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

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

Date: **August 12, 2022**

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

From: **Avleen K. Aujla, Assistant Planner, Planning and Community Development**

Subject: **USE PERMIT APPLICATION NO. PLN2021-0030 – SILVA'S HOLSTEIN'S DAIRY**

Comment Period: **August 12, 2022 – September 14, 2022**

Respond By: **September 14, 2022**

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

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

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

Applicant: **Adrian Silva and Manuel Silva, Silva's Holsteins Dairy**

Project Location: **6706 Elaine Road and 6612 South Faith Home Road, between Ehrlich Road and the Merced County border, in the Turlock area**

APN: **057-013-019 and 057-022-012**

Williamson Act Contract: **APN: 057-013-019: 1977-2676**
APN: 057-022-012: 1971-0410

General Plan: **Agriculture**

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

Project Description: **Request to expand an existing dairy facility, operating on two parcels totaling 124± acres, in the General Agriculture (A-2-40) zoning district, by expanding the herd from 1,095 mature cows (880 milk and 215 dry cows) to 2,200 mature cows (1,900 milk and 300 dry cows); and to increase support stock numbers by 1,015, from 885 to 1,900 heifers. The proposed support stock will consist of 600 heifers, 15-24 months old; 600 heifers, 7-14 months; 350 calves, 4-6 months old; and 350 calves, 0-3 months. The total number of animal units is to increase by 2,120.**

Consequently, additional waste will be generated. The dairy's existing Waste Management plan (WMP) and Nutrient Management Plan (NMP) were revised to account for the increase in waste and resulting storage and disposal needs associated with the increase in herd size. The updated WMP estimates that the expansion will increase the daily manure production by 3,135 cubic feet, for a total of 5,889 cubic feet of manure per day, which equates to approximately 10,588,324 gallons and 1,415,453 cubic feet of manure per year (pre-separation). The estimated wastewater storage needs will be accommodated by the existing capacity of the on-site lagoons.

The existing dairy facility is developed with areas for feed storage, waste containment, milking facility infrastructure, and utilities. Due to the proposed increase in animal units, the applicant is also proposing to construct four shade barns within the existing dairy production area footprints on the two project parcels, totaling 146,650 square-feet. The existing facility is currently improved with 306,674± square feet of dairy facilities and approximately 26± acres of corrals, storage ponds, and feed storage.

Two solid settling basins and a wastewater settling pond are located on the southern portion of the parcel no: 057-013-019 and one is located on south-western portion of the parcel identified as Assessor Parcel No. (APN) 057-022-012. Nutrients produced from the herd will be utilized to fertilize approximately 225± acres of irrigated cropland on parcels surrounding the existing dairy operation owned by the property owner as well as two parcels located to the north and east of the dairy that are not owned by the dairy property owner. Hours of operation are 24-hours a day, seven days a week. There are currently four single-family dwellings on-site which are occupied by employees on APN 057-013-019. The proposed request is expected to increase the number of employees by one for a total of six employees on a maximum shift. No additional employee housing is proposed as part of this request. The applicant does not anticipate any customers onsite. The dairy currently receives three visits for tallow and veterinary services every two weeks, and a combined total of four milk and feed truck trips per day. The proposed request is expected to increase the number of feed truck trips from one to two per day, and milk truck trips from three to six per day for a new combined total of eight feed and milk truck trips per day. Both parcels used for the dairy are served by private wells and septic systems. The parcel identified as APN 057-013-019 takes access off County-maintained Elaine Road and APN 057-022-012 takes access off County-maintained South Faith Home Road, via one driveway each.

