0.00E+00	0.00E+00	4.98E-04	4.98E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.98E-04
Acrylonitrile	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.51E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.51E-04
Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.84E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.84E-04
DieselExhPM	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-03
Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.10E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.10E-05
Vinyl Acetate	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.69E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.69E-05
Selenium	4.42E-05	4.42E-05	0.00E+00	0.00E+00	4.42E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.42E-05
Cr(VI)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.92E-05	0.00E+00	0.00E+00	3.92E-05
CS2	0.00E+00	1.88E-05	0.00E+00	0.00E+00	0.00E+00	1.88E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-05
Toluene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-05
Xylenes	0.00E+00	1.44E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-05	0.00E+00	1.44E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-05
p-DiClBenzene	0.00E+00	8.40E-06	0.00E+00	8.40E-06	8.40E-06	0.00E+00	8.40E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.40E-06
CCl4	0.00E+00	6.98E-06	0.00E+00	0.00E+00	6.98E-06	6.98E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.98E-06
Styrene	0.00E+00	3.38E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.38E-06
1,4-Dioxane	2.92E-06	0.00E+00	0.00E+00	2.92E-06	2.92E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.92E-06
Chlorobenzn	0.00E+00	0.00E+00	0.00E+00	2.37E-06	2.37E-06	2.37E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.37E-06
Chloroform	0.00E+00	0.00E+00	0.00E+00	2.08E-06	2.08E-06	2.08E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.08E-06
EDC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-06
TCE	0.00E+00	1.53E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-06
Ethyl Benzene	0.00E+00	0.00E+00	0.00E+00	1.24E-06	1.24E-06	1.24E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-06	0.00E+00	0.00E+00	0.00E+00	1.24E-06
Isopropyl Alcoh	0.00E+00	0.00E+00	0.00E+00	1.19E-06	0.00E+00	1.19E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-06
Hexane	0.00E+00	6.02E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.02E-07
Ethyl Chloride	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.05E-08	5.05E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.05E-08
SUM	4.08E-01	4.43E-01	0.00E+00	2.65E-03	5.68E-04	4.13E-01	5.28E-01	4.07E-01	3.05E-05	0.00E+00	1.24E-06	2.59E-03	0.00E+00	0.00E+00	5.28E-01

5. 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 Jordao Dairy facility for chronic and acute non-carcinogenic and carcinogenic risk is determined to be less than significant based on the following conclusion:

- Potential chronic carcinogenic risk from the facility expansion 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 facility expansion 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 facility expansion is *below* the significance level of 1.0 at each of the modeled receptors.

Additionally, the ambient air quality impact is determined to be less than significant based on the following conclusions:

- The average daily emissions for construction and operational activities associated with this Project would not exceed 100 pounds per day for any criteria pollutant that has an ambient air quality standard.

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APPENDIX A: EMISSION ESTIMATION WORKSHEETS

Rev. January 6, 2020

Pre-Project Facility Information

1. Does this facility house Holstein or Jersey cows? Holstein
   Most facilities house Holstein cows unless explicitly stated on the PTO or application.
2. Does the facility have an anaerobic treatment lagoon? no
3. Does the facility land apply liquid manure? yes
   Answering "yes" assumes worst case.
4. Does the facility land apply solid manure? no
   Answering "yes" assumes worst case.
5. Is any scraped manure sent to a lagoon/storage pond? no
   Answering "yes" assumes worst case.

Pre-Project Herd Size

Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals
Milk Cows	945				945
Dry Cows	90				90
Support Stock (Heifers, Calves, and Bulls)	200		600		800
Large Heifers					0
Medium Heifers					0
Small Heifers					0
Bulls					0

	Calf Hutches				Calf Corrals		
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped	Total # of Calves
Calves					150		150

Total Herd Summary

Total Milk Cows	945
Total Mature Cows	1,035
Support Stock (Heifers, Calves, and Bulls)	800
Total Calves	150
Total Dairy Head	1,985

Pre-Project Silage Information

Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn	1	30	100
Alfalfa			
Wheat	1	30	75

Post-Project Facility Information

1. Does this facility house Holstein or Jersey cows? Holstein
   Most facilities house Holstein cows unless explicitly stated on the PTO or application.
2. Does the facility have an anaerobic treatment lagoon? no
3. Does the facility land apply liquid manure? yes
   Answering "yes" assumes worst case.
4. Does the facility land apply solid manure? no
   Answering "yes" assumes worst case.
5. Is any scraped manure sent to a lagoon/storage pond? no
   Answering "yes" assumes worst case.
6. Does this project result in an increase or relocation of uncovered surface area for any lagoon/storage pond? no

Post-Project Herd Size

Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals
Milk Cows	1,665		335		2,000
Dry Cows			300		300
Support Stock (Heifers, Calves, and Bulls)			1,600		1,600
Large Heifers					0
Medium Heifers					0
Small Heifers					0
Bulls					0

	Calf Hutches				Calf Corrals		
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped	Total # of Calves
Calves					90		90

Total Herd Summary

Total Milk Cows	2,000
Total Mature Cows	2,300
Support Stock (Heifers, Calves, and Bulls)	1,600
Total Calves	90
Total Dairy Head	3,990

Post-Project Silage Information

Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn	1	20	115
Alfalfa			
Wheat	2	20	105

VOC Mitigation Measures and Control Efficiencies

Milking Parlor				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	VOC Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
		Enteric Emissions Mitigations		
☑	☑	**(D)** Feed according to NRC guidelines	10%	10%
		Total Control Efficiency	10%	10%
		Milking Parlor Floor Mitigations		
☑	☑	**(D)** Feed according to NRC guidelines	10%	10%
☑	☑	**(D)** Flush or hose milk parlor immediately prior to, immediately after, or during each milking. Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.	10%	0%
		Total Control Efficiency	19%	10%

Cow Housing				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	VOC Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
		Enteric Emissions Mitigations		
☑	☑	Feed according to NRC guidelines	10%	10%
		Total Control Efficiency	10%	10%
		Corrals/Pens Mitigations		
☑	☑	Feed according to NRC guidelines	10%	10%
☐	☐	Inspect water pipes and troughs and repair leaks at least once every seven days. Note: If selected for dairies > 999 milk cows, CE is already included in EF.	0%	0%
☐	☐	**Dairies:** Clean manure from corrals at least four times per year with at least 60 days between cleaning, or clean corrals at least once between April and July and at least once between September and December. Note: If selected for dairies > 999 milk cows, CE is already included in EF. Note: No additional control given for increased cleaning frequency (e.g. BACT requirement). **Heifer/Calf Ranches:** Scrape corrals twice a year with at least 90 days between cleanings, excluding in-corral mounds. Note: No additional control given for increased cleaning frequency (e.g. BACT requirement).	0%	0%
☑	☑	Scrape, vacuum, or flush concrete lanes in corrals at least once every day for mature cows and every seven days for support stock, or clean concrete lanes such that the depth of manure does not exceed 12 inches at any point or time. Note: No additional control given for increased cleaning frequency (e.g. BACT requirement).	10%	10%
☐	☐	Implement one of the following: 1) slope the surface of the corrals at least 3% where the available space for each animal is 400 sq ft or less and slope the surface of the corrals at least 1.5% where the available space for each animal is more than 400 sq ft; 2) maintain corrals to ensure proper drainage preventing water from standing more than 48 hrs; 3) harrow, rake, or scrape pens sufficiently to maintain a dry surface. Note: If selected for dairies > 999 milk cows, CE already included in EF.	0%	0%
☐	☐	Install shade structures such that they are constructed with a light permeable roofing material. Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.	5%	5%
☑	☑	Install all shade structures uphill of any slope in the corral. Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.		
☐	☐	Clean manure from under corral shades at least once every 14 days, when weather permits access into corral. Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.		
☐	☐	Install shade structure so that the structure has a North/South orientation. Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.		
☐	☐	Manage corrals such that the manure depth in the corral does not exceed 12 inches at any time or point, except for in-corral mounding. Manure depth may exceed 12 inches when corrals become inaccessible due to rain events. The manure facility must resume management of the manure depth of 12 inches or lower immediately upon the corral becoming accessible. Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.	0%	0%
☑	☑	Knockdown fence line manure build-up prior to it exceeding a height of 12 inches at any time or point. Manure depth may exceed 12 inches when corrals become inaccessible due to rain events. The facility must resume management of the manure depth of 12 inches or lower immediately upon the corral becoming accessible.	10%	10%
☐	☐	Use lime or a similar absorbent material in the corral according to the manufacturer's recommendation to minimize moisture in the corrals.	0%	0%
☐	☐	Apply thymol to the corral soil in accordance with the manufacturer's recommendation.	0%	0%
		Total Control Efficiency	30.75%	30.75%

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

Liquid Manure Handling				
Measure Proposed?		**Mitigation Measure(s) per Emissions Point**	**VOC Control Efficiency (%)**	
Pre-Project	Post-Project		Pre-Project	Post-Project
		Lagoons/Storage Ponds Mitigations		
☑	☑	Feed according to NRC guidelines	10%	10%
☐	☐	Use phototropic lagoon	0%	0%
☐	☑	Use an anaerobic treatment lagoon designed according to NRCS Guideline No. 359, or aerobic treatment lagoon, or mechanically aerated lagoon, or covered lagoon digester vented to a control device with minimum 95% control	0%	40%
☑	☑	Remove solids from the waste system with a solid separator system, prior to the waste entering the lagoon. Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.	10%	0%
☐	☐	Maintain lagoon pH between 6.5 and 7.5	0%	0%
		Total Control Efficiency	19.00%	46.00%
		Liquid Manure Land Application Mitigations		
☑	☑	Feed according to NRC guidelines	10%	10%
☐	☑	Only apply liquid manure that has been treated with an anaerobic or aerobic treatment lagoon, aerobic lagoon, or digester system	0%	40%
☑	☑	Allow liquid manure to stand in the fields for no more than 24 hours after irrigation. Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.	10%	0%
☐	☐	Apply liquid/slurry manure via injection with drag hose or similar apparatus	0%	0%
		Total Control Efficiency	19.00%	46.00%

Solid Manure Handling				
Measure Proposed?		**Mitigation Measure(s) per Emissions Point**	**VOC Control Efficiency (%)**	
Pre-Project	Post-Project		Pre-Project	Post-Project
		Solid Manure Storage Mitigations		
☑	☑	Feed according to NRC guidelines	10%	10%
☐	☐	**LARGE CAFO ONLY**: Within 72 hours of removal from housing, either a) remove dry manure from the facility, or b) cover dry manure outside the housing with a weatherproof covering from October through May, except for times when wind events remove the covering, not to exceed 24 hours per event.	0%	0%
		Total Control Efficiency	10.00%	10.00%
		Separated Solids Piles Mitigations		
☑	☑	Feed according to NRC guidelines	10%	10%
☑	☑	**LARGE CAFO ONLY**: Within 72 hours of removal from the drying process, either a) remove separated solids from the facility, or b) cover separated solids outside the housing with a weatherproof covering from October through May, except for times when wind events remove the covering, not to exceed 24 hours per event.	10%	10%
		Total Control Efficiency	19.00%	19.00%
		Solid Manure Land Application Mitigations		
☑	☑	Feed according to NRC guidelines	10%	10%
☐	☐	Incorporate all solid manure within 72 hours of land application. Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF. Note: No additional control given for rapid manure incorporation (e.g. BACT requirement).	0%	0%
☐	☑	Only apply solid manure that has been treated with an anaerobic treatment lagoon, aerobic lagoon or digester system.	0%	40%
☐	☐	Apply no solid manure with a moisture content of more than 50%	0%	0%
		Total Control Efficiency	10.00%	46.00%

Ammonia Mitigation Measures and Control Efficiencies

Milking Parlor				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	NH3 Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
		Milking Parlor Floor Mitigations		
☑	☑	Feed according to NRC guidelines	28%	28%
		Total Control Efficiency	28%	28%

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

Liquid Manure Handling				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	NH3 Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
		Lagoons/Storage Ponds Mitigations		
☑	☑	Feed according to NRC guidelines	28%	28%
☑	☑	Use phototropic lagoon **OR** Remove solids from the waste system with a solid separator system, prior to the waste entering the lagoon.	80%	80%
		Total Control Efficiency	85.6%	85.6%
		Liquid Manure Land Application Mitigations		
☑	☑	Feed according to NRC guidelines	28%	28%
☐	☑	Only apply liquid manure that has been treated with an anaerobic treatment lagoon	0%	42%
		Total Control Efficiency	28.00%	58.24%

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

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

Pre-Project PM10 Mitigation Measures

Pre-Project PM10 Mitigation Measures

	Housing Name(s) or #(s)	Type of Housing	Type of cow	Total # of cows in Each Housing Structure(s)	Maximum Design Capacity of Each Structure	# of Combined Housing Structures in row	Shaded Corrals	Downwind Shelterbelts	Upwind Shelterbelts	No exercise pens, non-manure bedding	No exercise pens, manure bedding	Fibrous layer	Bi-weekly scraping Corrals/Pens	Sprinkling Corrals/Pens	Feed Young Stock Near Dusk
1	Free Stall 1	freestall	milk cows	315	315	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	Free Stall 2	freestall	milk cows	315	315	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	Free Stall 3	freestall	milk cows	315	315	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	Free Stall 3	freestall	support stock	200	200	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
5	Loafing Barn 1	loafing barn	dry cows	90	90	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
6	Loafing Barn 1	loafing barn	support stock	150	150	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
7	Loafing Barn 2	loafing barn	support stock	200	200	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
8	Loafing Barn 4	loafing barn	support stock	250	250	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
9	Calf Hutches	aboveground flushed hutches	calves	150	150	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
			Pre-Project Total # of Cows	1,985											

Pre-Project PM10 Control Efficiencies and Emission Factors

	Housing Name(s) or #(s)	Type of Housing	Type of cow	Total # of cows in Each Housing Structure(s)	Maximum Design Capacity of Each Structure	Uncontrolled EF (lb/hd-yr)	Shaded Corrals	Downwind Shelterbelts	Upwind Shelterbelts	No exercise pens, non-manure bedding	No exercise pens, manure bedding	Fibrous layer	Bi-weekly scraping Corrals/Pens	Sprinkling Corrals/Pens	Feed Young Stock Near Dusk	Controlled EF (lb/hd-yr)
1	Free Stall 1	freestall	milk cows	315	315	1.370										1.37
2	Free Stall 2	freestall	milk cows	315	315	1.370										1.37
3	Free Stall 3	freestall	milk cows	315	315	1.370										1.37
4	Free Stall 3	freestall	support stock	200	200	1.370										1.37
5	Loafing Barn 1	loafing barn	dry cows	90	90	2.730										2.73
6	Loafing Barn 1	loafing barn	support stock	150	150	5.280										5.28
7	Loafing Barn 2	loafing barn	support stock	200	200	5.280										5.28
8	Loafing Barn 4	loafing barn	support stock	250	250	5.280										5.28
9	Calf Hutches	aboveground flushed hutches	calves	150	150	0.069										0.07
			Pre-Project Total # of Cows	1,985												

Post-Project PM10 Mitigation Measures

Post-Project PM10 Mitigation Measures

	Housing Name(s) or #(s)	Type of Housing	Type of cow	Total # of cows in Each Housing Structure(s)	Maximum Design Capacity of Each Structure	# of Combined Housing Structures in row	Shaded Corrals	Downwind Shelterbelts	Upwind Shelterbelts	No exercise pens, non-manure bedding	No exercise pens, manure bedding	Fibrous layer	Bi-weekly scraping Corrals/Pens	Sprinkling Corrals/Pens	Feed Young Stock Near Dusk
1	Free Stall 1	freestall	milk cows	345	345	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	Free Stall 2	freestall	milk cows	340	340	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	Free Stall 3	freestall	milk cows	625	625	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	Free Stall 4	freestall	milk cows	355	355	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
5	Loafing Barn 2	loafing barn	support stock	260	260	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
6	Loafing Barn 4	loafing barn	milk cows	335	335	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
7	Loafing Barn 4	loafing barn	dry cows	300	300	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
8	Calf Hutches	aboveground flushed hutches	calves	90	90	1	☐	☐	☐	☐	☐	☐	☐	☐	☑
9							☐	☐	☐	☐	☐	☐	☐	☐	☐
10							☐	☐	☐	☐	☐	☐	☐	☐	☐
11							☐	☐	☐	☐	☐	☐	☐	☐	☐
12							☐	☐	☐	☐	☐	☐	☐	☐	☐

Post-Project PM10 Mitigation Measures for New Housing Units at an Expanding Dairy

	Housing Name(s) or #(s)	Type of Housing	Type of cow	Total # of cows in Each Housing Structure(s)	Maximum Design Capacity of Each Structure	# of Combined Housing Structures in row	Shaded Corrals	Downwind Shelterbelts	Upwind Shelterbelts	No exercise pens, non-manure bedding	No exercise pens, manure bedding	Fibrous layer	Bi-weekly scraping Corrals/Pens	Sprinkling Corrals/Pens	Feed Young Stock Near Dusk
1	Loafing Barn 5	loafing barn	support stock	500	500	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	Loafing Barn 6	loafing barn	support stock	500	500	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	Loafing Barn 7	loafing barn	support stock	340	340	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
		Post-Project Total # of Cows		3,990	(The post-project total includes				dairy cows already on-site and				new cows from the expansion.)		

Post-Project PM10 Control Efficiencies and Emission Factors

	Housing Name(s) or #(s)	Type of Housing	Type of cow	Total # of cows in Each Housing Structure(s)	Maximum Design Capacity of Each Structure	Uncontrolled EF (lb/hd-yr)	Shaded Corrals	Downwind Shelterbelts	Upwind Shelterbelts	No exercise pens, non-manure bedding	No exercise pens, manure bedding	Fibrous layer	Bi-weekly scraping Corrals/Pens	Sprinkling Corrals/Pens	Feed Young Stock Near Dusk	Controlled EF (lb/hd-yr)
1	Free Stall 1	freestall	milk cows	345	345	1.370										1.37
2	Free Stall 2	freestall	milk cows	340	340	1.370										1.37
3	Free Stall 3	freestall	milk cows	625	625	1.370										1.37
4	Free Stall 4	freestall	milk cows	355	355	1.370										1.37
5	Loafing Barn 2	loafing barn	support stock	260	260	5.280										5.28
6	Loafing Barn 4	loafing barn	milk cows	335	335	2.730										2.73
7	Loafing Barn 4	loafing barn	dry cows	300	300	2.730										2.73
8	Calf Hutches	aboveground flushed hutches	calves	90	90	0.069									10%	0.06
9																
10																
11																
12																

Post-Project PM10 Control Efficiencies and Emission Factors for New Housing Emissions Units

	Housing Name(s) or #(s)	Type of Housing	Type of cow	Total # of cows in Each Housing Structure(s)	Maximum Design Capacity of Each Structure	Uncontrolled EF (lb/hd-yr)	Shaded Corrals	Downwind Shelterbelts	Upwind Shelterbelts	No exercise pens, non-manure bedding	No exercise pens, manure bedding	Fibrous layer	Bi-weekly scraping Corrals/Pens	Sprinkling Corrals/Pens	Feed Young Stock Near Dusk	Controlled EF (lb/hd-yr)
1	Loafing Barn 5	loafing barn	support stock	500	500	5.280										5.28
2	Loafing Barn 6	loafing barn	support stock	500	500	5.280										5.28
3	Loafing Barn 7	loafing barn	support stock	340	340	5.280										5.28

Increase in Emissions

SSIPE (lb/yr)							
	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0	0	0	0	403	144	0
Cow Housing	0	0	7,475	0	10,665	28,915	0
Liquid Manure	0	0	0	0	707	3,468	0
Solid Manure	0	0	0	0	265	1,820	0
Feed Handling	0	0	0	0	15,623	0	0
Total	**0**	**0**	**7,475**	**0**	**27,663**	**34,347**	**0**

Total Daily Change in Emissions (lb/day)							
	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0.0	0.0	0.0	0.0	1.10	0.30	0.0
Cow Housing	0.0	0.0	20.2	0.0	29.50	79.50	0.0
Liquid Manure	0.0	0.0	0.0	0.0	1.90	9.40	0.0
Solid Manure	0.0	0.0	0.0	0.0	0.80	5.00	0.0
Feed Handling	0.0	0.0	0.0	0.0	42.8	0.00	0.0
Total	**0.0**	**0.0**	**20.2**	**0.0**	**76.1**	**94.20**	**0.0**

Total Annual Change in Non-Fugitive Emissions (Major Source Emissions) (lb/yr)							
	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0	0	0	0	0	0	0
Cow Housing	0	0	0	0	0	0	0
Liquid Manure	0	0	0	0	332	0	0
Solid Manure	0	0	0	0	0	0	0
Feed Handling	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**332**	**0**	**0**

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.				*Notes:
Author or updater	Matthew Cegielski	*Last Update*	September 24, 2018		
Facility:	Jordao Dairy				
ID#:			0	Not Set	
Project #:					

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)
Free Stall 1	Milk	345	-0.0625	-541	0.0750	634	0.0042	41
Free Stall 2	Milk	340	-0.0667	-588	0.0625	529	0.0042	34
Free Stall 3	Milk	625	0.1208	1,041	0.6250	5,443	0.0125	150
Free Stall 4	Milk	355	0.2250	1,942	0.6542	5,707	-0.0667	-552
Loafing Barn 2	Support Stock	260	0.0042	20	0.0375	332	0.0375	317
Loafing Barn 4	Milk/Dry	635	0.3917	3,424	1.0167	8,907	0.0458	414
Calf Hutches	Calves	90	-0.0083	-73	-0.0083	-55	0.0000	-4
Loafing Barn 5	Support Stock	500	0.2333	2,030	0.3167	2,768	0.3000	2,640
Loafing Barn 6	Support Stock	500	0.2333	2,030	0.3167	2,768	0.3000	2,640
Loafing Barn 7	Support Stock	340	0.1583	1,380	0.2167	1,882	0.2042	1,795

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	-	-	0.05	403	0.02	144	-
Cow Housing	0.85	7,475	1.22	10,665	3.30	28,915	-
Liquid Manure	-	-	0.08	707	0.40	3,468	-
Solid Manure	-	-	0.03	265	0.21	1,820	-
Feed Handling	-	-	1.78	15,623	-	-	-
Lagoon/Storage Pond	-	-	0.04	329	0.19	1,643	0
Land Application (Liquid)	-	-	0.04	365	0.21	1,825	-
Land Application (Solid)	-	-	0.00	0	0.00	0	-
Solid Manure Storage	-	-	0.03	256	0.21	1,825	-

SSIPE Total Herd Summary	
Change in Milk Cows	1,055
Change in Dairy Head	2,005
Change in Dairy Head (Flushed)	2,005

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:	Jordao Dairy
ID#:	0
Project #:	0

Formula

Emission are calculated by the multiplication of the PM_{10} Rates and the Emission Factors.