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

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USE PERMIT APPLICATION NO. PLN2021-0030 – SILVA'S HOLSTEIN'S DAIRY
Attachment A

Distribution List

X	CA DEPT OF CONSERVATION Land Resources		STAN CO ALUC
X	CA DEPT OF FISH & WILDLIFE		STAN CO ANIMAL SERVICES
	CA DEPT OF FORESTRY (CAL FIRE)	X	STAN CO BUILDING PERMITS DIVISION
	CA DEPT OF FOOD AND AGRICULTURE	X	STAN CO CEO
X	CA OPR STATE CLEARINGHOUSE		STAN CO CSA
X	CA RWQCB CENTRAL VALLEY REGION	X	STAN CO DER
	CA STATE LANDS COMMISSION	X	STAN CO ERC
	CEMETERY DISTRICT	X	STAN CO FARM BUREAU
	CENTRAL VALLEY FLOOD PROTECTION	X	STAN CO HAZARDOUS MATERIALS
	CITY OF	X	STAN CO DER MILK AND DAIRY
	COMMUNITY SERVICES/SANITARY DIST	X	STAN CO PUBLIC WORKS
X	COOPERATIVE EXTENSION		STAN CO RISK MANAGEMENT
X	COUNTY OF: MERCED	X	STAN CO SHERIFF
X	DER - GROUNDWATER RESOURCES DIVISION	X	STAN CO SUPERVISOR DIST 2: CHIESA
X	FIRE PROTECTION DIST: MOUNTAIN VIEW	X	STAN COUNTY COUNSEL
X	GSA: WEST TURLOCK SUBBASIN		StanCOG
	HOSPITAL DIST:	X	STANISLAUS FIRE PREVENTION BUREAU
X	IRRIGATION DIST: TURLOCK	X	STANISLAUS LAFCO
X	MOSQUITO DIST: TURLOCK	X	STATE OF CA SWRCB – DIV OF DRINKING WATER DIST. 10
X	MOUNTAIN VALLEY EMERGENCY MEDICAL SERVICES	X	SURROUNDING LAND OWNERS
	MUNICIPAL ADVISORY COUNCIL:	X	TELEPHONE COMPANY: AT&T
X	PACIFIC GAS & ELECTRIC		TRIBAL CONTACTS (CA Government Code §65352.3)
	POSTMASTER:		US ARMY CORPS OF ENGINEERS
	RAILROAD:	X	US FISH & WILDLIFE
X	SAN JOAQUIN VALLEY APCD		US MILITARY (SB 1462)
X	SCHOOL DIST 1: CHATOM UNION		USDA NRCS
X	SCHOOL DIST 2: TURLOCK UNIFIED		WATER DIST:
	WORKFORCE DEVELOPMENT		
X	STAN CO AG COMMISSIONER		

STANISLAUS COUNTY
CEQA REFERRAL RESPONSE FORM

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

FROM: _____

SUBJECT: **USE PERMIT APPLICATION NO. PLN2021-0030 – SILVA'S HOLSTEIN'S DAIRY**

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

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

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

1.
2.
3.
4.

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

1.
2.
3.
4.

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

_____

_____

Response prepared by:

_____

Name Title Date

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CEQA INITIAL STUDY

Adapted from CEQA Guidelines APPENDIX G Environmental Checklist Form, Final Text, January 1, 2020

1.	**Project title:**	Use Permit Application No. PLN2021-0030 – Silva's Holsteins Dairy
2.	**Lead agency name and address:**	Stanislaus County 1010 10th Street, Suite 3400 Modesto, CA 95354
3.	**Contact person and phone number:**	Avleen Aujla, Assistant Planner (209) 525-6330
4.	**Project location:**	6706 Elaine Road and 6612 South Faith Home Road, between Ehrlich Road and the Merced County border, in the Turlock area. (APNs: 057-013-019, 057-022-012).
5.	**Project sponsor's name and address:**	Manny Sousa, Sousa Engineering PO Box 1613 Oakdale, CA 95361
6.	**General Plan designation:**	Agriculture
7.	**Zoning:**	General Agriculture (A-2-40)