			Free Stall 1		Free Stall 2		Free Stall 3		Free Stall 4		Loafing Barn 2		Loafing Barn 4		Calf Hutches		Loafing Barn 5		Loafing Barn 6		Loafing Barn 7	
			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	lb/hr	lb/yr
PM_{10} Emissions Rates			4.17E-03	4.10E+01	4.17E-03	3.40E+01	1.25E-02	1.50E+02	0.00E+00	0.00E+00	3.75E-02	3.17E+02	4.58E-02	4.14E+02	0.00	0.00	3.00E-01	2.64E+03	3.00E-01	2.64E+03	2.04E-01	1.80E+03
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**	**LB/HR**	**LB/YR**
Aluminum	**7429905**	4.66E-02	1.94E-04	1.91E+00	1.94E-04	1.58E+00	5.83E-04	6.99E+00	0.00E+00	0.00E+00	1.75E-03	1.48E+01	2.14E-03	7.97E-01	0.00E+00	0.00E+00	1.40E-02	1.23E+02	1.40E-02	1.23E+02	9.52E-03	8.37E+01
Antimony	**7440360**	1.90E-05	7.92E-08	7.79E-04	7.92E-08	6.46E-04	2.38E-07	2.85E-03	0.00E+00	0.00E+00	7.13E-07	6.02E-03	8.71E-07	3.25E-04	0.00E+00	0.00E+00	5.70E-06	5.02E-02	5.70E-06	5.02E-02	3.88E-06	3.41E-02
Arsenic	**7440382**	1.60E-05	6.67E-08	6.56E-04	6.67E-08	5.44E-04	2.00E-07	2.40E-03	0.00E+00	0.00E+00	6.00E-07	5.07E-03	7.33E-07	6.62E-03	0.00E+00	0.00E+00	4.80E-06	4.22E-02	4.80E-06	4.22E-02	3.27E-06	2.87E-02
Barium	**7440393**	4.69E-04	1.95E-06	1.92E-02	1.95E-06	1.59E-02	5.86E-06	7.04E-02	0.00E+00	0.00E+00	1.76E-05	1.49E-01	2.15E-05	1.94E-01	0.00E+00	0.00E+00	1.41E-04	1.24E+00	1.41E-04	1.24E+00	9.58E-05	8.42E-01
Bromine	**7726956**	4.40E-05	1.83E-07	1.80E-03	1.83E-07	1.50E-03	5.50E-07	6.60E-03	0.00E+00	0.00E+00	1.65E-06	1.39E-02	2.02E-06	1.82E-02	0.00E+00	0.00E+00	1.32E-05	1.16E-01	1.32E-05	1.16E-01	8.98E-06	7.90E-02
Chromium	**7440473**	1.40E-05	5.83E-08	5.74E-04	5.83E-08	4.76E-04	1.75E-07	2.10E-03	0.00E+00	0.00E+00	5.25E-07	4.44E-03	6.42E-07	5.80E-03	0.00E+00	0.00E+00	4.20E-06	3.70E-02	4.20E-06	3.70E-02	2.86E-06	2.51E-02
Copper	**7440508**	1.32E-04	5.50E-07	5.41E-03	5.50E-07	4.49E-03	1.65E-06	1.98E-02	0.00E+00	0.00E+00	4.95E-06	4.18E-02	6.05E-06	5.46E-02	0.00E+00	0.00E+00	3.96E-05	3.48E-01	3.96E-05	3.48E-01	2.70E-05	2.37E-01
Hexavalent Chromium**	**18540299**	7.00E-07	2.92E-09	2.87E-05	2.92E-09	2.38E-05	8.75E-09	1.05E-04	0.00E+00	0.00E+00	2.63E-08	2.22E-04	3.21E-08	2.90E-04	0.00E+00	0.00E+00	2.10E-07	1.85E-03	2.10E-07	1.85E-03	1.43E-07	1.26E-03
Lead	**7439921**	3.50E-05	1.46E-07	1.44E-03	1.46E-07	1.19E-03	4.38E-07	5.25E-03	0.00E+00	0.00E+00	1.31E-06	1.11E-02	1.60E-06	1.45E-02	0.00E+00	0.00E+00	1.05E-05	9.24E-02	1.05E-05	9.24E-02	7.15E-06	6.28E-02
Manganese	**7439965**	7.59E-04	3.16E-06	3.11E-02	3.16E-06	2.58E-02	9.49E-06	1.14E-01	0.00E+00	0.00E+00	2.85E-05	2.41E-01	3.48E-05	3.14E-01	0.00E+00	0.00E+00	2.28E-04	2.00E+00	2.28E-04	2.00E+00	1.55E-04	1.36E+00
Mercury	**7439976**	4.00E-06	1.67E-08	1.64E-04	1.67E-08	1.36E-04	5.00E-08	6.00E-04	0.00E+00	0.00E+00	1.50E-07	1.27E-03	1.83E-07	1.66E-03	0.00E+00	0.00E+00	1.20E-06	1.06E-02	1.20E-06	1.06E-02	8.17E-07	7.18E-03
Nickel	**7440020**	7.00E-06	2.92E-08	2.87E-04	2.92E-08	2.38E-04	8.75E-08	1.05E-03	0.00E+00	0.00E+00	2.63E-07	2.22E-03	3.21E-07	2.90E-03	0.00E+00	0.00E+00	2.10E-06	1.85E-02	2.10E-06	1.85E-02	1.43E-06	1.26E-02
Phosphorus	**7723140**	4.01E-02	1.67E-04	1.65E+00	1.67E-04	1.36E+00	5.02E-04	6.02E+00	0.00E+00	0.00E+00	1.51E-03	1.27E+01	1.84E-03	1.66E+01	0.00E+00	0.00E+00	1.20E-02	1.06E+02	1.20E-02	1.06E+02	8.20E-03	7.21E+01
Selenium	**7782492**	1.00E-06	4.17E-09	4.10E-05	4.17E-09	3.40E-05	1.25E-08	1.50E-04	0.00E+00	0.00E+00	3.75E-08	3.17E-04	4.58E-08	4.14E-04	0.00E+00	0.00E+00	3.00E-07	2.64E-03	3.00E-07	2.64E-03	2.04E-07	1.80E-03
Sulfates	**9960**	7.28E-03	3.03E-05	2.99E-01	3.03E-05	2.48E-01	9.10E-05	1.09E+00	0.00E+00	0.00E+00	2.73E-04	2.31E+00	3.34E-04	3.02E+00	0.00E+00	0.00E+00	2.18E-03	1.92E+01	2.18E-03	1.92E+01	1.49E-03	1.31E+01
Vanadium	**7440622**	3.00E-05	1.25E-07	1.23E-03	1.25E-07	1.02E-03	3.75E-07	4.50E-03	0.00E+00	0.00E+00	1.13E-06	9.51E-03	1.38E-06	1.24E-02	0.00E+00	0.00E+00	9.00E-06	7.92E-02	9.00E-06	7.92E-02	6.13E-06	5.39E-02
Zinc	**7440666**	3.42E-04	1.43E-06	1.40E-02	1.43E-06	1.16E-02	4.28E-06	5.13E-02	0.00E+00	0.00E+00	1.28E-05	1.08E-01	1.57E-05	1.42E-01	0.00E+00	0.00E+00	1.03E-04	9.03E-01	1.03E-04	9.03E-01	6.98E-05	6.14E-01
Ammonia	**7664417**		7.50E-02	6.34E+02	6.25E-02	5.29E+02	6.25E-01	5.44E+03	6.54E-01	5.71E+03	3.75E-02	3.32E+02	1.02E+00	8.91E+03	0.00E+00	0.00E+00	3.17E-01	2.77E+03	3.17E-01	2.77E+03	2.17E-01	1.88E+03

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:	Jordao Dairy
ID#:	0
Project #:	0

Formula

Emissions are calculated by the multiplication of the VOC Rates, and Emission Factors.

			Free Stall 1		Free Stall 2		Free Stall 3		Free Stall 4		Loafing Barn 2		Loafing Barn 4		Calf Hutches		Loafing Barn 5		Loafing Barn 6		Loafing Barn 7	
			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	lb/hr	lb/yr
VOC Emission Rates			0.00E+00	0.0	0.00E+00	0.0	1.21E-01	1,041.0	2.25E-01	1,942.0	4.17E-03	20.0	3.92E-01	3,424.0	0.00E+00	0.0	2.33E-01	2,030.0	2.33E-01	2,030.0	1.58E-01	1380
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**	**LB/HR**	**LB/YR**
1,1,2,2-Tetrachloroethane	79345	8.73E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-06	9.09E-03	1.96E-06	1.70E-02	3.64E-08	1.75E-04	3.42E-06	1.04E-03	0.00E+00	0.00E+00	2.04E-06	1.77E-02	2.04E-06	1.77E-02	1.38E-06	1.20E-02
1,1,2-Trichloroethane	79005	2.26E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.73E-05	2.35E-01	5.09E-05	4.39E-01	9.42E-07	4.52E-03	8.85E-05	7.74E-01	0.00E+00	0.00E+00	5.27E-05	4.59E-01	5.27E-05	4.59E-01	3.58E-05	3.12E-01
1,2,3-Trichloropropane	96184	2.76E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.34E-05	2.87E-01	6.21E-05	5.36E-01	1.15E-06	5.52E-03	1.08E-04	9.45E-01	0.00E+00	0.00E+00	6.44E-05	5.60E-01	6.44E-05	5.60E-01	4.37E-05	3.81E-01
1,2,4-Trichlorobenzene	120821	7.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.41E-05	8.11E-01	1.75E-04	1.51E+00	3.25E-06	1.56E-02	3.05E-04	2.67E+00	0.00E+00	0.00E+00	1.82E-04	1.58E+00	1.82E-04	1.58E+00	1.23E-04	1.08E+00
1,2-Dibromo-3-chloropropane	96128	4.94E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.97E-06	5.14E-02	1.11E-05	9.59E-02	2.06E-07	9.88E-04	1.93E-05	1.69E-01	0.00E+00	0.00E+00	1.15E-05	1.00E-01	1.15E-05	1.00E-01	7.82E-06	6.82E-02
1,2-Dichlorobenzene	95501	5.48E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.62E-05	5.70E-01	1.23E-04	1.06E+00	2.28E-06	1.10E-02	2.15E-04	1.88E+00	0.00E+00	0.00E+00	1.28E-04	1.11E+00	1.28E-04	1.11E+00	8.68E-05	7.56E-01
1,3-Dichlorobenzene	541731	4.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.92E-05	5.10E-01	1.10E-04	9.52E-01	2.04E-06	9.80E-03	1.92E-04	1.68E+00	0.00E+00	0.00E+00	1.14E-04	9.95E-01	1.14E-04	9.95E-01	7.76E-05	6.76E-01
1,4 Dioxane	123911	1.41E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-04	1.47E+00	3.17E-04	2.74E+00	5.88E-06	2.82E-02	5.52E-04	4.83E+00	0.00E+00	0.00E+00	3.29E-04	2.86E+00	3.29E-04	2.86E+00	2.23E-04	1.95E+00
1,4-Dichlorobenzene	106467	5.19E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.27E-05	5.40E-01	1.17E-04	1.01E+00	2.16E-06	1.04E-02	2.03E-04	1.78E+00	0.00E+00	0.00E+00	1.21E-04	1.05E+00	1.21E-04	1.05E+00	8.22E-05	7.16E-01
Acetaldehyde	75070	2.41E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.91E-04	2.51E+00	5.42E-04	4.68E+00	1.00E-05	4.82E-02	9.44E-04	8.25E+00	0.00E+00	0.00E+00	5.62E-04	4.89E+00	5.62E-04	4.89E+00	3.82E-04	3.33E+00
Acrylonitrile	107131	2.43E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.94E-05	2.53E-01	5.47E-05	4.72E-01	1.01E-06	4.86E-03	9.52E-05	8.32E-01	0.00E+00	0.00E+00	5.67E-05	4.93E-01	5.67E-05	4.93E-01	3.85E-05	3.35E-01
Benzene	71432	3.19E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.85E-05	3.32E-01	7.18E-05	6.19E-01	1.33E-06	6.38E-03	1.25E-04	1.09E+00	0.00E+00	0.00E+00	7.44E-05	6.48E-01	7.44E-05	6.48E-01	5.05E-05	4.40E-01
Benzyl chloride	100447	2.89E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.49E-05	3.01E-01	6.50E-05	5.61E-01	1.20E-06	5.78E-03	1.13E-04	9.90E-01	0.00E+00	0.00E+00	6.74E-05	5.87E-01	6.74E-05	5.87E-01	4.58E-05	3.99E-01
Butyraldehyde	123728	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-05	1.19E-01	2.57E-05	2.21E-01	4.75E-07	2.28E-03	4.47E-05	3.90E-01	0.00E+00	0.00E+00	2.66E-05	2.31E-01	2.66E-05	2.31E-01	1.81E-05	1.57E-01
Carbon Disulfide	75150	2.49E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.01E-04	2.59E+00	5.60E-04	4.84E+00	1.04E-05	4.98E-02	9.75E-04	8.53E+00	0.00E+00	0.00E+00	5.81E-04	5.05E+00	5.81E-04	5.05E+00	3.94E-04	3.44E+00
Carbon tetrachloride	56235	5.87E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.09E-06	6.11E-02	1.32E-05	1.14E-01	2.45E-07	1.17E-03	2.30E-05	2.01E-01	0.00E+00	0.00E+00	1.37E-05	1.19E-01	1.37E-05	1.19E-01	9.29E-06	8.10E-02
Chlorobenzene	108907	2.72E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.29E-05	2.83E-01	6.12E-05	5.28E-01	1.13E-06	5.44E-03	1.07E-04	9.31E-01	0.00E+00	0.00E+00	6.35E-05	5.52E-01	6.35E-05	5.52E-01	4.31E-05	3.75E-01
Chloroform	67663	1.31E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-05	1.36E-01	2.95E-05	2.54E-01	5.46E-07	2.62E-03	5.13E-05	4.49E-01	0.00E+00	0.00E+00	3.06E-05	2.66E-01	3.06E-05	2.66E-01	2.07E-05	1.81E-01
Chloromethane	74873	7.93E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.58E-05	8.26E-01	1.78E-04	1.54E+00	3.30E-06	1.59E-02	3.11E-04	2.72E+00	0.00E+00	0.00E+00	1.85E-04	1.61E+00	1.85E-04	1.61E+00	1.26E-04	1.09E+00
Crotonaldehyde	4170303	1.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-05	1.47E-01	3.17E-05	2.74E-01	5.88E-07	2.82E-03	5.52E-05	4.83E-01	0.00E+00	0.00E+00	3.29E-05	2.86E-01	3.29E-05	2.86E-01	2.23E-05	1.95E-01
Cyclohexane	110827	6.83E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.25E-04	7.11E+00	1.54E-03	1.33E+01	2.85E-05	1.37E-01	2.68E-03	2.34E+01	0.00E+00	0.00E+00	1.59E-03	1.39E+01	1.59E-03	1.39E+01	1.08E-03	9.43E+00
Ethyl Chloride	75003	2.39E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.89E-05	2.49E-01	5.38E-05	4.64E-01	9.96E-07	4.78E-03	9.36E-05	8.18E-01	0.00E+00	0.00E+00	5.58E-05	4.85E-01	5.58E-05	4.85E-01	3.78E-05	3.30E-01
Ethylbenzene	100414	3.47E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.19E-05	3.61E-01	7.81E-05	6.74E-01	1.45E-06	6.94E-03	1.36E-04	1.19E+00	0.00E+00	0.00E+00	8.10E-05	7.04E-01	8.10E-05	7.04E-01	5.49E-05	4.79E-01
Ethylene Dibromide (EDB)	106934	3.06E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.70E-05	3.19E-01	6.89E-05	5.94E-01	1.28E-06	6.12E-03	1.20E-04	1.05E+00	0.00E+00	0.00E+00	7.14E-05	6.21E-01	7.14E-05	6.21E-01	4.85E-05	4.22E-01
Ethylene Dichloride (EDC)	107062	5.89E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.12E-06	6.13E-02	1.33E-05	1.14E-01	2.45E-07	1.18E-03	2.31E-05	2.02E-01	0.00E+00	0.00E+00	1.37E-05	1.20E-01	1.37E-05	1.20E-01	9.33E-06	8.13E-02
Formaldehyde	50000	3.98E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.81E-05	4.14E-01	8.96E-05	7.73E-01	1.66E-06	7.96E-03	1.56E-04	1.36E+00	0.00E+00	0.00E+00	9.29E-05	8.08E-01	9.29E-05	8.08E-01	6.30E-05	5.49E-01
Hexane	110543	8.12E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.81E-05	8.45E-01	1.83E-04	1.58E+00	3.38E-06	1.62E-02	3.18E-04	2.78E+00	0.00E+00	0.00E+00	1.89E-04	1.65E+00	1.89E-04	1.65E+00	1.29E-04	1.12E+00
Isopropyl Alchol	67630	1.62E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-04	1.69E+00	3.65E-04	3.15E+00	6.75E-06	3.24E-02	6.35E-04	5.55E+00	0.00E+00	0.00E+00	3.78E-04	3.29E+00	3.78E-04	3.29E+00	2.57E-04	2.24E+00
Isopropylbenzene (Cumene)	98828	5.61E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.78E-06	5.84E-02	1.26E-05	1.09E-01	2.34E-07	1.12E-03	2.20E-05	1.92E-01	0.00E+00	0.00E+00	1.31E-05	1.14E-01	1.31E-05	1.14E-01	8.88E-06	7.74E-02
Methyl Ethyl Ketone (2-butanone)	78933	1.46E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-03	1.52E+01	3.29E-03	2.84E+01	6.08E-05	2.92E-01	5.72E-03	5.00E+01	0.00E+00	0.00E+00	3.41E-03	2.96E+01	3.41E-03	2.96E+01	2.31E-03	2.01E+01
Methyl Isobutyl Ketone	108101	7.09E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.57E-05	7.38E-01	1.60E-04	1.38E+00	2.95E-06	1.42E-02	2.78E-04	2.43E+00	0.00E+00	0.00E+00	1.65E-04	1.44E+00	1.65E-04	1.44E+00	1.12E-04	9.78E-01
Napthalene	91203	1.16E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-04	1.21E+00	2.61E-04	2.25E+00	4.83E-06	2.32E-02	4.54E-04	3.97E+00	0.00E+00	0.00E+00	2.71E-04	2.35E+00	2.71E-04	2.35E+00	1.84E-04	1.60E+00
Perchloroethylene	127184	6.51E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.87E-05	6.78E-01	1.46E-04	1.26E+00	2.71E-06	1.30E-02	2.55E-04	2.23E+00	0.00E+00	0.00E+00	1.52E-04	1.32E+00	1.52E-04	1.32E+00	1.03E-04	8.98E-01
Styrene	100425	3.59E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.34E-05	3.74E-01	8.08E-05	6.97E-01	1.50E-06	7.18E-03	1.41E-04	1.23E+00	0.00E+00	0.00E+00	8.38E-05	7.29E-01	8.38E-05	7.29E-01	5.68E-05	4.95E-01
t-1,4-Dichloro-2-butene	764410	8.92E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-04	9.29E-01	2.01E-04	1.73E+00	3.72E-06	1.78E-02	3.49E-04	3.05E+00	0.00E+00	0.00E+00	2.08E-04	1.81E+00	2.08E-04	1.81E+00	1.41E-04	1.23E+00
Toluene	108883	1.07E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-04	1.11E+00	2.41E-04	2.08E+00	4.46E-06	2.14E-02	4.19E-04	3.66E+00	0.00E+00	0.00E+00	2.50E-04	2.17E+00	2.50E-04	2.17E+00	1.69E-04	1.48E+00
Trichlorofluoromethane*	75694	1.08E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-08	1.12E-04	2.43E-08	2.10E-04	4.50E-10	2.16E-06	4.23E-08	3.70E-04	0.00E+00	0.00E+00	2.52E-08	2.19E-04	2.52E-08	2.19E-04	1.71E-08	1.49E-04
Vinyl acetate	108054	1.97E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.38E-04	2.05E+00	4.43E-04	3.83E+00	8.21E-06	3.94E-02	7.72E-04	6.75E+00	0.00E+00	0.00E+00	4.60E-04	4.00E+00	4.60E-04	4.00E+00	3.12E-04	2.72E+00
Xylenes	1330207	1.80E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.18E-04	1.87E+00	4.05E-04	3.50E+00	7.50E-06	3.60E-02	7.05E-04	6.16E+00	0.00E+00	0.00E+00	4.20E-04	3.65E+00	4.20E-04	3.65E+00	2.85E-04	2.48E+00