8. Description of project:

Request to expand an existing dairy facility, operating on two parcels totaling 124± acres, in the General Agriculture (A-2-40) zoning district, by expanding the herd from 1,095 mature cows (880 milk and 215 dry cows) to 2,200 mature cows (1,900 milk and 300 dry cows); and to increase support stock numbers by 1,015, from 885 to 1,900 heifers. The proposed support stock will consist of 600 heifers, 15-24 months old; 600 heifers, 7-14 months; 350 calves, 4-6 months old; and 350 calves, 0-3 months. The total number of animal units is to increase by 2,120. Consequently, additional waste will be generated. The dairy's existing Waste Management plan (WMP) and Nutrient Management Plan (NMP) were revised to account for the increase in waste and resulting storage and disposal needs associated with the increase in herd size. The updated WMP estimates that the expansion will increase the daily manure production by 3,135 cubic feet, for a total of 5,889 cubic feet of manure per-day, which equates to approximately 10,588,324 gallons and 1,415,453 cubic feet of manure per year (pre-separation). The estimated wastewater storage needs will be accommodated by the existing capacity of the on-site lagoons.

The existing dairy facility is developed with areas for feed storage, waste containment, milking facility infrastructure, and utilities. Due to the proposed increase in animal units, the applicant is also proposing to construct four shade barns within the existing dairy production area footprints on the two project parcels, totaling 146,650 square feet. The existing facility is currently improved with 306,674± square feet of dairy facilities and approximately 26± acres of corrals, storage ponds, and feed storage.

Two solid settling basins and a wastewater settling pond are located on the southern portion of the Assessor Parcel No. (APN) 057-013-019 and one is located on south-western portion of the parcel identified as APN 057-022-012. Nutrients produced from the herd will be utilized to fertilize approximately 225± acres of irrigated cropland on parcels surrounding the existing dairy operation owned by the property owner as well as two parcels located to the north and east of the dairy that are not owned by the dairy property owner. Hours of operation are 24-hours a day, seven days a week. There are currently four single-family dwellings on-site which are occupied by employees on APN 057-013-019. The proposed request is expected to increase the number of employees by one for a total of six employees on a maximum shift. No

additional employee housing is proposed as part of this request. The applicant does not anticipate any customers on-site. The dairy currently receives three visits for tallow and veterinary services every two weeks, and a combined total of four milk and feed truck trips per-day. The proposed request is expected to increase the number of feed truck trips from one to two per-day, and milk truck trips from three to six per-day for a new combined total of eight feed and milk truck trips per-day. Both parcels used for the dairy are served by private wells and septic systems. The parcel identified as APN 057-013-019 takes access off County-maintained Elaine Road and APN 057-022-012 takes access off County-maintained South Faith Home Road, via one driveway each.

9. Surrounding land uses and setting: Confined animal facilities, irrigated cropland, and scattered single-family dwellings in all directions; City of Turlock approximately 3 miles to the northeast; and the County of Merced to the south.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.): Stanislaus County Department of Public Works
Stanislaus County Department of Environmental Resources
Regional Water Quality Control Board
San Joaquin Valley Air Pollution Control District

11. Attachments:

I. Waste Management Plan prepared by Sousa Engineering, dated March 2021.
II. Nutrient Management Plan prepared by Cardoso Ag Services, dated March 2021.
III. Health Risk Assessment prepared by Trinity Consultants., dated May 2022.
IV. Ambient Air Quality Analysis (AAQA) prepared by Trinity Consultants, dated May 2022.

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 **July 19, 2022**
Prepared by Avleen K. Aujla Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, than the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration.

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

a) Earlier Analysis Used. Identify and state where they are available for review.

b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). References to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

a) the significant criteria or threshold, if any, used to evaluate each question; and

b) the mitigation measure identified, if any, to reduce the impact to less than significant.

ISSUES

I. AESTHETICS – Except as provided in Public Resources Code Section 21099, could the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

Discussion: The site itself is not considered to be a scenic resource or unique scenic vista. The only scenic designation in the County is along Interstate 5, which is not near the project site. As the site is already developed with a dairy facility, aesthetics associated with the project site are not anticipated to change as a result of this project. Standard conditions of approval will be added to this project to address glare and nightglow from any proposed on-site lighting.