Name	Agricultural Miscellaneous Emissions from Dairy Operations (Milk Parlors)					
Applicability	Use this spreadsheet to characterize the miscellanous emissions from Dairy sources when VOC rates are known. VOC emission rates linked to RMR worksheet. Enter VOC and NH_3 rates if there is more than one Milk Parlor.					
Author or updater	Matthew Cegielski		*Last Update*	August 26, 2016		
Facility:	Jordao Dairy					
ID#:	0					
Project #:	0					
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	403	144				
Milk Parlor 2	0	0	lb/hr	lb/yr	lb/hr	lb/yr
VOC Emission Rates			**4.60E-02**	**4.03E+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	4.02E-07	3.52E-03	0.00E+00	0.00E+00
1,1,2-Trichloroethane	**79005**	2.26E-04	1.04E-05	9.11E-02	0.00E+00	0.00E+00
1,2,3-Trichloropropane	**96184**	2.76E-04	1.27E-05	1.11E-01	0.00E+00	0.00E+00
1,2,4-Trichlorobenzene	**120821**	7.79E-04	3.58E-05	3.14E-01	0.00E+00	0.00E+00
1,2-Dibromo-3-chloropropane	**96128**	4.94E-05	2.27E-06	1.99E-02	0.00E+00	0.00E+00
1,2-Dichlorobenzene	**95501**	5.48E-04	2.52E-05	2.21E-01	0.00E+00	0.00E+00
1,3-Dichlorobenzene	**541731**	4.90E-04	2.25E-05	1.98E-01	0.00E+00	0.00E+00
1,4 Dioxane	**123911**	1.41E-03	6.49E-05	5.68E-01	0.00E+00	0.00E+00
1,4-Dichlorobenzene	**106467**	5.19E-04	2.39E-05	2.09E-01	0.00E+00	0.00E+00
Acetaldehyde	**75070**	2.41E-03	1.11E-04	9.71E-01	0.00E+00	0.00E+00
Acrylonitrile	**107131**	2.43E-04	1.12E-05	9.80E-02	0.00E+00	0.00E+00
Benzene	**71432**	3.19E-04	1.47E-05	1.29E-01	0.00E+00	0.00E+00
Benzyl chloride	**100447**	2.89E-04	1.33E-05	1.16E-01	0.00E+00	0.00E+00
Butyraldehyde	**123728**	1.14E-04	5.25E-06	4.60E-02	0.00E+00	0.00E+00
Carbon Disulfide	**75150**	2.49E-03	1.15E-04	1.00E+00	0.00E+00	0.00E+00
Carbon tetrachloride	**56235**	5.87E-05	2.70E-06	2.37E-02	0.00E+00	0.00E+00
Chlorobenzene	**108907**	2.72E-04	1.25E-05	1.10E-01	0.00E+00	0.00E+00
Chloroform	**67663**	1.31E-04	6.03E-06	5.28E-02	0.00E+00	0.00E+00
Chloromethane	**74873**	7.93E-04	3.65E-05	3.20E-01	0.00E+00	0.00E+00
Crotonaldehyde	**4170303**	1.41E-04	6.49E-06	5.68E-02	0.00E+00	0.00E+00
Cyclohexane	**110827**	6.83E-03	3.14E-04	2.75E+00	0.00E+00	0.00E+00
Ethyl Chloride	**75003**	2.39E-04	1.10E-05	9.63E-02	0.00E+00	0.00E+00
Ethylbenzene	**100414**	3.47E-04	1.60E-05	1.40E-01	0.00E+00	0.00E+00
Ethylene Dibromide (EDB)	**106934**	3.06E-04	1.41E-05	1.23E-01	0.00E+00	0.00E+00
Ethylene Dichloride (EDC)	**107062**	5.89E-05	2.71E-06	2.37E-02	0.00E+00	0.00E+00
Formaldehyde	**50000**	3.98E-04	1.83E-05	1.60E-01	0.00E+00	0.00E+00
Hexane	**110543**	8.12E-04	3.74E-05	3.27E-01	0.00E+00	0.00E+00
Isopropyl Alchol	**67630**	1.62E-03	7.45E-05	6.53E-01	0.00E+00	0.00E+00
Isopropylbenzene (Cumene)	**98828**	5.61E-05	2.58E-06	2.26E-02	0.00E+00	0.00E+00
Methyl Ethyl Ketone (2-butanone)	**78933**	1.46E-02	6.72E-04	5.89E+00	0.00E+00	0.00E+00
Methyl Isobutyl Ketone	**108101**	7.09E-04	3.26E-05	2.86E-01	0.00E+00	0.00E+00
Napthalene	**91203**	1.16E-03	5.34E-05	4.68E-01	0.00E+00	0.00E+00
Perchloroethylene	**127184**	6.51E-04	3.00E-05	2.62E-01	0.00E+00	0.00E+00
Styrene	**100425**	3.59E-04	1.65E-05	1.45E-01	0.00E+00	0.00E+00
t-1,4-Dichloro-2-butene	**764410**	8.92E-04	4.10E-05	3.60E-01	0.00E+00	0.00E+00
Toluene	**108883**	1.07E-03	4.92E-05	4.31E-01	0.00E+00	0.00E+00
Trichlorofluoromethane*	**75694**	1.08E-07	4.97E-09	4.35E-05	0.00E+00	0.00E+00
Vinyl acetate	**108054**	1.97E-03	9.07E-05	7.94E-01	0.00E+00	0.00E+00
Xylenes	**1330207**	1.80E-03	8.28E-05	7.26E-01	0.00E+00	0.00E+00
Ammonia	**7664417**		1.65E-02	1.44E+02	0.00E+00	0.0

Name	Agricultural Lagoon Emissior					
Applicability	Use this spreadsheet when the emissions are from a Dairy Lagoon sources and the VO rates in 'Lagoon/Storage Pond row'. Enter values into the Lagoon area calculator on the worksheet cells, 'Lagoon/Storage Pond'. Individual Lagoon values are calculated by multi areas, output in g					
Author or updater	Matthew Cegielski		*Last Update*	September 12, 2018		
Facility:	Jordao Dairy					
ID#:	0					
Project #:	0					
Inputs	lb/hr	lb/yr	**Formula**			
VOC Rate	0.04	329	Emissions are calculated by the multiplication of the VOC rates, area fracton, and emission factors.			
			Lagoon Area Fraction		**1.00**	

Substances	CAS#	Emissions Factors lb/VOC*	LB/HR	LB/YR	Lagoon LB/HR	Lagoon LB/YR
1,1,2,2-Tetrachloroethane	79345	3.44E-02	1.29E-03	1.13E+01	1.29E-03	1.13E+01
1,1,2-Trichloroethane	79005	7.94E-03	2.98E-04	2.61E+00	2.98E-04	2.61E+00
1,2,4-Trimethylbenzene	95636	2.94E-02	1.10E-03	9.65E+00	1.10E-03	9.65E+00
1,2-Dichlorobenzene	95501	6.25E-02	2.34E-03	2.05E+01	2.34E-03	2.05E+01
1,3-Dichlorobenzene	541731	4.94E-02	1.85E-03	1.62E+01	1.85E-03	1.62E+01
1,3-Dichloropropene	542756	7.44E-03	2.79E-04	2.44E+00	2.79E-04	2.44E+00
1,4 Dioxane	123911	2.50E-02	9.37E-04	8.21E+00	9.37E-04	8.21E+00
1,4-Dichloro-2-butene	764410	6.88E-02	2.58E-03	2.26E+01	2.58E-03	2.26E+01
1,4-Dichlorobenzene	106467	5.19E-02	1.95E-03	1.70E+01	1.95E-03	1.70E+01
Acetaldehyde	75070	1.56E-02	5.86E-04	5.13E+00	5.86E-04	5.13E+00
Acrylonitrile	107131	7.31E-03	2.74E-04	2.40E+00	2.74E-04	2.40E+00
Benzene	71432	2.88E-03	1.08E-04	9.44E-01	1.08E-04	9.44E-01
Benzyl chloride	100447	3.13E-02	1.17E-03	1.03E+01	1.17E-03	1.03E+01
Carbon disulfide	75150	3.94E-02	1.48E-03	1.29E+01	1.48E-03	1.29E+01
Chlorobenzene	108907	1.31E-02	4.92E-04	4.31E+00	4.92E-04	4.31E+00
Cumene	98828	1.94E-02	7.27E-04	6.36E+00	7.27E-04	6.36E+00
Cyclohexane	110827	8.19E-03	3.07E-04	2.69E+00	3.07E-04	2.69E+00
Ethyl Chloride	75003	4.63E-03	1.73E-04	1.52E+00	1.73E-04	1.52E+00
Ethylbenzene	100414	1.00E-02	3.75E-04	3.29E+00	3.75E-04	3.29E+00
Ethylene Dibromide (EDB)	106934	1.44E-02	5.39E-04	4.72E+00	5.39E-04	4.72E+00
Ethylene Dichloride (EDC)	107062	4.06E-03	1.52E-04	1.33E+00	1.52E-04	1.33E+00
Formaldehyde	50000	8.13E-03	3.05E-04	2.67E+00	3.05E-04	2.67E+00
Hexane	110543	4.31E-03	1.62E-04	1.42E+00	1.62E-04	1.42E+00
Isopropyl Alchol	67630	7.50E-03	2.81E-04	2.46E+00	2.81E-04	2.46E+00
Methyl Ethyl Ketone	78933	1.38E-02	5.16E-04	4.52E+00	5.16E-04	4.52E+00
Methyl Isobutyl Ketone	108101	1.13E-02	4.24E-04	3.72E+00	4.24E-04	3.72E+00
Napthalene	91203	1.88E-01	7.03E-03	6.16E+01	7.03E-03	6.16E+01
Perchloroethylene	127184	1.75E-01	6.56E-03	5.75E+01	6.56E-03	5.75E+01
Styrene	100425	1.63E-02	6.09E-04	5.34E+00	6.09E-04	5.34E+00
Toluene	108883	1.25E-02	4.69E-04	4.11E+00	4.69E-04	4.11E+00
Trichloroethylene	79016	1.12E-02	4.20E-04	3.68E+00	4.20E-04	3.68E+00
Xylenes	1330207	1.88E-02	7.03E-04	6.16E+00	7.03E-04	6.16E+00
Ammonia	7664417				1.875E-01	1.643E+03

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/day)
Milk Tankers	MTT	0.03	0.01	356	2.86E-04	7.85E-07
Commodity Delivery	CTT	0.23	0.01	104	5.62E-04	1.54E-06
Manure Transport	SMTT	0.59	0.01	300	4.08E-03	1.12E-05

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2023) with an Aggregate Fleet Mix Traveling 10 MPH.
Note 2: Increases in trucks/yr is from the Initial Study, page 17

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/day)
Milk Tankers	MTI	0.001	15	356	2.66E-04	7.29E-07
Commodity Delivery	CTI	0.001	15	104	7.77E-05	2.13E-07
Manure Transport	SMTI	0.001	15	300	2.24E-04	6.14E-07

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2023) with an Aggregate Fleet Mix Idling.
Note 2: Increases in trucks/yr is from the Initial Study, page 17

Table 3. Tractors: Diesel Particulate Matter Increased Emissions

	Source (# Volume Sources)	HP	Load Factor	Hours/Year	Emission Factor (g/hp-hr)	Emissions (lb/yr)	Emissions (max lb/day)
Feed Loading	FLT	220	0.37	730	1.49E-02	1.95E+00	5.35E-03
Bedding Delivery	FBDT1-3	80	0.37	6	1.49E-02	5.84E-03	1.95E-03
Manure Scraping	MST	150	0.37	60	1.49E-02	1.09E-01	0.00E+00
Manure Loading	MLT	150	0.37	60	1.49E-02	1.09E-01	0.00E+00
Feed Delivery	FBDT1-3	155	0.37	730	1.49E-02	1.38E+00	3.77E-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: NOx Increased Emissions

	Source	Round Trip Distance (mi)	Emission Factor (g/mi)	Increase in Trucks/Year	Emissions (lb/yr)	Emissions (lb/Max day)	Emissions (lb/Max hr)
Milk Tankers		0.03	6.10	356	1.67E-01	4.68E-04	4.68E-04
Commodity Delivery	CTT	0.23	6.10	104	3.27E-01	3.15E-03	3.15E-03
Manure Transport	SMTT	0.59	6.10	300	2.37E+00	7.90E-03	7.90E-03

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2023) with an Aggregate Fleet Mix Traveling 10 MPH.
Note 2: Increases in trucks/yr is from the applicant

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 day)	Emissions (lb/Max hr)
Milk Tankers		0.94	15	356	1.84E-01	5.16E-04	5.16E-04
Commodity Delivery	CTI	0.94	15	104	5.37E-02	5.16E-04	5.16E-04
Manure Transport	SMTI	0.94	15	300	1.55E-01	5.16E-04	5.16E-04

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2023) with an Aggregate Fleet Mix Idling.
Note 2: Increases in trucks/yr is from the Initial Study, page 17

Table 6. Tractors: NOx Increased Emissions

	Source (# Volume Sources)	HP	Load Factor	Hours/day	Hours/Year	Days/Year	Emission Factor (g/hp-hr)	Emissions (lb/yr)	Emissions (lb/Max day)	Emissions (lb/Max hr)
Feed Loading	FLT	220	0.37	2	730	365	2.98E-01	3.908E+01	1.071E-01	0.00E+00
Bedding Delivery	FBDT1-3	80	0.37	6	6	1	2.98E-01	1.17E-01	3.893E-02	0.00E+00
Manure Scraping	MST	150	0.37	10	60	6	2.98E-01	2.19E+00	0.000E+00	0.00E+00
Manure Loading	MLT	150	0.37	10	60	6	2.98E-01	2.19E+00	0.000E+00	0.00E+00
Feed Delivery	FBDT1-3	155	0.37	2	730	365	2.98E-01	2.75E+01	7.543E-02	0.00E+00

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*

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	MTT	0.03	0.03	356	7.72E-04	2.17E-06	2.17E-06	2.17E-06
Commodity Delivery	CTT	0.23	0.03	104	1.52E-03	1.46E-05	1.46E-05	1.46E-05
Manure Transport	SMTT	0.59	0.03	300	1.10E-02	3.66E-05	3.66E-05	3.66E-05

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2023) with an Aggregate Fleet Mix Traveling 10 MPH.
Note 2: Increases in trucks/yr is from the applicant

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	MTI	0.002	15	356	3.60E-04	1.01E-06	1.01E-06	1.01E-06
Commodity Delivery	CTI	0.002	15	104	1.05E-04	1.01E-06	1.01E-06	1.01E-06
Manure Transport	SMTI	0.002	15	300	3.04E-04	1.01E-06	1.01E-06	1.01E-06

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2023) with an Aggregate Fleet Mix Idling.
Note 2: Increases in trucks/yr is from the Initial Study, page 17

Table 9. Tractors: SOx Increase Emissions

	Source (# Volume Sources)	HP	Load Factor	Hours/day	Hours/Year	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	FLT	220	0.37	2	730	365	5.00E-03	6.55E-01	1.79E-03	0.00E+00	0.00E+00
Bedding Delivery	FBDT1-3	80	0.37	6	6	1	5.00E-03	1.96E-03	6.53E-04	0.00E+00	0.00E+00
Manure Scraping	MST	150	0.37	10	60	6	5.00E-03	3.67E-02	0.00E+00	0.00E+00	0.00E+00
Manure Loading	MLT	150	0.37	10	60	6	5.00E-03	3.67E-02	0.00E+00	0.00E+00	0.00E+00
Feed Delivery	FBDT1-3	155	0.37	2	730	365	5.00E-03	4.61E-01	1.26E-03	0.00E+00	0.00E+00

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*

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 day)	Emissions (lb/Max 8-yr)	Emissions (lb/Max hr)
Milk Tankers	MTT	0.03	0.84	356	6.42E-05	6.42E-05	6.42E-05
Commodity Delivery	CTT	0.23	0.84	104	4.32E-04	4.32E-04	4.32E-04
Manure Transport	SMTT	0.59	0.84	300	1.08E-03	1.08E-03	1.08E-03

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2023) with an Aggregate Fleet Mix Traveling 10 MPH.
Note 2: Increases in trucks/yr is from the applicant

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 day)	Emissions (lb/Max 8-hr)	Emissions (lb/Max hr)
Milk Tankers	MTI	1.11	15	356	6.10E-04	6.10E-04	6.10E-04
Commodity Delivery	CTI	1.11	15	104	6.10E-04	6.10E-04	6.10E-04
Manure Transport	SMTI	1.11	15	300	6.10E-04	6.10E-04	6.10E-04

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2023) with an Aggregate Fleet Mix Idling.
Note 2: Increases in trucks/yr is from the Initial Study, page 17

Table 12. Tractors: CO Increase Emissions

	Source (# Volume Sources)	HP	Load Factor	Hours/day	Hours/Year	Days/Year	Emission Factor (g/hp-hr)	Emissions (lb/yr)	Emissions (lb/Max day)	Emissions (lb/Max 8-hr)	Emissions (lb/Max hr)
Feed Loading	FLT	220	0.37	2	730	365	2.61E+00	3.42E+02	9.37E-01	9.37E-01	0.00E+00
Bedding Delivery	FBDT1-3	80	0.37	6.00	6	1.00	3.73E+00	1.46E+00	4.87E-01	0.00E+00	0.00E+00
Manure Scraping	MST	150	0.37	10.00	60	6.00	3.73E+00	2.74E+01	0.00E+00	0.00E+00	0.00E+00
Manure Loading	MLT	150	0.37	10.00	60	6.00	3.73E+00	2.74E+01	0.00E+00	0.00E+00	0.00E+00
Feed Delivery	FBDT1-3	155	0.37	2	730	365	2.61E+00	2.41E+02	6.60E-01	6.60E-01	0.00E+00

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*

Table 13. Truck Travel: VOC Increased Emissions

Type of Vehicles	Source	Round Trip Distance (mi)	Emission Factor (g/mi)	Increase in Trucks/Year	Emissions (lb/Max day)	Emissions (lb/Max 8-yr)	Emissions (lb/Max hr)
Milk Tankers	MTT	0.03	0.10	356	7.31E-06	7.31E-06	7.31E-06
Commodity Delivery	CTT	0.23	0.10	104	4.92E-05	4.92E-05	4.92E-05
Manure Transport	SMTT	0.59	0.10	300	1.24E-04	1.24E-04	1.24E-04

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2023) with an Aggregate Fleet Mix Traveling 10 MPH.
Note 2: Increases in trucks/yr is from the applicant

Table 14. Truck Idling: VOC Increased Emissions

Type of Vehicles	Source	Emission Factor (g/hr-vehicle)	Minutes Idling/Truck	Increase in Trucks/Year	Emissions (lb/Max day)	Emissions (lb/Max 8-hr)	Emissions (lb/Max hr)
Milk Tankers	MTI	2.00	15	356	1.10E-03	1.10E-03	1.10E-03
Commodity Delivery	CTI	2.00	15	104	1.10E-03	1.10E-03	1.10E-03
Manure Transport	SMTI	2.00	15	300	1.10E-03	1.10E-03	1.10E-03

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2023) with an Aggregate Fleet Mix Idling.
Note 2: Increases in trucks/yr is from the Initial Study, page 17

Table 15. Tractors: VOC Increase Emissions

	Source (# Volume Sources)	HP	Load Factor	Hours/day	Hours/Year	Days/Year	Emission Factor (g/hp-hr)	Emissions (lb/yr)	Emissions (lb/Max day)	Emissions (lb/Max 8-hr)	Emissions (lb/Max hr)
Feed Loading	FLT	220	0.37	2	730	365	2.09E-01	2.74E+01	7.50E-02	7.50E-02	0.00E+00
Bedding Delivery	FBDT1-3	80	0.37	6.00	6	1.00	5.38E-01	2.11E-01	7.02E-02	0.00E+00	0.00E+00
Manure Scraping	MST	150	0.37	10.00	60	6.00	4.70E-01	3.45E+00	0.00E+00	0.00E+00	0.00E+00
Manure Loading	MLT	150	0.37	10.00	60	6.00	4.70E-01	3.45E+00	0.00E+00	0.00E+00	0.00E+00
Feed Delivery	FBDT1-3	155	0.37	2	730	365	3.89E-01	3.59E+01	9.84E-02	9.84E-02	0.00E+00

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*

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Jordao Dairy

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	236.00	1000sqft	5.42	236,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction occurs during 12-month period

Trips and VMT -

Grading -

Vehicle Trips - Operational emissions not calculated.

Consumer Products - Operational emissions not calculated.

Area Coating - Operational emissions not calculated.

Landscape Equipment - Operational emissions not calculated.

Energy Use - Operational emissions not calculated.

Water And Wastewater - Operational emissions not calculated.

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Solid Waste - Operational emissions not calculated.