Mitigation: None.

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

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

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

Discussion: This is a request to proposes to expand the herd from 1,095 mature cows (880 milk and 215 dry cows) to 2,200 mature cows (1,900 milk and 300 dry cows); and to increase support stock numbers by 1,015, from 885 to 1,900 heifers. The existing dairy operation has been previously developed with areas for feed storage, waste containment, milking facility infrastructure, and utilities. Due to the proposed increases in animal units, the applicant proposes to construct four shade barns totaling 146,650 square feet within the existing dairy production area boundary. Nutrients produced from the herd will be utilized to fertilize 225± acres of irrigated cropland on three parcels under the same ownership within the vicinity of the project site, as well as three parcels located to the north and east of the dairy that are under separate ownership. The project site and surrounding properties are zoned General Agriculture (A-2-40) and are designated Agriculture in the Stanislaus County General Plan.

The Stanislaus County's Williamson Act Uniform Rules defines prime farmland as land that qualifies for rating as class I or class II in the Natural Resource Conservation Service land use capability classification, land which qualifies for rating of 80 through 100 in the Storie Index Rating, irrigated pastureland which supports livestock used for the production of food and fiber, or land planted with crops that gross $800 per acre for three of the last five years. The USDA uses the class system for soils which ranges from I to VIII to score the capability of the soils for agricultural production, with Class I soils being the most productive and Class VIII soils being non-agricultural. 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 10 or less to be nonagricultural (Grade 6). The USDA Natural Resources Conservation Service's Eastern Stanislaus County Soil Survey indicates that the 66%± of the project site's soil is classified as being comprised Hilmar loamy sand, with 0 to 1 percent slopes which has a Storie Index Rating of 68 (Grade 2) and is rated Class 3w and 34%± Hilmar loamy sand slightly saline-alkali, with 0 to 1 percent slopes, which has a Storie Index Rating of 54 (Grade 3), and is rated Class 3w. The project site is designated by the California Department of Conservation Farmland Mapping and Monitoring Program as Unique Farmland, Confined Animal Agriculture, and Farmland of Statewide Importance. In spite of the soils not considered to be prime, 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.

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 permit 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.

Additionally, the project site is currently enrolled under California Land Conservancy ("Williamson Act") Contracts, with the parcel identified by Assessor Parcel Number (APN) 057-013-019 enrolled under Contract No: 1977-2676 and APN 057-022-012 enrolled under Contract No. 1971-410. 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 project will have no impact to forest land or timberland. The project does not appear to conflict with any agricultural activities in the area and/or lands enrolled in the Williamson Act. The project was referred to the Department of Conservation, and no response has been received to date.

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; Referral response from the Regional Water Quality Control Board, dated July 23, 2021; USDA Natural Resource Conservation Service Web Soil Survey; USDA Soil Conservation Service Soil Survey of Eastern Stanislaus Area CA; California Farmland Mapping and Monitoring Program Data; Application Materials; Stanislaus County General Plan and Support Documentation[1].

III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. -- Would the project:	**Potentially Significant Impact**	**Less Than Significant With Mitigation Included**	**Less Than Significant Impact**	**No Impact**
a) Conflict with or obstruct implementation of the applicable air quality plan?			**X**	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?			**X**	
c) Expose sensitive receptors to substantial pollutant concentrations?			**X**	
d) Result in other emissions (such as those odors adversely affecting a substantial number of people?			**X**	

Discussion: The proposed project is located within the San Joaquin Valley Air Basin (SJVAB) and, therefore, falls under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). In conjunction with the Stanislaus Council of Governments (StanCOG), the SJVAPCD is responsible for formulating and implementing air pollution control strategies. The SJVAPCD's most recent air quality plans are the 2007 PM10 (respirable particulate matter) Maintenance Plan, the 2008 PM2.5 (fine particulate matter) Plan, and the 2007 Ozone Plan. These plans establish a comprehensive air pollution control program leading to the attainment of state and federal air quality standards in the SJVAB, which has been classified 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 project requests to expand the herd from 1,095 mature cows (880 milk and 215 dry cows) to 2,200 mature cows (1,900 milk and 300 dry cows). The existing dairy facility is developed with areas for feed storage, waste containment, milking facility infrastructure, and utilities. Due to the proposed increase in animal units, the applicant is also proposing to construct four shade barns within the existing dairy production area footprints on the two project parcels, totaling 146,650 square feet. The existing facility is currently improved with 306,674± square feet of dairy facilities and approximately 26± acres of corrals, storage ponds, and feed storage. The proposed request is expected to increase the number of employees by one for a total of six employees on a maximum shift. No additional employee housing is proposed as part of this request. The applicant does not anticipate any customers on-site. The dairy currently receives three visits for tallow and veterinary services every two weeks, and a combined total of four milk and feed truck trips per-day. The proposed request is expected to increase the number of feed truck trips from one to two per-day, and milk truck trips from three to six per-day for a new

combined total of eight feed and milk truck trips per-day. The project is not expected to exceed a total of 110 vehicle trips per-day.

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), and particulate matter (PM10 and PM2.5). The SJVAPCD recommended that a more detailed preliminary review of the project be conducted for the project's construction and operational emissions. Further, the Air District 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 multi-year 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 evaluate heavy duty truck routing patterns to help limit emission exposure to sensitive receptors, reduce idling of heavy duty trucks, and utilize zero emission equipment.

The Air District response also indicated that the project is subject to District Rule 2010 (Permits Required) and Rule 2201 (New and Modified Stationary Source Review). 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). In the event an existing building will be renovated, partially demolished or removed, the project may be subject to District Rule 4002 (National Emission Standards for Hazardous Air Pollutants). The 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) permitting process.

In response to the Air District comments, a Health Risk Assessment (HRA) was prepared by Trinity Consultants, dated May 2022. The HRA examined the combined impacts from construction and operations of the project. Emissions of hazardous air pollutants (HAPs) attributable to the proposed construction activities, including diesel particulate matter (DPM) in exhaust from the construction equipment, off-road equipment, and truck traffic associated with the project, as well as animal movement, manure management, and on-site mobile sources were calculated using the California Emissions Estimator Model (CalEEMod) for the basis of project analysis. Construction emissions associated with the construction of the four proposed freestall barns were evaluated assuming construction would occur within three phases, which were estimated to take approximately six, two, and six months, respectively, beginning within two years of issuance of a Conditional Use Permit (CUP) and completing during the first six years. The total CalEEMod vehicle emissions were scaled to represent the round-trip travel distance of 0.16 miles for milk tankers, 0.21 miles for commodity delivery trucks, and 0.57 miles for manure transporters. Construction equipment sources evaluated included diesel-fueled dozers, loaders, backhoes, excavators, graders, cranes, forklifts, generator sets, concrete/industrial saws, and welders. CalEEMod's 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 solids manure removal trucks, feed loading tractor, a bedding delivery tractor, and a feed delivery tractor. Other diesel-fueled sources that will not have an increase in usage as a result of the project are a scraping tractor, milk tankers, and commodity delivery trucks. 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. A total of 303 receptors, consisting of single-family residences and workers were assessed in the HRA modeling. The nearest off-site sensitive receptor is approximately 90 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 (HI), which are the ratio of expected exposure to acceptable exposure. The SJVAPCD has set the level of significance for carcinogenic risk to twenty in one million, 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 19.66 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 0.744 and 0.340, respectively, which is below the significance level for chronic and acute

significance level. The HRA found that the cancer risk at all receptor locations were predicted to be below the SJVAPCD significance threshold, and the Chronic Hazard Index (HI) was well below the non-cancer thresholds at all locations. The Point of Maximum Impact (PMI), Maximally Exposed Individual Resident (MEIR), and Maximally Exposed Individual Worker (MEIW) were calculated for cancer risk and non-cancer chronic health index. As both acute and chronic non-cancer hazard indices and carcinogenic risk are below the SJVAPCD's level of significance, the potential health risk attributable to the proposed project is determined to be less than significant.