Construction Off-road Equipment Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	2.70	0.00
tblEnergyUse	NT24E	4.16	0.00
tblEnergyUse	NT24NG	3.84	0.00
tblEnergyUse	T24E	1.75	0.00
tblEnergyUse	T24NG	16.86	0.00
tblLandscapeEquipment	NumberSummerDays	180	0
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	292.64	0.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblWater	IndoorWaterUseRate	54,575,000.00	0.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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					
2023	0.1559	1.3109	1.4959	3.2400e-003	0.2614	0.0578	0.3192	0.1096	0.0541	0.1637	0.0000	288.0175	288.0175	0.0493	7.9500e-003	291.6187
2024	0.1028	0.8264	1.0838	2.3900e-003	0.0790	0.0340	0.1130	0.0213	0.0320	0.0533	0.0000	212.6375	212.6375	0.0310	6.7800e-003	215.4315
Maximum	**0.1559**	**1.3109**	**1.4959**	**3.2400e-003**	**0.2614**	**0.0578**	**0.3192**	**0.1096**	**0.0541**	**0.1637**	**0.0000**	**288.0175**	**288.0175**	**0.0493**	**7.9500e-003**	**291.6187**

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					
2023	0.1559	1.3109	1.4959	3.2400e-003	0.1582	0.0578	0.2160	0.0579	0.0541	0.1120	0.0000	288.0173	288.0173	0.0493	7.9500e-003	291.6185
2024	0.1028	0.8264	1.0838	2.3900e-003	0.0790	0.0340	0.1130	0.0213	0.0320	0.0533	0.0000	212.6374	212.6374	0.0310	6.7800e-003	215.4313
Maximum	**0.1559**	**1.3109**	**1.4959**	**3.2400e-003**	**0.1582**	**0.0578**	**0.2160**	**0.0579**	**0.0541**	**0.1120**	**0.0000**	**288.0173**	**288.0173**	**0.0493**	**7.9500e-003**	**291.6185**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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**	**30.30**	**0.00**	**23.87**	**39.50**	**0.00**	**23.83**	**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)
1	**6-1-2023**	**8-31-2023**	0.6756	0.6756
2	**9-1-2023**	**11-30-2023**	0.5970	0.5970
3	**12-1-2023**	**2-29-2024**	0.5745	0.5745
4	**3-1-2024**	**5-31-2024**	0.5532	0.5532
		Highest	0.6756	0.6756

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	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**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	6/1/2023	6/14/2023	5	10	
2	Grading	Grading	6/15/2023	7/12/2023	5	20	
3	Building Construction	Building Construction	7/13/2023	5/29/2024	5	230	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

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	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	99.00	39.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

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					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7254	16.7254	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0983**	**6.3300e-003**	**0.1046**	**0.0505**	**5.8200e-003**	**0.0563**	**0.0000**	**16.7254**	**16.7254**	**5.4100e-003**	**0.0000**	**16.8606**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	3.3900e-003	1.0000e-005	1.1200e-003	1.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.8915	0.8915	2.0000e-005	2.0000e-005	0.8992
Total	**3.9000e-004**	**2.7000e-004**	**3.3900e-003**	**1.0000e-005**	**1.1200e-003**	**1.0000e-005**	**1.1200e-003**	**3.0000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.8915**	**0.8915**	**2.0000e-005**	**2.0000e-005**	**0.8992**

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					0.0383	0.0000	0.0383	0.0197	0.0000	0.0197	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7253	16.7253	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0383**	**6.3300e-003**	**0.0447**	**0.0197**	**5.8200e-003**	**0.0255**	**0.0000**	**16.7253**	**16.7253**	**5.4100e-003**	**0.0000**	**16.8606**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	3.3900e-003	1.0000e-005	1.1200e-003	1.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.8915	0.8915	2.0000e-005	2.0000e-005	0.8992
Total	**3.9000e-004**	**2.7000e-004**	**3.3900e-003**	**1.0000e-005**	**1.1200e-003**	**1.0000e-005**	**1.1200e-003**	**3.0000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.8915**	**0.8915**	**2.0000e-005**	**2.0000e-005**	**0.8992**

3.3 Grading - 2023

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					0.0708	0.0000	0.0708	0.0343	0.0000	0.0343	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**0.0171**	**0.1794**	**0.1475**	**3.0000e-004**	**0.0708**	**7.7500e-003**	**0.0786**	**0.0343**	**7.1300e-003**	**0.0414**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.5000e-004	5.6500e-003	2.0000e-005	1.8600e-003	1.0000e-005	1.8700e-003	5.0000e-004	1.0000e-005	5.0000e-004	0.0000	1.4859	1.4859	4.0000e-005	4.0000e-005	1.4987
Total	**6.5000e-004**	**4.5000e-004**	**5.6500e-003**	**2.0000e-005**	**1.8600e-003**	**1.0000e-005**	**1.8700e-003**	**5.0000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.4859**	**1.4859**	**4.0000e-005**	**4.0000e-005**	**1.4987**

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					0.0276	0.0000	0.0276	0.0134	0.0000	0.0134	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**0.0171**	**0.1794**	**0.1475**	**3.0000e-004**	**0.0276**	**7.7500e-003**	**0.0354**	**0.0134**	**7.1300e-003**	**0.0205**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.5000e-004	5.6500e-003	2.0000e-005	1.8600e-003	1.0000e-005	1.8700e-003	5.0000e-004	1.0000e-005	5.0000e-004	0.0000	1.4859	1.4859	4.0000e-005	4.0000e-005	1.4987
Total	**6.5000e-004**	**4.5000e-004**	**5.6500e-003**	**2.0000e-005**	**1.8600e-003**	**1.0000e-005**	**1.8700e-003**	**5.0000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.4859**	**1.4859**	**4.0000e-005**	**4.0000e-005**	**1.4987**

3.4 Building Construction - 2023

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	0.0959	0.8775	0.9909	1.6400e-003		0.0427	0.0427		0.0402	0.0402	0.0000	141.4009	141.4009	0.0336	0.0000	142.2418
Total	**0.0959**	**0.8775**	**0.9909**	**1.6400e-003**		**0.0427**	**0.0427**		**0.0402**	**0.0402**	**0.0000**	**141.4009**	**141.4009**	**0.0336**	**0.0000**	**142.2418**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4100e-003	0.0975	0.0297	4.3000e-004	0.0143	6.0000e-004	0.0149	4.1200e-003	5.7000e-004	4.6900e-003	0.0000	41.6329	41.6329	1.9000e-004	6.2900e-003	43.5114
Worker	0.0261	0.0182	0.2276	6.5000e-004	0.0750	4.1000e-004	0.0754	0.0199	3.8000e-004	0.0203	0.0000	59.8204	59.8204	1.5500e-003	1.6000e-003	60.3357
Total	**0.0285**	**0.1158**	**0.2573**	**1.0800e-003**	**0.0893**	**1.0100e-003**	**0.0903**	**0.0241**	**9.5000e-004**	**0.0250**	**0.0000**	**101.4533**	**101.4533**	**1.7400e-003**	**7.8900e-003**	**103.8471**

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	0.0959	0.8775	0.9909	1.6400e-003		0.0427	0.0427		0.0402	0.0402	0.0000	141.4007	141.4007	0.0336	0.0000	142.2417
Total	**0.0959**	**0.8775**	**0.9909**	**1.6400e-003**		**0.0427**	**0.0427**		**0.0402**	**0.0402**	**0.0000**	**141.4007**	**141.4007**	**0.0336**	**0.0000**	**142.2417**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4100e-003	0.0975	0.0297	4.3000e-004	0.0143	6.0000e-004	0.0149	4.1200e-003	5.7000e-004	4.6900e-003	0.0000	41.6329	41.6329	1.9000e-004	6.2900e-003	43.5114
Worker	0.0261	0.0182	0.2276	6.5000e-004	0.0750	4.1000e-004	0.0754	0.0199	3.8000e-004	0.0203	0.0000	59.8204	59.8204	1.5500e-003	1.6000e-003	60.3357
Total	**0.0285**	**0.1158**	**0.2573**	**1.0800e-003**	**0.0893**	**1.0100e-003**	**0.0903**	**0.0241**	**9.5000e-004**	**0.0250**	**0.0000**	**101.4533**	**101.4533**	**1.7400e-003**	**7.8900e-003**	**103.8471**

3.4 Building Construction - 2024

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	0.0795	0.7260	0.8730	1.4600e-003		0.0331	0.0331		0.0312	0.0312	0.0000	125.1985	125.1985	0.0296	0.0000	125.9387
Total	**0.0795**	**0.7260**	**0.8730**	**1.4600e-003**		**0.0331**	**0.0331**		**0.0312**	**0.0312**	**0.0000**	**125.1985**	**125.1985**	**0.0296**	**0.0000**	**125.9387**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0800e-003	0.0863	0.0257	3.8000e-004	0.0126	5.3000e-004	0.0132	3.6400e-003	5.1000e-004	4.1500e-003	0.0000	36.2582	36.2582	1.6000e-004	5.4700e-003	37.8937
Worker	0.0213	0.0141	0.1851	5.6000e-004	0.0664	3.4000e-004	0.0668	0.0177	3.2000e-004	0.0180	0.0000	51.1808	51.1808	1.2300e-003	1.3000e-003	51.5991
Total	**0.0234**	**0.1005**	**0.2108**	**9.4000e-004**	**0.0790**	**8.7000e-004**	**0.0799**	**0.0213**	**8.3000e-004**	**0.0221**	**0.0000**	**87.4390**	**87.4390**	**1.3900e-003**	**6.7700e-003**	**89.4928**

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	0.0795	0.7260	0.8730	1.4600e-003		0.0331	0.0331		0.0312	0.0312	0.0000	125.1984	125.1984	0.0296	0.0000	125.9385
Total	**0.0795**	**0.7260**	**0.8730**	**1.4600e-003**		**0.0331**	**0.0331**		**0.0312**	**0.0312**	**0.0000**	**125.1984**	**125.1984**	**0.0296**	**0.0000**	**125.9385**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0800e-003	0.0863	0.0257	3.8000e-004	0.0126	5.3000e-004	0.0132	3.6400e-003	5.1000e-004	4.1500e-003	0.0000	36.2582	36.2582	1.6000e-004	5.4700e-003	37.8937
Worker	0.0213	0.0141	0.1851	5.6000e-004	0.0664	3.4000e-004	0.0668	0.0177	3.2000e-004	0.0180	0.0000	51.1808	51.1808	1.2300e-003	1.3000e-003	51.5991
Total	**0.0234**	**0.1005**	**0.2108**	**9.4000e-004**	**0.0790**	**8.7000e-004**	**0.0799**	**0.0213**	**8.3000e-004**	**0.0221**	**0.0000**	**87.4390**	**87.4390**	**1.3900e-003**	**6.7700e-003**	**89.4928**

APPENDIX B: AERMOD AND HARP2 ELECTRONIC FILES

GREENHOUSE GAS ANALYSIS
Technical Report

Jordao Dairy Facility
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Stanislaus County

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1. INTRODUCTION

1.1 Purpose

This GHG Technical Report has been prepared to support the California Environmental Quality Act (CEQA) evaluation of the proposed Jordao Dairy Expansion Project (Project). This technical report has been prepared in accordance with the San Joquin Valley Air Pollution Control District (SJVAPCD) Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) (SJVAPCD, 2015) and Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD, 2009).

1.2 Project Background

The existing dairy is located at 6025 S. Central Avenue in Turlock, California, which is in the County of Stanislaus. The facility is not located within 1,000 feet of a K-12 school.

The Project includes the construction of new structures for animal housing, totaling approximately 236,000 square feet. The proposed construction will occur in up to three phases; however, for conservative modeling purposes, construction was analyzed as a single 12-month phase. Construction is anticipated to be completed within five to ten years following the issuance of a Conditional Use Permit (CUP).

Upon completion of the modifications, the dairy will house approximately 3,990 head of cattle. The existing and proposed herd configuration is provided in **Table 1-1**. The dairy will continue operating 24 hours per day, 365 days per year.

Table 1-1. Herd Configuration – Existing and Proposed

Cow Type	Current	Proposed	Increment
Milk Cows	945	2,000	1,055
Dry Cows	90	300	210
Support Stock	800	1,600	800
Calves	150	90	-60
Total	**1,985**	**3,990**	**2,005**
Source: Project Applicant, 2023			

2. SETTING

2.1 Introduction

The Project site is located near the City of Turlock in Stanislaus County, California, within the boundaries of the San Joaquin Valley Air Basin (SJVAB). The SJVAB encompasses all of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare counties, as well as the valley portion of Kern County. The San Joaquin Valley Air Pollution Control District (SJVAPCD) acts as the regulatory agency for air pollution control in the SJVAB and is the local agency authorized to regulate air pollutant emissions for the Project area.

SJVAPCD develops and adopts air quality management plans, which serve as a blueprint to bring the SJVAB into compliance with federal and state clean air standards and adopts rules to reduce emissions from various sources, including specific types of equipment, activities, processes, and products.

2.2 Environmental Setting

2.2.1 Climate and Meteorology

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features that influence pollutant movement and dispersion. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersion of air pollutants and consequently affect air quality (Abbott, 2003).

The most significant single control on the weather pattern of the San Joaquin Valley is the semi-permanent subtropical high-pressure cell, referred to as the "Pacific High." During the summer, the Pacific High is positioned off the coast of northern California, diverting ocean-derived storms to the north. Hence, the summer months are virtually rainless. During the winter, the Pacific High moves southward allowing storms to pass through the San Joaquin Valley. Almost all of the precipitation expected during a given year occurs from December through April. During the summer, the predominant surface winds are out of the northwest. Air enters the Valley through the Carquinez strait and flows toward the Tehachapi Mountains. This up-valley (northwesterly) wind flow is interrupted in early fall by the emergence of nocturnal, down-valley (southeasterly) winds which become progressively more predominant as winter approaches. Wind speeds are generally highest during the spring and lightest in fall and winter. The relatively cool air flowing through the Carquinez strait is warmed on its journey south through the Valley. On reaching the southern end of the Valley, the average high temperature during the summer is nearly 100 degrees Fahrenheit (°F). Relative humidity during the summer is quite low, causing large diurnal temperature variations. Temperatures during the summer often drop into the upper 60s. In winter, the average high temperatures reach into the mid-50s and the average low drops to the mid-30s. In addition, another high-pressure cell, known as the "Great Basin High," develops east of the Sierra Nevada Mountain Range during winter. When this cell is weak, a layer of cool, damp air becomes trapped in the basin and extensive fog results. During inversions, vertical dispersion is restricted, and pollutant emissions are trapped beneath the inversion and pushed against the mountains, adversely affecting regional air quality. Surface-based inversions, while shallow and typically short-lived, are present most mornings. Elevated inversions, while less frequent than ground-based inversions, are typically longer lasting and create the more severe air stagnation problems. The winter season characteristically has the poorest conditions for vertical mixing of the entire year.

Meteorological data for various monitoring stations is maintained by the Western Regional Climate Center. Meteorological data for the Project site is expected to be similar to the data recorded at the Turlock monitoring station. This data covering the period from January 1893 through May 2016 (the most recent data available), is provided in **Table 2-1**.

Table 2-1. Period of Record Monthly Climate Summary

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann.
Average Max. Temperature (F)	53.7	60.6	66.5	72.6	80.1	88.5	94.6	92.6	86.9	76.9	63.9	53.4	74.2
Average Min. Temperature (F)	38.1	41.7	44.4	48.5	53.1	58.6	62.6	61.0	57.8	51.6	42.9	38.0	49.8
Average Total Precipitation (in)	2.28	2.07	1.85	1.05	0.43	0.10	0.01	0.02	0.18	0.59	1.24	2.06	11.86
Average Total SnowFall (in)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent of possible observations for period of record. Max. Temp.: 28.2% Min. Temp.: 28.2% Precipitation: 99.3% Snowfall: 99.1% Snow Depth: 98.8%													
Source: Western Regional Climate Center, TURLOCK #2, CALIFORNIA (049073), accessed 02/2025.													

2.2.2 Greenhouse Gases

Greenhouse gases (GHGs) are compounds in the atmosphere that influence the Earth's energy balance by absorbing and re-emitting infrared radiation. This process, similar to how a greenhouse retains heat, helps regulate the Earth's temperature. However, human activities such as fossil fuel combustion and vehicle emissions have increased GHG concentrations, contributing to long-term global temperature rise.

Scientific consensus links rising GHG emissions to climate change, though debate exists regarding the rate and extent of human-caused impacts. Regulated GHGs in California are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and nitrogen trifluoride (NF_3), while others, like water vapor, remain unregulated. Addressing GHG emissions is an ongoing environmental concern due to growing concern about GHG emissions and their adverse impacts on the world's climate and on the environment.

To quantify the impact of specific GHGs, each gas is assigned a global warming potential (GWP). Individual GHG compounds have varying GWP and atmospheric lifetimes. The GWP of a GHG is a measure of how much a given mass of the GHG is estimated to contribute to global warming relative to CO_2, which is assigned a GWP of 1.0. The GWP is used to determine the carbon dioxide equivalents (CO_2e) mass of each GHG. Calculation of CO_2e is the accepted methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent reference gas, CO_2. For example, CH_4's GWP of 25 indicates that the global warming effect of CH_4 is 25 times greater than that of CO_2 on a molecule per molecule basis. CO_2e is the mass emissions of an individual GHG multiplied by its GWP. **Table 2-2** lists GHGs, GWPs, a description of each GHG, and sources for each of the GHGs.

Table 2-2. GWPs, Properties, and Sources of GHGs

GHG	GWP	Descriptions, Physical Properties, and Sources
CO_2	1	► CO_2 is an odorless, colorless, naturally occurring GHG. ► Natural sources of CO_2 include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic out gassing. ► Anthropogenic (man-made) sources are from burning coal, oil, natural gas, and wood.
CH_4	25	► CH_4 is an organic, colorless, naturally occurring, flammable gas. Its atmospheric concentration is less than CO_2, and its lifetime in the atmosphere is brief (10-12 years) compared to other GHGs. ► CH_4 is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). ► Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH_4. Other anthropogenic sources include fossil-fuel and biomass combustion, as well as landfilling and wastewater treatment.
N_2O	298	► N_2O, commonly referred to as "laughing gas," is a colorless, nonflammable GHG. It is a powerful oxidizer and breaks down readily in the atmosphere. ► Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. ► In addition to agricultural sources, industrial processes (e.g., fossil fuel power plants, nylon and nitric acid production, and vehicle emissions) contribute to its atmospheric load. It is also used as an aerosol propellant, in food packaging, and in rocket and race car engines.
HFCs	92 - 14,900	► HFCs are synthetic man-made chemicals that form one of the GHGs with the highest global warming potential. ► HFCs are man-made for applications such as automobile air conditioners and refrigerants.
PFCs	6,288 - 17,700	► PFCs are colorless, non-flammable, dense gases with stable molecular structures, giving them lifetimes of 10,000 to 50,000 years in the atmosphere. ► The two main sources of PFCs are primary aluminum production and semiconductor manufacture.
SF_6	22,800	► SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. ► SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.
NF_3	17,200	► NF_3 is an inorganic, colorless, odorless, nonflammable gas. ► NF_3 is used primarily in the plasma etching of silicon wafers
Source: (CARB, 2024)		

CARB is responsible for developing and maintaining the California GHG emissions inventory. This inventory estimates the amount of GHGs emitted into and removed from the atmosphere by human activities within the state of California and supports the AB 32 Climate Change Program. CARB's current GHG emission inventory covers the years 2000 through 2022 and is based on fuel use, equipment activity, industrial processes, and other relevant data (e.g., housing, landfill activity, and agricultural lands).

California's net emissions of GHGs decreased by approximately 2.4 percent from 2021 levels to 371.1 million metric tons (MMT) of CO_2e in 2022. In 2014, statewide GHG emissions dropped below the 2020 GHG target (equivalent to 1990 GHG emission levels) and have remained below ever since. Overall trends indicate the carbon intensity of California's economy is declining (CARB, 2024).

Additional notable trends visible in the data collected thus far in the emission inventories for 2000-2022 include the following (CARB, 2024):

- Transportation emissions decreased in 2022 compared to the previous year, due to an increase in fuels being produced from non-fossil resources.
- California's electricity sector has experienced an overall downward trend in emissions since 2008.
- Solar power, hydropower, and imported wind power have met the growing electricity demand.

CARB estimates that transportation was the source of approximately 37.7 percent of California's GHG emissions in 2022, followed by electricity generation at 16.1 percent. Other sources of GHG emissions were industrial sources at 19.6 percent, residential plus commercial activities at 10.6 percent, and high-GWP sources at 5.7 percent. From the available GHG data, the agriculture sector accounted for an estimated 8.0 percent of the 2022 emissions with a 1.7 percent decrease from 2021. This reduction is contributed to non-fossil diesel use and reducing livestock methane emissions (CARB, 2024).

2.2.3 Global Climate Change

"Global climate change" refers to change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms, lasting for decades or longer. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred by some scientists and policy makers to "global warming" because it helps convey the notion that in addition to rising temperatures, other changes in global climate may occur. Climate change may result from the following influences:

- Natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun.
- Natural processes within the climate system (e.g., changes in ocean circulation).
- Human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, and desertification).

The Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. In its Sixth Assessment Report, the IPCC predicted that the global mean temperature change for 2081–2100 with respect to 1850–1900 could range from 1.4 degree Celsius (°C) to 4.4 °C (8 to 10.4 °Fahrenheit) (IPCC, 2023). Global average temperatures and sea levels are expected to rise under all scenarios (IPCC, 2023). The IPCC concluded that global climate change was largely the result of human activity, mainly the burning of fossil fuels. However, the scientific literature is not consistent regarding many of the aspects of climate change, the actual temperature changes during the 20th century, and contributions from human versus non-human activities.

Effects from global climate change may arise from temperature increases, climate sensitive diseases, extreme weather events, and degradation of air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems. Heat-related problems include heat rash and heat stroke, drought, etc. In addition, climate-sensitive diseases may increase, such as those spread by mosquitoes and other disease-carrying insects. Such diseases include malaria, dengue fever, yellow fever, and encephalitis. Extreme events, such as flooding and hurricanes, can displace people and agriculture. Global warming may also contribute to air quality problems from increased frequency of smog and particulate air pollution.

2.2.4 Global Climate Change Regulatory Issues

Global warming and climate change have historically received substantial public attention. For example, the United States Global Change Research Program was established by the Global Change Research Act of 1990 to enhance the understanding of natural and human-induced changes in the Earth's global environmental system; to monitor, understand, and predict global change; and to provide a sound scientific basis for national and international decision-making. Even so, the analytical tools have not yet been developed to determine the effect on worldwide global warming from a particular increase in GHG emissions, or the resulting effects on climate change in a particular locale. The scientific tools needed to evaluate the impacts that a specific project may have on the environment are yet to be developed.

In 1988, the United Nations established the IPCC to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United Nations Framework Convention on Climate Change (UNFCCC) established an agreement with the goal of controlling GHG emissions, including methane. As a result, the Climate Change Action Plan, which consists of more than 50 voluntary programs, was developed to address the reduction of GHGs in the United States. Multiple Climate Action Reports have also been submitted to the UNFCCC to outline the actions taken to reduce GHGs in the United States and to update projected GHG emissions. Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone (O_3) in the stratosphere (CFCs, halons, carbon tetrachloride, and methyl chloroform) were to be phased out by the year 2000 (methyl chloroform was phased out by 2005).

While acknowledging that national and international actions will be necessary to fully address the issue of global warming, the California Global Warming Solutions Act of 2006 (AB 32), enacted on September 27, 2006, lays out a program to inventory and reduce GHG emissions in California and from power generation facilities located outside the state that serve California residents and businesses. AB 32 charged CARB with responsibility to monitor and regulate sources of GHG emissions in order to reduce those emissions. CARB adopted a list of discrete early action measures that could be implemented to reduce GHG emissions. AB 32 mandated a cap of California's GHG emissions at 1990 levels by 2020. AB 32 was the first enforceable statewide program in the U.S. to cap all GHG emissions from major industries that includes penalties for non-compliance.

Subsequent legislation by the California legislature has included Senate Bill (SB) 32, which expanded upon AB 32 to reduce GHG emissions to 40 percent below the 1990 levels by 2030; AB 197, which increased legislative oversight of CARB by adding two legislatively appointed, non-voting members to the CARB Board and provided additional protection to disadvantaged communities; SB 350, which increased California's renewable energy electricity procurement goal; and SB 100, which established a landmark policy requiring renewable energy and zero-carbon resources to supply 100 percent of electrical retail sales to end-use customers and 100 percent of electricity procured to serve State agencies by 2045.

2.3 Regulatory Setting

2.3.1 International

2.3.1.1 Kyoto Protocol

The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change (UNFCCC). The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHGs an average of 5 percent against 1990 levels over the five-year period from 2008–2012. Whereas the UNFCCC only encouraged industrialized countries to stabilize emissions, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years than underdeveloped countries; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities." The United States has not entered into force of the Kyoto Protocol.

2.3.1.2 Paris Agreement

In April 2015, representatives from 196 state parties signed the Paris Agreement, an agreement within the UNFCCC, dealing with GHG emissions mitigation, adaptation, and finance with the goals of keeping the global average temperature increase below 2 °C (3.6 °F) above pre-industrial levels, and ideally, below 1.5 °C (2.7 °F) recognizing that this would substantially reduce the risks and impacts of climate change. Each signatory country must plan, implement, and regularly report on the actions taken to mitigate climate change. While there are no overarching emissions targets or deadlines, each self-determined target should go beyond previously set targets. In June 2017, the U.S. announced its intention to withdraw from the agreement; however, the earliest effective date of withdrawal for the U.S. was November 2020. In response to this announcement, the United States Climate Alliance was formed by governors committing to uphold the objectives of the Paris Agreement as applicable to their states. California is a member of the United States Climate Alliance. After rejoining the Paris Agreement in January 2021, the U.S., under the new presidential administration in January 2025, issued Executive Order 14162, which calls for withdrawing from the agreement.

2.3.2 Federal

2.3.2.1 Federal Regulation of Climate Change

The United States historically has had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the U.S. Supreme Court ruled that the U.S. EPA has the authority to regulate CO_2 emissions under the CAA. The U.S. EPA's GHG Tailoring Rule, issued in May 2010, established initial emission thresholds for Prevention of Significant Deterioration (PSD) and Title V permitting based on CO_2e emissions. This rule was amended in 2012, then in 2014, the U.S. Supreme Court decided that EPA may not treat GHGs as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD or Title V permit. However, PSD permits that are otherwise required (based on emissions of other non-GHG regulated pollutants) may continue to limit GHG emissions through BACT requirements.

2.3.2.2 Greenhouse Gas Reporting Program (GHGRP)

U.S. EPA's GHGRP, codified at 40 CFR Part 98, requires GHG data reporting from large GHG emission sources, fuel and industrial gas suppliers, and carbon dioxide injection sites in the United States. In general, the GHGRP applies to facilities that emit 25,000 MT CO_2e or more per year in the United States and requires such facilities to submit GHG emission reports on an annual basis. U.S. EPA electronically verifies data submitted and publishes the data.

Additionally, subpart JJ – Manure Management, applies to owners or operators of facilities that contain a manure management system that emit 25,000 MT CO_2e or more per year in the United States and requires such facilities to submit GHG emission reports on an annual basis. However, the EPA has not implemented subpart JJ due to Congressional restrictions.

2.3.2.3 Climate Change Action Plan

The Climate Change Action Plan, developed to reduce greenhouse gas emissions in the United States, includes various voluntary programs aimed at mitigating methane emissions from agriculture. Key initiatives focus on improving livestock efficiency and promoting sustainable manure management. One such initiative is the Ruminant Livestock Efficiency Program (RLEP), which was created in collaboration with the U.S. Department of Agriculture (USDA) to support the adoption of improved livestock production practices. These strategies, such as dietary modifications, help reduce methane emissions from ruminant animals like dairy cows. Another significant program is AgStar, a joint effort by the EPA, USDA, and U.S. Department of Energy, which promotes the use of methane recovery technologies. This program encourages the implementation of anaerobic digesters at concentrated animal feeding operations (CAFOs), allowing farms to capture methane from manure and convert it into renewable energy.

2.3.3 State

2.3.3.1 Assembly Bill 32

The California Global Warming Solutions Act of 2006 (AB 32), requires a sharp reduction of GHG emissions in California in preparation to transition the State to a sustainable, low-carbon future. AB 32 defined GHG emissions as comprising all the following gases: CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Pursuant to AB 32, CARB has adopted various programs and regulations with the goal of achieving maximum GHG emission reductions considering technological feasibility and cost-effectiveness.

CARB's Mandatory Reporting of Greenhouse Gas Emissions (MRR) program is a program that CARB developed and adopted under AB 32 MRR. The MRR (codified at Title 17, CCR, sections 95100-95157) incorporates certain requirements promulgated by U.S. EPA's GHGRP and is applicable to electricity generators, industrial facilities, fuel suppliers, and electricity importers. In general, the MRR applies to facilities that emit 10,000 MT CO_2e or more per year in California and requires such facilities to submit GHG emission reports on an annual basis. The MRR also requires the independent verification of GHG emissions data reports by a CARB-accredited verification body. CARB then publishes the publicly available data.

Another program that CARB developed and adopted under AB 32 is the California Cap-and-Trade Program, which applies to electricity generators, distributors of transportation, natural gas, and other fuels, and large industrial facilities emitting 25,000 MT CO_2e or more annually in California. Facilities subject to Cap-and-Trade are considered "covered entities," and are required to register with the Cap-and-Trade Program, report and verify GHG emissions pursuant to the MRR, submit valid compliance instruments to fulfill the compliance obligation, and retain applicable records. Cap-and-Trade establishes a limit, or cap, on GHG emissions from covered entities. The cap commenced in 2013 and declines over time, achieving GHG emission reductions over time in alignment with AB 32. The cap is used to allocate emission credits, which are distributed to covered facilities. A facility's credits give them permission to release a certain quantity of emissions. Facilities with more credits than they need can sell them as offsets, enabling other facilities to buy the right to emit more.

2.3.3.2 Assembly Bill 1493

AB 1493 required that the state develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. To comply with AB 1493, CARB implemented amendments to the California Code of Regulations in 2004, incorporating GHG emissions standards into the state's existing motor vehicle emissions regulations. In 2009, CARB further updated the "Pavley" regulations to enhance GHG reductions in new passenger vehicles for model years 2009 through 2016.

2.3.3.3 Assembly Bill 1395

AB 1395, introduced in 2021, known as the California Climate Crisis Act, was introduced to accelerate the state's efforts to combat climate change and achieve ambitious GHG reduction goals. Building on the foundation of the California Global Warming Solutions Act of 2006, which set a target to reduce GHG emissions to 40 percent below 1990 levels by 2030, AB 1395 establishes a new policy to achieve net-zero GHG emissions in California as soon as possible, but no later than 2045. The bill aims for California to not only reach net-zero emissions by 2045 but to continue beyond that point by achieving and maintaining net-negative emissions.

2.3.3.4 California Renewables Portfolio Standard (RPS)

Established in 2002 under Senate Bill 1078, the RPS mandates that load-serving entities progressively procure a greater percentage of their electricity from renewable resources. The program's targets have been updated over time, with Senate Bill 100, enacted in 2018, setting ambitious goals of achieving 60 percent renewable energy by 2030 and 100 percent carbon-free electricity by 2045.

2.3.4 California Environmental Quality Act (CEQA)

CEQA (Public Resources Code Section 21000, et seq.) requires state and local government agencies to inform decision makers and the public about potential environmental impacts of proposed projects and to reduce those environmental impacts to the extent feasible. Appendix G of the CEQA regulation identifies the environmental factors that must be evaluated for potential impacts from a project. In August 2007, Senate Bill (SB) 97 was signed into law and recognized climate change as a significant environmental issue requiring analysis under the California Environmental Quality Act (CEQA). The bill directed the State Office of Planning and Research (OPR) to develop guidelines for the feasible mitigation of GHG emissions and their impacts. These guidelines were adopted in December 2009 and took effect on March 18, 2010.

The Lead Agency is responsible for preparing the CEQA document that identifies a project's potential environmental impacts, while Responsible Agencies are other public agencies that have discretionary approval authority over some aspect of the project. For this Project, the Lead Agency is Stanislaus County, and the Responsible Agency for GHG is SJVAPCD.

2.3.4.1 CEQA GHG Thresholds of Significance

Section VIII, Greenhouse Gas Emissions, of Appendix G to the State CEQA Guidelines, outlines criteria for considering a proposed action significant if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

To determine whether a proposed Project could create a potential CEQA impact, local, State, and Federal agencies have developed various means by which a project's impacts may be measured and evaluated. Such means can generally be categorized as follows:

- Thresholds of significance adopted by air quality agencies to guide lead agencies in their evaluation of air quality impacts under the CEQA.
- Regulations established by air districts, CARB and EPA for the evaluation of stationary sources when applying for Authorities to Construct, Permits to Operate and other permit program requirements (e.g., New Source Review).
- Thresholds utilized to determine if a project would cause or contribute significantly to violations of the ambient air quality standards or other concentration-based limits.
- Regulations applied in areas where severe air quality problems exist.

2.3.4.2 SJVAPCD GHG Thresholds of Significance

On December 17, 2009, SJVAPCD adopted Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009); which outlined the SJVAPCD's methodology for assessing a project's significance for GHGs under CEQA. The following criteria were outlined in the document to determine whether a project could have a significant impact:

- Projects determined to be exempt from the requirements of CEQA would be determined to have a less than significant individual and cumulative impact for GHG emissions and would not require further environmental review, including analysis of project specific GHG emissions. Projects exempt under CEQA would be evaluated consistent with established rules and regulations governing project approval and would not be required to implement BPS.
- Projects complying with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less than significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review document adopted by the lead agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement BPS.
- Projects implementing Best Performance Standards would not require quantification of project specific GHG emissions. Consistent with CEQA Guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.
- Projects not implementing Best Performance Standards would require quantification of project specific GHG emissions and demonstration that project specific GHG emissions would be reduced or mitigated by at least 29 percent, compared to Business-as-Usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period. Projects achieving at least a 29 percent GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG.
- Notwithstanding any of the above provisions, projects requiring preparation of an Environmental Impact Report for any other reason would require quantification of project specific GHG emissions. Projects implementing BPS or achieving at least a 29 percent GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG.

The California Supreme Court's CEQA decision on the Newhall Ranch development case, Center for Biological Diversity v. California Department of Fish and Wildlife (November 30, 2015, Case No. 217763), and more recently in Protecting Our Water and Environmental Resources v. County of Stanislaus (2020), determined that the project's Environmental Impact Report (EIR) did not substantiate the conclusion that the GHG

cumulative impacts would be less than significant. The EIR determined that the Newhall Ranch development project would reduce GHG emissions by 31 percent from business-as-usual (BAU). This reduction was compared to California's target of reducing GHG emissions statewide by 29 percent from BAU. The Court determined that "the EIR's deficiency stems from taking a quantitative comparison method developed by the Scoping Plan as a measure of the greenhouse gas reduction effort required by the state as a whole, and attempting to use that method, without adjustments, for a purpose very different from its original design." In the Court's final ruling it offered suggestions that were deemed appropriate use of the BAU methodology:

1. Lead agencies can use the comparison to BAU methodology if they determine what reduction a particular project must achieve in order to comply with statewide goals.
2. Project design features that comply with regulations to reduce emissions may demonstrate that those components of emissions are less than significant.
3. Lead agencies could also demonstrate compliance with locally adopted climate plans or could apply specific numerical thresholds developed by some local agencies.

Stanislaus County has not developed specific thresholds for GHGs. The SJVAPCD has developed thresholds to determine significance of a proposed project – either implement Best Performance Standards or achieve a 29 percent reduction from BAU (a specific numerical threshold). However, the SJVAPCD has established their BAU and baseline emissions based on the years 2002-2004 and 2020, respectively. The 2020 projected baseline has passed, and at this time, no new guidance has been approved for determining BAU and projected baseline for the next target year. Therefore, the 29 percent reduction from BAU cannot be applied to the subject Project in order to determine significance. Additionally, a Best Performance Standards threshold has not been established for the Project operations.

The EPA and CARB thresholds were developed as reporting triggers, for projects that could have a potentially significant impact on the environment. These thresholds were designed to ensure broad coverage of large stationary sources of GHG emissions, capturing approximately 85 percent of total U.S. emissions under the EPA program and roughly 90 percent of statewide emissions under the CARB program. They are as follows:

- EPA Mandatory Reporting Rule (MRR): A reporting threshold of 25,000 metric tons of CO_2e per year ($MTCO_2e/yr$) for total annual facility emissions; and
- CARB Regulation for the Mandatory Reporting of Greenhouse Gas Emissions: A reporting threshold of 10,000 $MTCO_2e/yr$ for total annual facility emissions.

Based on discussions with and the discretion of Stanislaus County Planning staff, this Project will be evaluated relative to these key GHG reporting thresholds established by the EPA and CARB. To ensure this technical study appropriately identifies both projects that would result in large increases in GHG emissions and projects associated with large overall emitters, the Project's GHG impact would be considered significant if either of the following conditions is met:

- The project would result in an incremental increase in GHG emissions greater than 10,000 MT CO_2e/yr.
- The project's incremental increase would be less than 10,000 MT CO_2e /yr, but the combined total facility emissions (existing plus Project increase) would exceed 25,000 MT CO_2e /yr.

3. GHG ANALYSIS METHOD

CEQA does not require "perfection" but instead "adequacy, completeness, and a good faith effort at full disclosure" (Section 15003 (i)); therefore, the analysis of the Project's anticipated GHG emissions and climate change impacts is based on methodologies and information available at the time that this technical report was prepared. Estimation of anticipated GHG emissions that would occur in the future does not account for changes in technology that may reduce such emissions; therefore, the estimates are based on past performance and represent a scenario that may be worse than that which may actually occur. Many uncertainties exist regarding the precise relationship between specific levels of GHG emissions and the ultimate impact on global climate; significant uncertainties also exist regarding the GHG reduction potential of mitigation strategies. Thus, while the information below is being presented to assist the public and the County's decision makers in understanding the Project's potential contribution to global climate change impacts, the information available to the County is not sufficiently detailed to allow a direct comparison between particular characteristics of the Project and particular climate change impacts, nor between any particular proposed mitigation measure and any reduction in climate change impacts.

The recommended approach for GHG analysis included in the California Governor's Office of Planning and Research's (OPR's) June 2008 release is to (1) identify and quantify GHG emissions, (2) assess the significance of the impact on climate change, and (3) if the impact is significant, identify alternatives and/or mitigation measures to reduce the impact below a level of significance (State of California, 2008). Neither the CEQA statutes nor Guidelines prescribe quantitative thresholds of significance or a particular methodology for performing an impact analysis; therefore, significance criteria are left to the judgment and discretion of the lead agency.

The June 2008 OPR guidance provides some additional direction regarding planning documents:

> *CEQA can be a more effective tool for GHG emissions analysis and mitigation if it is supported and supplemented by sound development policies and practices that will reduce GHG emissions on a broad planning scale and that can provide the basis for a programmatic approach to project-specific CEQA analysis and mitigation. For local government lead agencies, adoption of General Plan policies and certification of General Plan EIRs that analyze broad jurisdiction wide impacts of GHG emissions can be part of an effective strategy for addressing cumulative impacts and for streamlining later project-specific CEQA reviews* (State of California, 2008).

Pursuant to SB 97, the OPR is in the process of developing guidelines for analysis of the effects of GHG emissions. As part of this process, the OPR has asked CARB technical staff to recommend statewide interim thresholds of significance for GHGs. CARB released a preliminary draft staff proposal in October 2008 that included initial suggestions for significance criteria related to industrial, commercial, and residential projects.

In March 2010, CEQA Guidelines amendments were adopted and include the following direction regarding determination of significant impacts from GHG emissions (Title 14 California Code of Regulations [CCR] Section 15064.4):

> a) *The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:*

1. *Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; or*

2. *Rely on a qualitative analysis or performance based standards.*

b) *A lead agency may consider the following when assessing the significance of impacts from greenhouse gas emissions on the environment:*

1. *The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.*

2. *Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.*

3. *The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.*

CEQA Guidelines Section 15064(b) provides:

> *The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting*.

3.1 GHG Emissions Methodology

The following sections outline the specific sources of greenhouse gas emissions included in the analysis.

3.1.1 Construction Emissions

The Project would generate short-term GHG emissions during construction. The construction-related GHG emissions for the Project were estimated using CalEEMod Version 2020.4.0 and are summarized in Table 4-1. These emissions include contributions from onsite construction equipment, worker commutes, vendor trips, and material hauling to and from the project site. CalEEMod outputs are provided in **Appendix A**.

3.1.2 Operational Emissions

The Project would generate long-term GHG emissions during operations. The following operational GHG emission sources were identified for this project.

3.1.2.1 Dairy Operations

Dairy GHG sources include lagoons, manure spreading, solid manure storage, and enteric emissions. The San Joaquin Valley Air Pollution Control District Dairy Calculator was used to estimate manure spreading and enteric GHG emissions from the existing and proposed herd. The calculator uses GHG emission factors by animal type (milk cow, dry cow, bull, etc.) to determine CH_4 and N_2O emissions. The emissions are then converted into CO_2e using the multipliers of 21 for CH_4 and 310 N_2O[1]. The output can be found in **Appendix B**.

To quantify the GHG emissions from lagoon and solid manure storage, the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories methodology (IPCC, 2019) was used, which aligns with CARB's Low Carbon Fuel Standard (LCFS) Tier 1 Simplified CI Calculator for Biomethane from Anaerobic Digestion of Dairy and Swine Manure. The calculations are based on volatile solids excretion rates and conversions to CH_4 and N_2O, depending on the animal waste management systems utilized. As outlined in SJVAPCD Project N-1234067, a covered digester lagoon will be located at the site to receive manure flushed from the cow housing, processed through a mechanical separator, and sand separation lane. The digester will capture methane/biogas and pipe it offsite for conversion to renewable natural gas. Emissions were quantified for the increased herd size, with and without a dairy digester at the site. Calculations are shown in **Appendix C**.

3.1.2.2 Utility Usage

Utility usage is inherently variable due to factors such as herd size fluctuations, seasonal energy demand, and evolving equipment needs. However, a per-cow factor for annual natural gas and electricity use was derived from Project Applicant data for 2024 and used to estimate the utility increase from the proposed expansion. GHG emissions from electricity and natural gas were calculated using default CalEEMod Version 2022.1 emission factors, with electricity factors specific to the Turlock Irrigation District and natural gas factors corresponding to non-residential land use types (see **Appendix C)**.

California's regulatory framework, including the Cap-and-Trade Program, LCFS, and Renewable Portfolio Standard, ensures that electricity and fuel consumption align with statewide climate policies. As noted in South Coast AQMD's Final Negative Declaration for the Phillips 66 Los Angeles Refinery Carson Plant Project (2014), energy consumers operate within a regulated system designed to reduce GHG emissions. Similarly, this Project would source energy and fuel from California's regulated market, where production and supply chains are subject to emissions reduction mandates.

3.1.2.3 Mobile Sources

GHG emissions from on-road vehicles, including employee commutes and deliveries (e.g., milk tanker trucks, commodities, and feed shipments), were estimated using CARB's EMission FACtor (EMFAC) model (Version EMFAC2021) for Stanislaus County.

Off-road equipment emissions, including those from feed, bedding, and manure handling, were calculated using default emission factors from CalEEMod Version 2022.1. Estimates were based on equipment horsepower, model year, and projected increases in operational hours. Detailed calculations are provided in **Appendix C**.

[1] As of the date of this report, the SJVAPCD dairy calculator is based on the 100-year GWPs from the IPCC Second Assessment Report (SAR).

Mobile source emissions are regulated by CARB and EPA through fuel and vehicle standards, as well as the Mandatory GHG Reporting Regulation (MRR) and LCFS. Over time, fleet turnover and advancing technologies will further reduce GHG emissions from the Project's mobile sources, though these future reductions are not currently quantifiable and are therefore not reflected in this analysis.

4. IMPACT QUANTIFICATION

4.1 Project Related Emissions

4.1.1 Construction Emissions

The Project would result in short-term GHG emissions during construction. These emissions were estimated using CalEEMod Version 2020.4.0 and are summarized in **Table 4-1**. Detailed CalEEMod outputs are provided in **Appendix A**. As shown below, GHG emissions are estimated to be approximately 292 metric tons (MT) of CO_2e during the first year of construction and approximately 215 MT of CO_2e during the second year.

Table 4-1. Greenhouse Gas Emissions – Construction

Source	CO_2	CH_4	N_2O	CO_2e
2023 Construction	288.02	0.05	0.01	291.62
2024 Construction	212.64	0.03	0.01	215.43

4.1.2 Operational Emissions

Long-term emissions from dairy operations, natural gas and electricity usage, and mobile sources would contribute to GHG emissions and were estimated using project-specific parameters and accepted emission factors, as detailed in Section 3. The estimated GHG impacts are summarized in Tables 4-2 through 4-8 below, with detailed calculations provided in **Appendix B** and **Appendix C**. Table 4-2 highlights the estimated reduction in GHGs for the project based on utilizing a dairy manure digester for manure management. While future regulations and technological advancements are expected to reduce these emissions, these reductions are not currently quantifiable and are therefore not reflected in this analysis.

Table 4-2. Project GHG Emissions Comparison

Scenario	Greenhouse Gas Emissions (MT/year)			
	CO_2	CH_4	N_2O	CO_2e
Post-Project - No Digester	647.34	978.49	4.30	24,797.80
Post-Project - Digester	647.34	519.50	4.57	13,404.64
Net Increase	0	-458.99	0.27	-11,393.16
Percent Change	**--**	**--**	**--**	**-45.94%**

Table 4-3. Facility Baseline GHG Emissions

Source	Greenhouse Gas Emissions (MT/year)			
	CO_2	CH_4	N_2O	CO_2e
Dairy Operations	0	473.41	2.10	11,720.90
Utility Usage	92.97	0.03	0.04	105.67
Mobile Sources	305.21	0.01	0	306.29
Total	**398.18**	**473.45**	**2.14**	**12,132.86**

Table 4-4. Facility Post-Project GHG Emissions – No Digester

Source	Greenhouse Gas Emissions (MT/year)			
	CO_2	CH_4	N_2O	CO_2e
Dairy Operations	0	978.41	4.21	24,123.29
Utility Usage	186.88	0.06	0.08	212.40
Mobile Sources	460.45	0.02	0	462.10
Total	**647.34**	**978.49**	**4.30**	**24,797.80**

Table 4-5. Facility GHG Emissions Comparison – No Digester

Scenario	Greenhouse Gas Emissions (MT/year)			
	CO_2	CH_4	N_2O	CO_2e
Baseline	398.18	473.45	2.14	12,132.86
Post-Project - No Digester	647.34	978.49	4.30	24,797.80
Net Increase	249.16	505.04	2.16	12,664.94
Percent Change	**--**	**--**	**--**	**104.39%**

Table 4-6. Facility Post-Project GHG Emissions – Digester

Source	Greenhouse Gas Emissions (MT/year)			
	CO_2	CH_4	N_2O	CO_2e
Dairy Operations	0	519.50	4.49	12,730.13
Utility Usage	186.88	0.06	0.08	212.40
Mobile Sources	460.45	0.02	0	462.10
Total	647.34	519.50	4.57	13,404.64

Table 4-7. Facility GHG Emissions Comparison – Digester

Scenario	Greenhouse Gas Emissions (MT/year)			
	CO_2	CH_4	N_2O	CO_2e
Baseline	398.18	473.45	2.14	12,132.86
Post-Project - Digester	647.34	519.50	4.57	13,404.64
Net Increase	249.16	46.05	2.43	1,271.78
Percent Change	**--**	**--**	**--**	**10.48%**

Table 4-8. Significance Determination

Scenario	CO_2e Emissions (MT/Year)	Significance Threshold ($MTCO_2e$/Year)	Exceed Threshold?
Project Net Increase	1,271.78	10,000	**No**
Facility Post-Project	13,404.64	25,000	**No**

As shown in **Table 4-8** above, the Project's individual incremental increase in GHG emissions is below the 10,000 $MTCO_2e$/yr threshold. The total facility-wide emissions combined with the Project would remain below the 25,000 $MTCO_2e$/yr threshold. Therefore, the proposed Project's GHG impact would be considered less than significant.

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APPENDIX A. CALEEMOD OUTPUT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Jordao Dairy

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	236.00	1000sqft	5.42	236,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction occurs during 12-month period

Trips and VMT -

Grading -

Vehicle Trips - Operational emissions not calculated.

Consumer Products - Operational emissions not calculated.

Area Coating - Operational emissions not calculated.

Landscape Equipment - Operational emissions not calculated.

Energy Use - Operational emissions not calculated.

Water And Wastewater - Operational emissions not calculated.

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Solid Waste - Operational emissions not calculated.

Construction Off-road Equipment Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	2.70	0.00
tblEnergyUse	NT24E	4.16	0.00
tblEnergyUse	NT24NG	3.84	0.00
tblEnergyUse	T24E	1.75	0.00
tblEnergyUse	T24NG	16.86	0.00
tblLandscapeEquipment	NumberSummerDays	180	0
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	292.64	0.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblWater	IndoorWaterUseRate	54,575,000.00	0.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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					
2023	0.1559	1.3109	1.4959	3.2400e-003	0.2614	0.0578	0.3192	0.1096	0.0541	0.1637	0.0000	288.0175	288.0175	0.0493	7.9500e-003	291.6187
2024	0.1028	0.8264	1.0838	2.3900e-003	0.0790	0.0340	0.1130	0.0213	0.0320	0.0533	0.0000	212.6375	212.6375	0.0310	6.7800e-003	215.4315
Maximum	**0.1559**	**1.3109**	**1.4959**	**3.2400e-003**	**0.2614**	**0.0578**	**0.3192**	**0.1096**	**0.0541**	**0.1637**	**0.0000**	**288.0175**	**288.0175**	**0.0493**	**7.9500e-003**	**291.6187**

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					
2023	0.1559	1.3109	1.4959	3.2400e-003	0.1582	0.0578	0.2160	0.0579	0.0541	0.1120	0.0000	288.0173	288.0173	0.0493	7.9500e-003	291.6185
2024	0.1028	0.8264	1.0838	2.3900e-003	0.0790	0.0340	0.1130	0.0213	0.0320	0.0533	0.0000	212.6374	212.6374	0.0310	6.7800e-003	215.4313
Maximum	**0.1559**	**1.3109**	**1.4959**	**3.2400e-003**	**0.1582**	**0.0578**	**0.2160**	**0.0579**	**0.0541**	**0.1120**	**0.0000**	**288.0173**	**288.0173**	**0.0493**	**7.9500e-003**	**291.6185**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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**	**30.30**	**0.00**	**23.87**	**39.50**	**0.00**	**23.83**	**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)
1	**6-1-2023**	**8-31-2023**	0.6756	0.6756
2	**9-1-2023**	**11-30-2023**	0.5970	0.5970
3	**12-1-2023**	**2-29-2024**	0.5745	0.5745
4	**3-1-2024**	**5-31-2024**	0.5532	0.5532
		Highest	0.6756	0.6756

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	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**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	6/1/2023	6/14/2023	5	10	
2	Grading	Grading	6/15/2023	7/12/2023	5	20	
3	Building Construction	Building Construction	7/13/2023	5/29/2024	5	230	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

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	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	99.00	39.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

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					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7254	16.7254	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0983**	**6.3300e-003**	**0.1046**	**0.0505**	**5.8200e-003**	**0.0563**	**0.0000**	**16.7254**	**16.7254**	**5.4100e-003**	**0.0000**	**16.8606**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	3.3900e-003	1.0000e-005	1.1200e-003	1.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.8915	0.8915	2.0000e-005	2.0000e-005	0.8992
Total	**3.9000e-004**	**2.7000e-004**	**3.3900e-003**	**1.0000e-005**	**1.1200e-003**	**1.0000e-005**	**1.1200e-003**	**3.0000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.8915**	**0.8915**	**2.0000e-005**	**2.0000e-005**	**0.8992**

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					0.0383	0.0000	0.0383	0.0197	0.0000	0.0197	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7253	16.7253	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0383**	**6.3300e-003**	**0.0447**	**0.0197**	**5.8200e-003**	**0.0255**	**0.0000**	**16.7253**	**16.7253**	**5.4100e-003**	**0.0000**	**16.8606**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	3.3900e-003	1.0000e-005	1.1200e-003	1.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.8915	0.8915	2.0000e-005	2.0000e-005	0.8992
Total	**3.9000e-004**	**2.7000e-004**	**3.3900e-003**	**1.0000e-005**	**1.1200e-003**	**1.0000e-005**	**1.1200e-003**	**3.0000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.8915**	**0.8915**	**2.0000e-005**	**2.0000e-005**	**0.8992**

3.3 Grading - 2023

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					0.0708	0.0000	0.0708	0.0343	0.0000	0.0343	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**0.0171**	**0.1794**	**0.1475**	**3.0000e-004**	**0.0708**	**7.7500e-003**	**0.0786**	**0.0343**	**7.1300e-003**	**0.0414**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.5000e-004	5.6500e-003	2.0000e-005	1.8600e-003	1.0000e-005	1.8700e-003	5.0000e-004	1.0000e-005	5.0000e-004	0.0000	1.4859	1.4859	4.0000e-005	4.0000e-005	1.4987
Total	**6.5000e-004**	**4.5000e-004**	**5.6500e-003**	**2.0000e-005**	**1.8600e-003**	**1.0000e-005**	**1.8700e-003**	**5.0000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.4859**	**1.4859**	**4.0000e-005**	**4.0000e-005**	**1.4987**

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					0.0276	0.0000	0.0276	0.0134	0.0000	0.0134	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**0.0171**	**0.1794**	**0.1475**	**3.0000e-004**	**0.0276**	**7.7500e-003**	**0.0354**	**0.0134**	**7.1300e-003**	**0.0205**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.5000e-004	5.6500e-003	2.0000e-005	1.8600e-003	1.0000e-005	1.8700e-003	5.0000e-004	1.0000e-005	5.0000e-004	0.0000	1.4859	1.4859	4.0000e-005	4.0000e-005	1.4987
Total	**6.5000e-004**	**4.5000e-004**	**5.6500e-003**	**2.0000e-005**	**1.8600e-003**	**1.0000e-005**	**1.8700e-003**	**5.0000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.4859**	**1.4859**	**4.0000e-005**	**4.0000e-005**	**1.4987**

3.4 Building Construction - 2023

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	0.0959	0.8775	0.9909	1.6400e-003		0.0427	0.0427		0.0402	0.0402	0.0000	141.4009	141.4009	0.0336	0.0000	142.2418
Total	**0.0959**	**0.8775**	**0.9909**	**1.6400e-003**		**0.0427**	**0.0427**		**0.0402**	**0.0402**	**0.0000**	**141.4009**	**141.4009**	**0.0336**	**0.0000**	**142.2418**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4100e-003	0.0975	0.0297	4.3000e-004	0.0143	6.0000e-004	0.0149	4.1200e-003	5.7000e-004	4.6900e-003	0.0000	41.6329	41.6329	1.9000e-004	6.2900e-003	43.5114
Worker	0.0261	0.0182	0.2276	6.5000e-004	0.0750	4.1000e-004	0.0754	0.0199	3.8000e-004	0.0203	0.0000	59.8204	59.8204	1.5500e-003	1.6000e-003	60.3357
Total	**0.0285**	**0.1158**	**0.2573**	**1.0800e-003**	**0.0893**	**1.0100e-003**	**0.0903**	**0.0241**	**9.5000e-004**	**0.0250**	**0.0000**	**101.4533**	**101.4533**	**1.7400e-003**	**7.8900e-003**	**103.8471**

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	0.0959	0.8775	0.9909	1.6400e-003		0.0427	0.0427		0.0402	0.0402	0.0000	141.4007	141.4007	0.0336	0.0000	142.2417
Total	**0.0959**	**0.8775**	**0.9909**	**1.6400e-003**		**0.0427**	**0.0427**		**0.0402**	**0.0402**	**0.0000**	**141.4007**	**141.4007**	**0.0336**	**0.0000**	**142.2417**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4100e-003	0.0975	0.0297	4.3000e-004	0.0143	6.0000e-004	0.0149	4.1200e-003	5.7000e-004	4.6900e-003	0.0000	41.6329	41.6329	1.9000e-004	6.2900e-003	43.5114
Worker	0.0261	0.0182	0.2276	6.5000e-004	0.0750	4.1000e-004	0.0754	0.0199	3.8000e-004	0.0203	0.0000	59.8204	59.8204	1.5500e-003	1.6000e-003	60.3357
Total	**0.0285**	**0.1158**	**0.2573**	**1.0800e-003**	**0.0893**	**1.0100e-003**	**0.0903**	**0.0241**	**9.5000e-004**	**0.0250**	**0.0000**	**101.4533**	**101.4533**	**1.7400e-003**	**7.8900e-003**	**103.8471**

3.4 Building Construction - 2024

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	0.0795	0.7260	0.8730	1.4600e-003		0.0331	0.0331		0.0312	0.0312	0.0000	125.1985	125.1985	0.0296	0.0000	125.9387
Total	**0.0795**	**0.7260**	**0.8730**	**1.4600e-003**		**0.0331**	**0.0331**		**0.0312**	**0.0312**	**0.0000**	**125.1985**	**125.1985**	**0.0296**	**0.0000**	**125.9387**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0800e-003	0.0863	0.0257	3.8000e-004	0.0126	5.3000e-004	0.0132	3.6400e-003	5.1000e-004	4.1500e-003	0.0000	36.2582	36.2582	1.6000e-004	5.4700e-003	37.8937
Worker	0.0213	0.0141	0.1851	5.6000e-004	0.0664	3.4000e-004	0.0668	0.0177	3.2000e-004	0.0180	0.0000	51.1808	51.1808	1.2300e-003	1.3000e-003	51.5991
Total	**0.0234**	**0.1005**	**0.2108**	**9.4000e-004**	**0.0790**	**8.7000e-004**	**0.0799**	**0.0213**	**8.3000e-004**	**0.0221**	**0.0000**	**87.4390**	**87.4390**	**1.3900e-003**	**6.7700e-003**	**89.4928**

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	0.0795	0.7260	0.8730	1.4600e-003		0.0331	0.0331		0.0312	0.0312	0.0000	125.1984	125.1984	0.0296	0.0000	125.9385
Total	**0.0795**	**0.7260**	**0.8730**	**1.4600e-003**		**0.0331**	**0.0331**		**0.0312**	**0.0312**	**0.0000**	**125.1984**	**125.1984**	**0.0296**	**0.0000**	**125.9385**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0800e-003	0.0863	0.0257	3.8000e-004	0.0126	5.3000e-004	0.0132	3.6400e-003	5.1000e-004	4.1500e-003	0.0000	36.2582	36.2582	1.6000e-004	5.4700e-003	37.8937
Worker	0.0213	0.0141	0.1851	5.6000e-004	0.0664	3.4000e-004	0.0668	0.0177	3.2000e-004	0.0180	0.0000	51.1808	51.1808	1.2300e-003	1.3000e-003	51.5991
Total	**0.0234**	**0.1005**	**0.2108**	**9.4000e-004**	**0.0790**	**8.7000e-004**	**0.0799**	**0.0213**	**8.3000e-004**	**0.0221**	**0.0000**	**87.4390**	**87.4390**	**1.3900e-003**	**6.7700e-003**	**89.4928**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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 Heavy 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 Heavy Industry	14.70	6.60	6.60	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 Heavy Industry	0.523257	0.051970	0.166194	0.158016	0.032160	0.007890	0.013191	0.016111	0.000841	0.000303	0.024837	0.001374	0.003856

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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 Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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 Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

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	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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. SJVAPCD DAIRY CALCULATOR

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

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

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

1 short ton = 0.9072 metric ton

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

CO2e from N2O= [N20 aneaerobic treatment lagoon + N2O manure spreading + N20 solid manure storage + N2O enteric] x 310 x 0.9072 metric tons/short tons ÷ 2000 lb/ton

Pre-Project CO2e Emissions

Pre-Project Lagoon CO2e Emissions from CH4 (metric tons/yr)				
Animal Type	Number of Cows	CH4 Lagoons (lb/hd-yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	945	307.8	21.0	2,771
Dry Cows	90	307.8	21.0	264
Support Stock	800	110.4	21.0	841
Large Heifers	0	110.4	21.0	0
Medium Heifers	0	110.4	21.0	0
Small Heifers	0	110.4	21.0	0
Calves	150	--	--	0
Bulls	0	110.4	21.0	0

Pre-Project Non-Lagoons CO2e Emissions from CH4 (metric tons/yr)						
Animal Type	Number of Cows	CH4 Manure Spreading (lbs/hd-yr)	CH4 Solid Manure Storage (lbs/hd-yr)	CH4 Enteric (lbs/hd-yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	945	3.5	27.7	271.5	21.0	2,725
Dry Cows	90	3.5	27.7	271.5	21.0	260
Support Stock	800	1.6	--	151.6	21.0	1,167
Large Heifers	0	1.6	--	151.6	21.0	0
Medium Heifers	0	1.6	--	100.5	21.0	0
Small Heifers	0	1.6	--	100.5	21.0	0
Calves	150	--	--	--	--	0
Bulls	0	1.6	--	151.6	21.0	0

Pre-Project Lagoon CO2e Emissions from N2O (metric tons/yr)				
Animal Type	Number of Cows	N2O Lagoons (lb/hd-yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	945	0.0	310.0	0
Dry Cows	90	0.0	310.0	0
Support Stock	800	0.0	310.0	0
Large Heifers	0	0.0	310.0	0
Medium Heifers	0	0.0	310.0	0
Small Heifers	0	0.0	310.0	0
Calves	150	0.0	--	0
Bulls	0	0.0	310.0	0

Pre-Project Non-Lagoons CO2e Emissions from N2O (metric tons/yr)						
Animal Type	Number of Cows	N2O Manure Spreading (lbs/hd-yr)	N2O Solid Manure Storage (lbs/hd-yr)	N2O Enteric (lbs/hd-yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	945	0.0	2.6	0.0	310.0	345
Dry Cows	90	0.0	2.6	0.0	310.0	33
Support Stock	800	0.0	--	0.0	310.0	0
Large Heifers	0	0.0	--	0.0	310.0	0
Medium Heifers	0	0.0	--	0.0	310.0	0
Small Heifers	0	0.0	--	0.0	310.0	0
Calves	150	0.0	--	0.0	--	0
Bulls	0	0.0	--	0.0	310.0	0

Total Pre-Project CO2e Emissions (metric tons/yr)			
Animal Type	CO2e from CH4	CO2e from N2O	Total
Milk Cows	5,496	345	5,841
Dry Cows	523	33	556
Support Stock	2,009	0	2,009
Large Heifers	0	0	0
Medium Heifers	0	0	0
Small Heifers	0	0	0
Calves	0	0	0
Bulls	0	0	0
		Total	8,406

Post-Project CO2e Emissions

Post-Project Lagoon CO2e Emissions from CH4 (metric tons/yr)				
Animal Type	Number of Cows	CH4 Lagoons (lb/hd-yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	2,000	307.8	21.0	5,864
Dry Cows	300	307.8	21.0	880
Support Stock	1,600	110.4	21.0	1,683
Large Heifers	0	110.4	21.0	0
Medium Heifers	0	110.4	21.0	0
Small Heifers	0	110.4	21.0	0
Calves	90	--	--	0
Bulls	0	110.4	21.0	0

Post-Project Non-Lagoons CO2e Emissions from CH4 (metric tons/yr)						
Animal Type	Number of Cows	CH4 Manure Spreading (lbs/hd-yr)	CH4 Solid Manure Storage (lbs/hd-yr)	CH4 Enteric (lbs/hd-yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	2,000	3.5	27.7	271.5	21.0	5,767
Dry Cows	300	3.5	27.7	271.5	21.0	865
Support Stock	1,600	1.6	--	151.6	21.0	2,335
Large Heifers	0	1.6	--	151.6	21.0	0
Medium Heifers	0	1.6	--	100.5	21.0	0
Small Heifers	0	1.6	--	100.5	21.0	0
Calves	90	--	--	--	--	0
Bulls	0	1.6	--	151.6	21.0	0

Post-Project Lagoon CO2e Emissions from N2O (metric tons/yr)				
Animal Type	Number of Cows	N2O Lagoons (lb/hd-yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	2,000	0.0	310.0	0
Dry Cows	300	0.0	310.0	0
Support Stock	1,600	0.0	310.0	0
Large Heifers	0	0.0	310.0	0
Medium Heifers	0	0.0	310.0	0
Small Heifers	0	0.0	310.0	0
Calves	90	0.0	--	0
Bulls	0	0.0	310.0	0

Post-Project Non-Lagoons CO2e Emissions from N2O (metric tons/yr)						
Animal Type	Number of Cows	N2O Manure Spreading (lbs/hd-yr)	N2O Solid Manure Storage (lbs/hd-yr)	N2O Enteric (lbs/hd-yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	2,000	0.0	2.6	0.0	310.0	731
Dry Cows	300	0.0	2.6	0.0	310.0	110
Support Stock	1,600	0.0	--	0.0	310.0	0
Large Heifers	0	0.0	--	0.0	310.0	0
Medium Heifers	0	0.0	--	0.0	310.0	0
Small Heifers	0	0.0	--	0.0	310.0	0
Calves	90	0.0	--	0.0	--	0
Bulls	0	0.0	--	0.0	310.0	0

Total Post-Project CO2e Emissions (metric tons/yr)			
Animal Type	CO2e from CH4	CO2e from N2O	Total
Milk Cows	11,631	731	12,362
Dry Cows	1,745	110	1,854
Support Stock	4,018	0	4,018
Large Heifers	0	0	0
Medium Heifers	0	0	0
Small Heifers	0	0	0
Calves	0	0	0
Bulls	0	0	0
		Total	18,234

Change in CO2e Emissions

Change in Project GHG Emissions			
Animal Type	Pre-Project CO2e (metric tons/yr)	Post-Project CO2e (metric tons/yr)	Change (metric tons/yr)
Milk Cows	5,841	12,362	6,521
Dry Cows	556	1,854	1,298
Support Stock	2,009	4,018	2,009
Large Heifers	0	0	0
Medium Heifers	0	0	0
Small Heifers	0	0	0
Calves	0	0	0
Bulls	0	0	0
		Total	9,828

APPENDIX C. GHG EMISSION ESTIMATIONS

Jordao Dairy Facility
1707 S. Mitchell Road
Turlock, CA 95380

Table 1. Facility Baseline GHG Emissions

Emission Source	Emissions (MT/year)			
	CO_2	CH_4	N_2O	CO_2e
Dairy Operations				
Manure Management[1]	0.00	288.71	2.10	7,842.28
Manure Spreading	0.00	2.22	0.00	46.70
Enteric Fermentation	0.00	182.47	0.00	3,831.92
Dairy Operations Total	*0.00*	*473.41*	*2.10*	*11,720.90*
Utility Usage				
Electricity	71.95	0.03	0.04	84.59
Natural Gas	21.02	0.00	0.00	21.08
Utility Usage Total	*92.97*	*0.03*	*0.04*	*105.67*
Mobile Sources				
On-Road	2.10	0.00	0.00	2.20
Off-Road	303.10	0.01	0.00	304.09
Mobile Sources Total	*305.21*	*0.01*	*0.00*	*306.29*
Project Totals	**398.18**	**473.45**	**2.14**	**12,132.86**

Footnotes:

1. Manure management encompasses the lagoon and solid storage.

Table 2. Facility Post-Project GHG Emissions – No Digester

Emission Source	Emissions (MT/year)			
	CO_2	CH_4	N_2O	CO_2e
Dairy Operations				
Manure Management[1]	0.00	580.33	4.21	15,763.58
Manure Spreading	0.00	4.81	0.00	101.06
Enteric Fermentation	0.00	393.27	0.00	8,258.65
Dairy Operations Total	*0.00*	*978.41*	*4.21*	*24,123.29*
Utility Usage				
Electricity	144.63	0.06	0.08	170.03
Natural Gas	42.26	0.00	0.00	42.37
Utility Usage Total	*186.88*	*0.06*	*0.08*	*212.40*
Mobile Sources				
On-Road	3.34	0.00	0.00	3.49
Off-Road	457.12	0.02	0.00	458.61
Mobile Sources Total	*460.45*	*0.02*	*0.00*	*462.10*
Project Totals	**647.34**	**978.49**	**4.30**	**24,797.80**

Footnotes:

1. Manure management encompasses the lagoon and solid storage.

Jordao Dairy Facility
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Table 3. Facility Post-Project GHG Emissions – Digester

Emission Source	Emissions (MT/year)[3]			
	CO_2	CH_4	N_2O	CO_2e
Dairy Operations				
Manure Management[1]	0.00	121.34	4.49	4,370.42
Manure Spreading	0.00	4.81	0.00	101.06
Enteric Fermentation	0.00	393.27	0.00	8,258.65
Dairy Operations Total	*0.00*	*519.42*	*4.49*	*12,730.13*
Utility Usage				
Electricity	144.63	0.06	0.08	170.03
Natural Gas	42.26	0.00	0.00	42.37
Utility Usage Total	*186.88*	*0.06*	*0.08*	*212.40*
Mobile Sources				
On-Road	3.34	0.00	0.00	3.49
Off-Road	457.12	0.02	0.00	458.61
Mobile Sources Total	*460.45*	*0.02*	*0.00*	*462.10*
Project Totals	**647.34**	**519.50**	**4.57**	**13,404.64**

Footnotes:

1. Manure management encompasses the lagoon and solid storage.

Table 4. Facility GHG Emissions – No Digester

Scenario	Emissions (MT/year)			
	CO_2	CH_4	N_2O	CO_2e
Baseline	398.18	473.45	2.14	12,132.86
Post-Project - No Digester	647.34	978.49	4.30	24,797.80
Net Increase	249.16	505.04	2.16	12,664.94
Percent Change	**--**	**--**	**--**	**104.39%**

Table 5. Facility GHG Emissions – Digester

Scenario	Emissions (MT/year)			
	CO_2	CH_4	N_2O	CO_2e
Baseline	398.18	473.45	2.14	12,132.86
Post-Project - Digester	647.34	519.50	4.57	13,404.64
Net Increase	249.16	46.05	2.43	1,271.78
Percent Change	**--**	**--**	**--**	**10.48%**

Table 6. Project GHG Emissions – Percent Reduction

Scenario	Emissions (MT/year)			
	CO_2	CH_4	N_2O	CO_2e
Post-Project - No Digester	647.34	978.49	4.30	24,797.80
Post-Project - Digester	647.34	519.50	4.57	13,404.64
Net Increase	0.00	-458.99	0.27	-11,393.16
Percent Change	**--**	**--**	**--**	**-45.94%**

Jordao Dairy Facility
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Table 1. Utility Factor per Cow per Year Determination

Utility	Current Annual[1] Consumption		Current Herd Size	Estimated Consumption Rate		Proposed Herd Size	Estimated Post Project Consumption		Annual Consumption Net Increase	
Electricity	290.52	MWH	1,985	0.15	MWH/head	3,990	583.97	MWH	293.45	MWH
Natural Gas	396.20	MMBtu		0.20	MMBtu/head		796.39	MMBtu	400.19	MMBtu

1. Current annual consumption provided by Applicant through 2024 utility bills.

Table 2. Utility GHG Emissions – Baseline

Utility	Estimated Baseline Consumption		Emission Factors[1,2]				Emissions (MT/year)[3]			
			CO_2	CH_4	N_2O	Units	CO_2	CH_4	N_2O	CO_2e
Electricity	290.52	MWH	546.002	0.213	0.304	lb/MWH	72.0	0.03	0.04	84.6
Natural Gas	396.20	MMBtu	116.977	0.010	0.0002	lb/MMBtu	21.0	0.00	0.00	21.1
Total Utilities							**93.0**	**0.03**	**0.04**	**105.7**

1. Electricity emission factors are sourced from CalEEMod Version 2022.1, Appendix G – Default Data Tables, specifically Table G-3: Electric Utility Greenhouse Gas Emission Factors. The factors used for this analysis correspond to the Turlock Irrigation District for Operational Year 2024.

2. Natural gas emission factors are sourced from CalEEMod Version 2022.1, Appendix G – Default Data Tables, Table G-4: Natural Gas Emission Factors. The factors used for this analysis correspond to the Nonresidential land use type.

3. CO_2e calculations use the following 100-year global warming potentials (GWP) for CH_4 and N_2O, based on the IPCC Fourth Assessment Report (AR4):

CH_4: 25
N_2O: 298

Table 3. Utility GHG Emissions – Post-Project

Utility	Estimated Post Project Consumption		Emission Factors[1,2]				Emissions (MT/year)[3]			
			CO_2	CH_4	N_2O	Units	CO_2	CH_4	N_2O	CO_2e
Electricity	583.97	MWH	546.002	0.213	0.304	lb/MWH	144.6	0.06	0.08	170.0
Natural Gas	796.39	MMBtu	116.977	0.010	0.0002	lb/MMBtu	42.3	0.00	0.00	42.4
Total Utilities							**186.9**	**0.06**	**0.08**	**212.4**

1. Electricity emission factors are sourced from CalEEMod Version 2022.1, Appendix G – Default Data Tables, specifically Table G-3: Electric Utility Greenhouse Gas Emission Factors. The factors used for this analysis correspond to the Turlock Irrigation District for Operational Year 2024.

2. Natural gas emission factors are sourced from CalEEMod Version 2022.1, Appendix G – Default Data Tables, Table G-4: Natural Gas Emission Factors. The factors used for this analysis correspond to the Nonresidential land use type.

3. CO_2e calculations use the following 100-year global warming potentials (GWP) for CH_4 and N_2O, based on the IPCC Fourth Assessment Report (AR4):

CH_4: 25
N_2O: 298

Table 4. On-Road Vehicle GHG Emissions – Baseline

Source	Estimated Baseline Trucks[1]		Emission Factors[2,3]				Emissions (MT/year)[4]			
			CO_2	CH_4	N_2O	Units	CO_2	CH_4	N_2O	CO_2e
On-Site Truck Travel	309.06	miles	6.499	0.000	0.001	lb/mile	0.9	0.0	0.0	1.0
Off-Site Truck Travel	379.50	miles	6.499	0.000	0.001	lb/mile	1.1	0.0	0.0	1.2
On-Site Truck Idling	379.50	hours	0.425	0.000	0.000	lb/hour	0.1	0.0	0.0	0.1
Total							**2.1**	**0.0**	**0.0**	**2.2**

1. Estimated truck trips provided by Applicant.

2. Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2024) with an Aggregate Fleet Mix Traveling 10 MPH.

3. Idling emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2024) with an Aggregate Fleet Mix Idling.

4. CO_2e calculations use the following 100-year global warming potentials (GWP) for CH_4 and N_2O, based on the IPCC Fourth Assessment Report (AR4):

CH_4: 25
N_2O: 298

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Turlock, CA 95380

Table 5. On-Road Vehicle GHG Emissions – Post-Project

Source	Estimated Post-Project Trucks[1]		Emission Factors[2,3]				Emissions (MT/year)[4]			
			CO_2	CH_4	N_2O	Units	CO_2	CH_4	N_2O	CO_2e
On-Site Truck Travel	522.35	miles	6.499	0.000	0.001	lb/mile	1.5	0.0	0.0	1.6
Off-Site Truck Travel	571.75	miles	6.499	0.000	0.001	lb/mile	1.7	0.0	0.0	1.8
On-Site Truck Idling	571.75	hours	0.425	0.000	0.000	lb/hour	0.1	0.0	0.0	0.1
Total							**3.3**	**0.0**	**0.0**	**3.5**

1. Estimated truck trips provided by Applicant.

2. Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2024) with an Aggregate Fleet Mix Traveling 10 MPH.

3. Idling emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2024) with an Aggregate Fleet Mix Idling.

4. CO_2e calculations use the following 100-year global warming potentials (GWP) for CH_4 and N_2O, based on the IPCC Fourth Assessment Report (AR4):

CH_4: 25

N_2O: 298

Table 6. Off-Road Vehicle GHG Emissions – Baseline

Source		Estimated[1] Hours	Emission Factors[2]				Emissions (MT/year)[3]			
			CO_2	CH_4	N_2O	Units	CO_2	CH_4	N_2O	CO_2e
Feed Loading	220 HP	1,460 hours	1.163	0.000	0.000	lb/hp-hour	169.4	0.0	0.0	169.9
Bedding Delivery	80 HP	8 hours	1.165	0.000	0.000	lb/hp-hour	0.3	0.0	0.0	0.3
Manure Scraping	150 HP	60 hours	1.164	0.000	0.000	lb/hp-hour	4.8	0.0	0.0	4.8
Manure Loading	150 HP	120 hours	1.164	0.000	0.000	lb/hp-hour	9.5	0.0	0.0	9.5
Feed Delivery	155 HP	1,460 hours	1.161	0.000	0.000	lb/hp-hour	119.1	0.0	0.0	119.5
Total							**303.1**	**0.0**	**0.0**	**304.1**

1. Estimated annual hours based on information provided by Applicant.

2. Emission factors are sourced from CalEEMod Version 2022.1, Appendix G – Default Data Tables, specifically Table G-11: Statewide Average Annual Offroad Equipment Emission Factors. The factors used for this analysis correspond to Tractors/Loaders/Backhoes based on model year and horsepower as provided by Applicant.

3. CO_2e calculations use the following 100-year global warming potentials (GWP) for CH_4 and N_2O, based on the IPCC Fourth Assessment Report (AR4):

CH_4: 25

N_2O: 298 730

Table 7. Off-Road Vehicle GHG Emissions – Post-Project

Source		Estimated[1] Increase	Emission Factors[2]				Emissions (MT/year)[3]			
			CO_2	CH_4	N_2O	Units	CO_2	CH_4	N_2O	CO_2e
Feed Loading	220 HP	2,190 hours	1.163	0.000	0.000	lb/hp-hour	254.1	0.0	0.0	254.9
Bedding Delivery	80 HP	14 hours	1.165	0.000	0.000	lb/hp-hour	0.6	0.0	0.0	0.6
Manure Scraping	150 HP	120 hours	1.164	0.000	0.000	lb/hp-hour	9.5	0.0	0.0	9.5
Manure Loading	150 HP	180 hours	1.164	0.000	0.000	lb/hp-hour	14.3	0.0	0.0	14.3
Feed Delivery	155 HP	2,190 hours	1.161	0.000	0.000	lb/hp-hour	178.7	0.0	0.0	179.3
Total							**457.1**	**0.0**	**0.0**	**458.6**

1. Estimated increase based on increase in tractor usage provided by Applicant.

2. Emission factors are sourced from CalEEMod Version 2022.1, Appendix G – Default Data Tables, specifically Table G-11: Statewide Average Annual Offroad Equipment Emission Factors. The factors used for this analysis correspond to Tractors/Loaders/Backhoes based on model year and horsepower as provided by Applicant.

3. CO_2e calculations use the following 100-year global warming potentials (GWP) for CH_4 and N_2O, based on the IPCC Fourth Assessment Report (AR4):

CH_4: 25

N_2O: 298

Pre-Project Manure Management GHG Emissions (Baseline)

Table 1. Total Pre-Project CO_2e Emissions (metric tons/yr)[1]

$CH_{4(mm)}$ =	288,709.02	= CH_4 emissions from Manure Management (mm), kg CH_4 per year
$CH_{4(mm)}$ =	288.71	= CH_4 emissions from Manure Management (mm), MT CH_4 per year
	25	= CH_4 global warming potential
$N_2O_{(mm)}$ =	2,095.82	= N_2O emissions from Manure Management, kg N_2O per year
$N_2O_{(mm)}$ =	2.10	= N_2O emissions from Manure Management, MT N_2O per year
	298	= N_2O global warming potential
$CO_2e_{(mm)}$ =	7,842.28	= annual CO_2e emissions from Manure Management, MT CO_2e per year.

1. Emissions summarized from the calcuations in Table 2 through Table 6 below.

Manure Management - Methane

Table 2. Annual Volatile Solid (VS) Excretion Rates (Equation 10.22A (New), (Tier 1))

TAM =	650	= typical animal mass for livestock category, kg animal-1
VS_{rate} =	9.2	= default VS excretion rate, kg VS (1000 kg animal mass)-1 day-1
VS_T =	5.98	= daily VS excretion for livestock category, kg VS animal-1 day-1

Notes:

TAM default value sourced from Table 10A.5 (New) Default Values For Live Weights For Animal Categories

VS_{rate} default value sourced from Table 10.13A (New) Default Values For Volatile Solid Excretion Rate

VS_T = TAM/1000 * VS_{rate}

Table 3. CH_4 Emission Factor From Manure Management (Equation 10.23)

VS_T =	5.98	= daily volatile solid excreted, kg dry matter animal-1 day-1
Days =	365	= basis for calculating annual VS production, days yr-1
B_0 =	0.24	= maximum methane producing capacity for manure produced, m^3 CH_4 per kg of VS
	0.67	= conversion factor of m^3 CH_4 to kilograms CH_4
$MCF_{(Lagoon)}$ =	76%	= methane conversion factors for each manure management system
$AWMS_{(Lagoon)}$ =	0.52	= fraction of manure handled using animal waste management system
$MCF_{(Solid)}$ =	4%	= methane conversion factors for each manure management system
$AWMS_{(Solid)}$ =	0.48	= fraction of manure handled using animal waste management system
$EF_{(T)}$ =	145.45	= annual CH_4 emission factor, kg CH_4 animal-1 yr-1

Notes:

B_0 default value sourced from Table 10.16A (Updated) Default Values For Maximum Methane Producing Capacity

MCF default values sourced from Table 10.17 (Updated) Methane Conversion Factors For Manure Management Systems (Warm Temperate Dry)

AMWS values scaled from Table 10A.6 Animal Waste Management System (AWMS) Regional Averages for Cattle and Buffalo.

$$EF_{(T)} = (VS_T \bullet 365)\left[B_{0(T)} \bullet 0.67 \bullet \sum_{S,k} \frac{MCF_{S,k}}{100} \bullet AWMS_{(T,S,k)}\right]$$

Table 4. CH_4 Emissions From Manure Management

$N_{(T)}$ =	1,985	= number of head of livestock species/category
$EF_{(T)}$ =	145.45	= annual CH_4 emission factor, kg CH_4 animal-1 yr-1
$CH_{4(mm)}$ =	288,709.02	= CH_4 emissions from Manure Management, kg CH_4 per year

Manure Management - Nitrogen Dioxide

Table 5. Annual Nitrogen Excretion Rates (Equation 10.30 (Updated))

TAM =	650	= Dairy Cattle Live Weight (kg Animal Mass)
N_{rate} =	0.59	= Nitrogen Excretion Rate (kg N (1000 kg Animal Mass)-1 Day-1)
N_{ex} =	139.98	= annual N excretion for livestock category, kg N animal-1 yr-1

Notes:

TAM default value sourced from Table 10A.5 (New) Default Values For Live Weights For Animal Categories

N_{rate} default value sourced from Table 10.19 (Updated) Default Values For Nitrogen Excretion Rate

N_{ex} = TAM/1000 * N_{rate} * 365

Table 6. Direct N_2O Emissions From Manure Management (Equation 10.25 (Updated))

$N_{(T)}$ =	1,985	= number of head of livestock species/category
N_{ex} =	139.98	= annual N excretion for livestock category, kg N animal-1 yr-1
$AWMS_{(Lagoon)}$ =	0.52	= fraction of manure handled using animal waste management system
$EF_{3\ (Lagoon)}$ =	0	= emission factor for direct N_2O emissions from manure management system, kg N_2O-N/kg N
$AWMS_{(Solid)}$ =	0.48	= fraction of manure handled using animal waste management system
$EF_{3\ (Solid)}$ =	0.01	= emission factor for direct N_2O emissions from manure management system, kg N_2O-N/kg N
N_{cdg} =	0	= annual nitrogen input via co-digestate via anaerobic digestion, kg N yr-1
	1.57	= conversion of N_2O-$N_{(mm)}$ emissions to $N_2O_{(mm)}$ emissions
	2,095.82	= Direct N_2O emissions from Manure Management, kg N_2O yr-1

Notes:

AMWS values scaled from Table 10A.6 Animal Waste Management System (AWMS) Regional Averages for Cattle and Buffalo.

EF_3 source from Table 10.21 (Updated) Default Emission Factors For Direct N_2O Emissions From Manure Management

N_2O-N molecular weight of 44 g/mol; N_2O molecular weight of 28 g/mol.

$$N_2O_{D(mm)} = \left[\sum_S \left[\sum_{T,P}\left(\left(N_{(T,P)} \bullet Nex_{(T,P)}\right) \bullet AWMS_{(T,S,P)}\right) + N_{cdg(s)}\right] \bullet EF_{3(S)}\right] \bullet \frac{44}{28}$$

Post-Project Manure Management GHG Emissions (No Digester)

Table 1. Total Pre-Project CO_2e Emissions (metric tons/yr)[1]

$CH_{4(mm)}$ =	580,326.94	= CH_4 emissions from Manure Management (mm), kg CH_4 per year
$CH_{4(mm)}$ =	580.33	= CH_4 emissions from Manure Management (mm), MT CH_4 per year
	25	= CH_4 global warming potential
$N_2O_{(mm)}$ =	4,212.76	= N_2O emissions from Manure Management, kg N_2O per year
$N_2O_{(mm)}$ =	4.21	= N_2O emissions from Manure Management, MT N_2O per year
	298	= N_2O global warming potential
$CO_2e_{(mm)}$ =	15,763.58	= annual CO_2e emissions from Manure Management, MT CO_2e per year.

1. Emissions summarized from the calcuations in Table 2 through Table 6 below.

Manure Management - Methane

Table 2. Annual Volatile Solid (VS) Excretion Rates (Equation 10.22A (New), (Tier 1))

TAM =	650	= typical animal mass for livestock category, kg animal-1
VS_{rate} =	9.2	= default VS excretion rate, kg VS (1000 kg animal mass)-1 day-1
VS_T =	5.98	= daily VS excretion for livestock category, kg VS animal-1 day-1

Notes:

TAM default value sourced from Table 10A.5 (New) Default Values For Live Weights For Animal Categories

VS_{rate} default value sourced from Table 10.13A (New) Default Values For Volatile Solid Excretion Rate

VS_T = TAM/1000 * VS_{rate}

Table 3. CH_4 Emission Factor From Manure Management (Equation 10.23)

VS_T =	5.98	= daily volatile solid excreted, kg dry matter animal-1 day-1
Days =	365	= basis for calculating annual VS production, days yr-1
B_0 =	0.24	= maximum methane producing capacity for manure produced, m^3 CH_4 per kg of VS
	0.67	= conversion factor of m^3 CH_4 to kilograms CH_4
$MCF_{(Lagoon)}$ =	76%	= methane conversion factors for each manure management system
$AWMS_{(Lagoon)}$ =	0.52	= fraction of manure handled using animal waste management system
$MCF_{(Solid)}$ =	4%	= methane conversion factors for each manure management system
$AWMS_{(Solid)}$ =	0.48	= fraction of manure handled using animal waste management system
$EF_{(T)}$ =	145.45	= annual CH_4 emission factor, kg CH_4 animal-1 yr-1

Notes:

B_0 default value sourced from Table 10.16A (Updated) Default Values For Maximum Methane Producing Capacity

MCF default values sourced from Table 10.17 (Updated) Methane Conversion Factors For Manure Management Systems (Warm Temperate Dry)

AMWS values scaled from Table 10A.6 Animal Waste Management System (AWMS) Regional Averages for Cattle and Buffalo.

$$EF_{(T)} = (VS_T \bullet 365)\left[B_{0(T)} \bullet 0.67 \bullet \sum_{S,k} \frac{MCF_{S,k}}{100} \bullet AWMS_{(T,S,k)}\right]$$

Table 4. CH_4 Emissions From Manure Management

$N_{(T)}$ =	3,990	= number of head of livestock species/category
$EF_{(T)}$ =	145.45	= annual CH_4 emission factor, kg CH_4 animal-1 yr-1
$CH_{4(mm)}$ =	580,326.94	= CH_4 emissions from Manure Management, kg CH_4 per year

Manure Management - Nitrogen Dioxide

Table 5. Annual Nitrogen Excretion Rates (Equation 10.30 (Updated))

TAM =	650	= Dairy Cattle Live Weight (kg Animal Mass)
N_{rate} =	0.59	= Nitrogen Excretion Rate (kg N (1000 kg Animal Mass)-1 Day-1)
N_{ex} =	139.98	= annual N excretion for livestock category, kg N animal-1 yr-1

Notes:

TAM default value sourced from Table 10A.5 (New) Default Values For Live Weights For Animal Categories

N_{rate} default value sourced from Table 10.19 (Updated) Default Values For Nitrogen Excretion Rate

N_{ex} = TAM/1000 * N_{rate} * 365

Table 6. Direct N_2O Emissions From Manure Management (Equation 10.25 (Updated))

$N_{(T)}$ =	3,990	= number of head of livestock species/category
N_{ex} =	139.98	= annual N excretion for livestock category, kg N animal-1 yr-1
$AWMS_{(Lagoon)}$ =	0.52	= fraction of manure handled using animal waste management system
$EF_{3\ (Lagoon)}$ =	0	= emission factor for direct N_2O emissions from manure management system, kg N_2O-N/kg N
$AWMS_{(Solid)}$ =	0.48	= fraction of manure handled using animal waste management system
$EF_{3\ (Solid)}$ =	0.01	= emission factor for direct N_2O emissions from manure management system, kg N_2O-N/kg N
N_{cdg} =	0	= annual nitrogen input via co-digestate via anaerobic digestion, kg N yr-1
	1.57	= conversion of N_2O-$N_{(mm)}$ emissions to $N_2O_{(mm)}$ emissions
	4,212.76	= Direct N_2O emissions from Manure Management, kg N_2O yr-1

Notes:

AMWS values scaled from Table 10A.6 Animal Waste Management System (AWMS) Regional Averages for Cattle and Buffalo.

EF_3 source from Table 10.21 (Updated) Default Emission Factors For Direct N_2O Emissions From Manure Management

N_2O-N molecular weight of 44 g/mol; N_2O molecular weight of 28 g/mol.

$$N_2O_{D(mm)} = \left[\sum_S \left[\sum_{T,P}\left(\left(N_{(T,P)} \bullet Nex_{(T,P)}\right) \bullet AWMS_{(T,S,P)}\right) + N_{cdg(s)}\right] \bullet EF_{3(S)}\right] \bullet \frac{44}{28}$$

Post-Project Manure Management GHG Emissions (Digester)

Table 1. Total Pre-Project CO_2e Emissions (metric tons/yr)[1]

$CH_{4(mm)}$ =	121,336.51	= CH_4 emissions from Manure Management (mm), kg CH_4 per year
$CH_{4(mm)}$ =	121.34	= CH_4 emissions from Manure Management (mm), MT CH_4 per year
	25	= CH_4 global warming potential
$N_2O_{(mm)}$ =	4,486.59	= N_2O emissions from Manure Management, kg N_2O per year
$N_2O_{(mm)}$ =	4.49	= N_2O emissions from Manure Management, MT N_2O per year
	298	= N_2O global warming potential
$CO_2e_{(mm)}$ =	4,370.42	= annual CO_2e emissions from Manure Management, MT CO_2e per year.

1. Emissions summarized from the calcuations in Table 2 through Table 6 below.

Manure Management - Methane

Table 2. Annual Volatile Solid (VS) Excretion Rates (Equation 10.22A (New), (Tier 1))

TAM =	650	= typical animal mass for livestock category, kg animal-1
VS_{rate} =	9.2	= default VS excretion rate, kg VS (1000 kg animal mass)-1 day-1
VS_T =	5.98	= daily VS excretion for livestock category, kg VS animal-1 day-1

Notes:

TAM default value sourced from Table 10A.5 (New) Default Values For Live Weights For Animal Categories

VS_{rate} default value sourced from Table 10.13A (New) Default Values For Volatile Solid Excretion Rate

VS_T = TAM/1000 * VS_{rate}

Table 3. CH_4 Emission Factor From Manure Management (Equation 10.23)

VS_T =	5.98	= daily volatile solid excreted, kg dry matter animal-1 day-1
Days =	365	= basis for calculating annual VS production, days yr-1
B_0 =	0.24	= maximum methane producing capacity for manure produced, m^3 CH_4 per kg of VS
	0.67	= conversion factor of m^3 CH_4 to kilograms CH_4
MCF $_{(Digester)}$ =	13%	= methane conversion factors for each manure management system
AWMS $_{(Digester)}$ =	0.52	= fraction of manure handled using animal waste management system
MCF $_{(Solid)}$ =	4%	= methane conversion factors for each manure management system
AWMS $_{(Solid)}$ =	0.48	= fraction of manure handled using animal waste management system
$EF_{(T)}$ =	30.41	= annual CH_4 emission factor, kg CH_4 animal-1 yr-1

Notes:

B_0 default value sourced from Table 10.16A (Updated) Default Values For Maximum Methane Producing Capacity

MCF default values sourced from Table 10.17 (Updated) Methane Conversion Factors For Manure Management Systems (Warm Temperate Dry)

AMWS values scaled from Table 10A.6 Animal Waste Management System (AWMS) Regional Averages for Cattle and Buffalo.

$$EF_{(T)} = (VS_T \bullet 365)\left[B_{0(T)} \bullet 0.67 \bullet \sum_{S,k} \frac{MCF_{S,k}}{100} \bullet AWMS_{(T,S,k)}\right]$$

Table 4. CH_4 Emissions From Manure Management

$N_{(T)}$ =	3,990	= number of head of livestock species/category
$EF_{(T)}$ =	30.41	= annual CH_4 emission factor, kg CH_4 animal-1 yr-1
$CH_{4(mm)}$ =	121,336.51	= CH_4 emissions from Manure Management, kg CH_4 per year

Manure Management - Nitrogen Dioxide

Table 5. Annual Nitrogen Excretion Rates (Equation 10.30 (Updated))

TAM =	650	= Dairy Cattle Live Weight (kg Animal Mass)
N_{rate} =	0.59	= Nitrogen Excretion Rate (kg N (1000 kg Animal Mass)-1 Day-1)
N_{ex} =	139.98	= annual N excretion for livestock category, kg N animal-1 yr-1

Notes:

TAM default value sourced from Table 10A.5 (New) Default Values For Live Weights For Animal Categories

N_{rate} default value sourced from Table 10.19 (Updated) Default Values For Nitrogen Excretion Rate

N_{ex} = TAM/1000 * N_{rate} * 365

Table 6. Direct N_2O Emissions From Manure Management (Equation 10.25 (Updated))

$N_{(T)}$ =	3,990	= number of head of livestock species/category
N_{ex} =	139.98	= annual N excretion for livestock category, kg N animal-1 yr-1
$AWMS_{(Digester)}$ =	0.52	= fraction of manure handled using animal waste management system
$EF_{3\ (Digester)}$ =	0.0006	= emission factor for direct N_2O emissions from manure management system, kg N_2O-N/kg N
$AWMS_{(Solid)}$ =	0.48	= fraction of manure handled using animal waste management system
$EF_{3\ (Solid)}$ =	0.01	= emission factor for direct N_2O emissions from manure management system, kg N_2O-N/kg N
N_{cdg} =	0	= annual nitrogen input via co-digestate via anaerobic digestion, kg N yr-1
	1.57	= conversion of N_2O-$N_{(mm)}$ emissions to $N_2O_{(mm)}$ emissions
	4,486.59	= Direct N_2O emissions from Manure Management, kg N_2O yr-1

Notes:

AMWS values scaled from Table 10A.6 Animal Waste Management System (AWMS) Regional Averages for Cattle and Buffalo.

EF_3 source from Table 10.21 (Updated) Default Emission Factors For Direct N_2O Emissions From Manure Management

N_2O-N molecular weight of 44 g/mol; N_2O molecular weight of 28 g/mol.

$$N_2O_{D(mm)} = \left[\sum_S \left[\sum_{T,P}\left(\left(N_{(T,P)} \bullet Nex_{(T,P)}\right) \bullet AWMS_{(T,S,P)}\right) + N_{cdg(s)}\right] \bullet EF_{3(S)}\right] \bullet \frac{44}{28}$$

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

Stanislaus County

Planning and Community Development

Mitigation Monitoring and Reporting Program

Adapted from CEQA Guidelines APPENDIX G Environmental Checklist Form, Final Text, January 1, 2020

May 15, 2026

1. Project title and location:	Use Permit Application No. PLN2021-0087 – Jordao Dairy 6321, 6237, 6233, 6235, 6231, 6033, 6031, 6025 S. Central Avenue, between Hilmar and Bradbury Roads, in the Turlock area. (APN: 057-004-013).
2. Project Applicant name and address:	Joe Jordao 6025 S. Central Avenue Turlock, CA 95380
3. Person Responsible for Implementing Mitigation Program (Applicant):	Joe Jordao, Jordao Dairy Dairy Operator/Property Owner
4. Contact person at County:	Emily DeAnda, Associate Planner (209) 525-6330

MITIGATION MEASURES AND MONITORING PROGRAM:

List all Mitigation Measures by topic as identified in the Mitigated Negative Declaration and complete the form for each measure.

X. HYDROLOGY AND WATER QUALITY

No.1 Mitigation Measure: The following Best Management Practices shall be implemented as applicable:

- Positive drainage shall be included in project design and construction to ensure that excessive ponding does not occur. The design shall comply with Title 3, Division 2, Chapter 1, Article 22, Section 646.1 of the Food and Agriculture Code for construction and maintenance of dairy or facility surroundings, corrals, and ramps, as described below.
- Dirt or unpaved corrals, or unpaved lanes, shall not be located closer than 25-feet from the milking barn or closer than 50-feet from the milk house. Corral drainage must be provided.
- A paved (concrete or equivalent) ramp or corral shall be provided to allow the animals to enter and leave the milking barn. This paved area shall be curbed (minimum of six inches high and six inches wide) and sloped to a drain. Cow washing areas shall be paved (concrete or equivalent) and sloped to a drain. The perimeter of the area shall be constructed in a manner that will retain the wash water to a paved drained area. Paved access shall be provided to permanent feed racks, mangers, and water troughs. Water troughs shall be provided with: (1) a drain to carry the water from the corrals; and (2) pavement (concrete or equivalent) which is at least ten-feet-wide at the drinking

area.

- The cow standing platform at permanent feed racks shall be paved with concrete or equivalent for at least ten-feet-back of the stanchion line.
- As unpaved areas are cleaned, depressions tend to form, allowing ponding and increased infiltration. Regular maintenance shall include filling of depressions. Personnel shall be taught the correct use of manure collection machines (wheel loaders or elevating scrapers).

The dairy operator/property owner shall be responsible for providing, to the satisfaction of the Planning Director, documentation of the implementation of the aforementioned Best Management Practices. The dairy operator/property owner shall be responsible for paying the County's actual costs of verifying compliance. If the County finds any of the applicable Best Management Practices have not been implemented, the dairy operator/property owner shall implement said Best Management Practices within the time frame specified in writing by the County.

Who Implements the Measure:	Dairy Operator/Property Owner
When should the measure be implemented:	Prior to increase in herd size
When should it be completed:	Prior to increase in herd size
Who verifies compliance:	Stanislaus County Department of Planning and Community Development
Other Responsible Agencies:	Department of Environmental Resources, Milk and Dairy Inspections

No.2 Mitigation Measure: The applicant shall comply with requirements of the Nutrient Management Plan (NMP) and Waste Management Plan (WMP) submitted to the County, as part of the Use Permit approval. The application rates of liquid and/or solid manure identified within the NMP shall not result in total nitrogen applied to the land application areas exceeding 1.65 times total nitrogen that will be removed from the field in the harvested portion of the crop. Upon request, compliance shall be verified by the collection of nutrient samples for nitrogen, potassium, phosphorus, and salts prior to and during application periods to confirm agronomic rates within all portions of cropped areas receiving manure, and to protect water supplies. The dairy operator/property owner shall be responsible for hiring a qualified professional, approved by the Planning Director, to collect nutrient samples, interpret the results, and provide said results to the County for review. If determined necessary by the Planning Director, the dairy operator/property owner shall pay for the County's actual costs to hire a third party to review the annual results.

Who Implements the Measure:	Dairy Operator/Property Owner
When should the measure be implemented:	Prior to increase in herd size
When should it be completed:	Ongoing
Who verifies compliance:	Stanislaus County Department of Planning and

	Community Development
Other Responsible Agencies:	None

No.3 Mitigation Measure: The applicant shall enroll in the Central Valley Dairy Representative Monitoring Program (CVDRMP) to meet the requirements for groundwater monitoring. Documentation reflecting enrollment shall be provided to the Stanislaus County Department of Planning and Community Development prior to increasing the herd.

Who Implements the Measure:	Dairy Operator/Property Owner
When should the measure be implemented:	Prior to increase in herd size
When should it be completed:	Prior to increase in herd size
Who verifies compliance:	Stanislaus County Department of Planning and Community Development
Other Responsible Agencies:	None

I, the undersigned, do hereby certify that I understand and agree to be responsible for implementing the Mitigation Program for the above listed project.

Signature on File **May 20,2026**

Signature Date

MITIGATED NEGATIVE DECLARATION

NAME OF PROJECT: Use Permit Application No. PLN2021-0087 – Jordao Dairy

LOCATION OF PROJECT: 6321, 6237, 6233, 6235, 6231, 6033, 6031, 6025 S. Central Avenue, between Hilmar and Bradbury Roads, in the Turlock area. (APN: 057-004-013).

PROJECT DEVELOPER: Jordao Dairy

DESCRIPTION OF PROJECT: To expand an existing dairy facility located on a 79.74± acre parcel, in the General Agriculture (A-2-40) zoning district, to allow the herd size to increase from 1,985 mature cows to 3,990, and to allow construction of three loafing barns totaling 236,000± square-feet.

Based upon the Initial Study, dated **May 15, 2026** 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 aforementioned findings are contingent upon the following mitigation measures (if indicated) which shall be incorporated into this project:

1. The following Best Management Practices shall be implemented as applicable: Positive drainage shall be included in project design and construction to ensure that excessive ponding does not occur. The design shall comply with Title 3, Division 2, Chapter 1, Article 22, Section 646.1 of the Food and Agriculture Code for construction and maintenance of dairy or facility surroundings, corrals, and ramps, as described below. Dirt or unpaved corrals, or unpaved lanes, shall not be located closer than 25 feet from the milking barn or closer than 50 feet from the milk house. Corral drainage must be provided. A paved (concrete or equivalent) ramp or corral shall be provided to allow the animals to enter and leave the milking barn. This paved area shall be curbed (minimum of six inches high and six inches wide) and sloped to a drain. Cow washing areas shall be paved (concrete or equivalent) and sloped to a drain. The perimeter of the area shall be constructed in a manner that will retain the wash water to a paved drained area. Paved access shall be provided to permanent feed racks, mangers, and water troughs. Water troughs shall be provided with: (1) a drain to carry the water from the corrals; and (2) pavement (concrete or equivalent) which is at least 10 feet wide at the drinking area. The cow standing platform at permanent feed racks shall be paved with concrete or

equivalent for at least ten feet back of the stanchion line. As unpaved areas are cleaned, depressions tend to form, allowing ponding and increased infiltration. Regular maintenance shall include filling of depressions. Personnel shall be taught the correct use of manure collection machines (wheel loaders or elevating scrapers). The dairy operator/property owner shall be responsible for providing, to the satisfaction of the Planning Director, documentation of the implementation of the aforementioned Best Management Practices. The dairy operator/property owner shall be responsible for paying the County's actual costs of verifying compliance. If the County finds any of the applicable Best Management Practices have not been implemented, the dairy operator/property owner shall implement said Best Management Practices within the time frame specified in writing by the County.

2. The applicant shall comply with requirements of the Nutrient Management Plan (NMP) and Waste Management Plan (WMP) submitted to the County, as part of the Use Permit approval. The application rates of liquid and/or solid manure identified within the NMP shall not result in total nitrogen applied to the land application areas exceeding 1.65 times total nitrogen that will be removed from the field in the harvested portion of the crop. Upon request, compliance shall be verified by the collection of nutrient samples for nitrogen, potassium, phosphorus, and salts prior to and during application periods to confirm agronomic rates within all portions of cropped areas receiving manure, and to protect water supplies. The dairy operator/property owner shall be responsible for hiring a qualified professional, approved by the Planning Director, to collect nutrient samples, interpret the results, and provide said results to the County for review. If determined necessary by the Planning Director, the dairy operator/property owner shall pay for the County's actual costs to hire a third party to review the annual results.

3. The applicant shall enroll in the Central Valley Dairy Representative Monitoring Program (CVDRMP) to meet the requirements for groundwater monitoring. Documentation reflecting enrollment shall be provided to the Stanislaus County Department of Planning and Community Development prior to increasing the herd.

The Amended 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: Emily DeAnda, Associate Planner

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

SUMMARY OF RESPONSES FOR ENVIRONMENTAL REVIEW REFERRALS

PROJECT: USE PERMIT APPLICATION NO. PLN2021-0087 - JORDAO DAIRY

REFERRED TO:				RESPONDED		RESPONSE			MITIGATION MEASURES		CONDITIONS	
	2 WK	30 DAY	PUBLIC HEARING NOTICE	YES	NO	WILL NOT HAVE SIGNIFICANT IMPACT	MAY HAVE SIGNIFICANT IMPACT	NO COMMENT NON CEQA	YES	NO	YES	NO
CA DEPT OF CONSERVATION	X	X	X		X							
CA DEPT OF FISH & WILDLIFE	X	X	X		X							
CA OPR STATE CLEARINGHOUSE	X	X	X		X							
CA RWQCB CENTRAL VALLEY REGION	X	X	X	X				X		X	X	
CA RWQCB CV-SALTS		X			X							
COOPERATIVE EXTENSION	X	X	X		X							
COUNTY OF: MERCED	X	X	X		X							
DER GROUNDWATER RESOURCES DIVISION	X	X	X	X		X				X	X	
FIRE PROTECTION DIST: MOUNTAIN VIEW	X	X	X		X							
GSA: WEST TURLOCK SUBBASIN	X	X	X		X							
IRRIGATION DISTRICT: TURLOCK	X	X	X	X				X		X	X	
MOSQUITO DISTRICT: TURLOCK	X	X	X	X				X		X	X	
MOUNTAIN VIEW EMERGENCY MEDICAL SE	X				X							
STANISLAUS COUNTY EMERGENCY MEDICAL SERVICES		X	X		X							
PACIFIC GAS & ELECTRIC	X	X	X		X							
SAN JOAQUIN VALLEY APCD	X	X	X	X				X		X	X	
SCHOOL DISTRICT 1: CHATOM UNION	X	X	X		X							
SCHOOL DISTRICT 2: TURLOCK UNIFIED	X	X	X		X							
STAN CO AG COMMISSIONER	X	X	X		X							
STAN CO BUILDING PERMITS DIVISION	X	X	X		X							
STAN CO CEO	X	X	X		X							
STAN CO DER	X	X	X	X		X				X	X	
STAN CO ERC	X			X				X		X	X	
STAN CO FARM BUREAU	X	X	X		X							
STAN CO HAZARDOUS MATERIALS	X	X	X	X		X				X	X	
STAN CO MILK AND DAIRY	X	X	X		X							
STAN CO PUBLIC WORKS	X	X	X	X				X		X	X	
STAN CO SHERIFF	X	X	X		X							
STAN CO SUPERVISOR DIST 2: CHIESA	X	X	X		X							
STAN COUNTY COUNSEL	X	X	X		X							
STANISLAUS FIRE PREVENTION BUREAU	X	X	X		X							
STANISLAUS LAFCO	X	X	X		X							
SURROUNDING LAND OWNERS		X	X		X							
STATE OF CA SWRCB DIVISION OF DRINKING WATER DIST. 10	X	X	X		X							
TELEPHONE COMPANY: AT&T	X	X	X		X							
USDA NRCS	X				X							
US FISH & WILDLIFE		X	X		X							

COUNTY OF STANISLAUS CAMPAIGN CONTRIBUTION DISCLOSURE FORM
PLANNING & COMMUNITY DEVELOPMENT DEPARTMENT

Application Number: PLN2021-0087
Application Title: Jordao Dairy
Application Address: 6025 S. Central Ave. Turlock 95380
Application APN: 057004013

Was a campaign contribution, regardless of the dollar amount, made to any member of a decision-making body involved in making a determination regarding the above application (i.e. Stanislaus County Board of Supervisors, Planning Commission, Airport Land Use Commission, or Building Code Appeals Board), hereinafter referred to as Member, during the 12-month period preceding the filing of the application, by the applicant, property owner, or, if applicable, any of the applicant's proposed subcontractors or the applicant's agent or lobbyist?

Yes ☐ No ☒

If no, please sign and date below.

If yes, please provide the following information:

Applicant's Name: _____

Contributor or Contributor Firm's Name: _____

Contributor or Contributor Firm's Address: _____

Is the Contributor:

The Applicant	Yes ☐	No ☐
The Property Owner	Yes ☐	No ☐
The Subcontractor	Yes ☐	No ☐
The Applicant's Agent/ Lobbyist	Yes ☐	No ☐

Note: Under California law as implemented by the Fair Political Practices Commission, campaign contributions made by the Applicant and the Applicant's agent/lobbyist who is representing the Applicant in this application or solicitation must be aggregated together to determine the total campaign contribution made by the Applicant.

Identify the Member(s) to whom you, the property owner, your subcontractors, and/or agent/lobbyist made campaign contributions during the 12-month period preceding the filing of the application, the name of the contributor, the dates of contribution(s) and dollar amount of the contribution. Each date must include the exact month, day, and year of the contribution.

Name of Member: _____

Name of Contributor: _____

Date(s) of Contribution(s): _____

Amount(s): _____

(Please add an additional sheet(s) to identify additional Member(s) to whom you, the property owner, your subconsultants, and/or agent/lobbyist made campaign contributions)

By signing below, I certify that the statements made herein are true and correct. I also agree to disclose to the County any future contributions made to Member(s) by the applicant, property owner, or, if applicable, any of the applicant's proposed subcontractors or the applicant's agent or lobbyist after the date of signing this disclosure form, and within 12 months following the approval, renewal, or extension of the requested license, permit, or entitlement to use.

6-18-26
Date

[redacted]

Print Firm Name if applicable

Joe Jordao
Print Name of Applicant