The Air District 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 (which does not apply to this project) and implementation of all enforceable mitigation measures. An Ambient Air Quality Analysis (AAQA) was prepared by Trinity Consultants, dated May 2022. On-site mobile sources for this facility include a diesel-fueled feed loading tractor, a manure loading tractor, manure scraping tractor, a feed delivery tractor, a bedding delivery tractor, milk tankers, solids removal trucks and commodity delivery trucks. The increased herd size will require additional usage and trips for all trucks, the feed load tractor, the manure load tractor and the feed delivery tractor. Emissions for tractors were calculated using the EPA's Nonroad Compression-Ignition Engines - Exhaust Emission Standards for the appropriate engine horsepower (HP) and year and load factors for the appropriate engine horsepower from California Emissions Estimator Model (CalEEMod) Appendix D, Tables 3.3 and 3.4 (CAPCOA 2013). Diesel truck running emissions are based on 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. Diesel truck combustion emissions of PM2.5 were set equal to PM10 emissions. There will be no increases in one hour emissions from tractors because additional tractor usage will not occur in the same one hour period as the existing equipment. 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. Further, the document found that project-related emissions are not anticipated to contribute significantly to any California Ambient Air Quality Standards (CAAQS) violations. Therefore, the proposed project is considered less than significant for ambient air quality impacts.

The SJVAPCD reviewed the HRA and AAQA and agreed with the document's findings that the health risks were less than significant. Impacts to air quality are anticipated to be less than significant.

Mitigation: None.

References: Application information; Referral response from the San Joaquin Valley Air Pollution Control District (SJVAPCD) dated July 21, 2021; Referral response to HRA from the SJVAPCD, dated June 23, 2022; Health Risk Assessment and Ambient Air Quality Analysis, prepared by Trinity Consultants, dated May 2022; San Joaquin Valley Air Pollution Control District - Regulation VIII Fugitive Dust/PM-10 Synopsis; www.valleyair.org; and the Stanislaus County General Plan and Support Documentation[1].

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

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

Discussion: The project is located within the Hatch Quad of the California Natural Diversity Database (CNDDB). There are five species of animals 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, tricolored blackbird, green sturgeon, steelhead, and western pond turtle. According to the CNDDB, none of the species have been sited within the project area; however, there is one documented sighting of the tricolored blackbird, approximately 2.6 miles southwest and a Swainsons hawk sighting 2.6 miles east of the project site. The entire project site is developed or disturbed in conjunction with routine farming practices.

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 Department of Fish and Wildlife's Natural Diversity Database spatial data for element occurrences; Stanislaus County General Plan and Support Documentation[1].

V. CULTURAL RESOURCES -- Would the project:	**Potentially Significant Impact**	**Less Than Significant With Mitigation Included**	**Less Than Significant Impact**	**No Impact**
a) Cause a substantial adverse change in the significance of a historical resource pursuant to in § 15064.5?			**X**	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?			**X**	
c) Disturb any human remains, including those interred outside of formal cemeteries?			**X**	

Discussion: 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 that this project will result in significant impacts to any archaeological or cultural resources. The project site is already developed, and the proposed construction is within the area which has already been disturbed. However, standard conditions of approval regarding the discovery of cultural resources during the construction process will be added to the 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 Included	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			**X**	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			**X**	

Discussion: The CEQA Guidelines Appendix F states that energy consuming equipment and processes, which will be used during construction or operation such as: energy requirements of the project by fuel type and end use, energy conservation equipment and design features, energy supplies that would serve the project, and total estimated daily vehicle trips to be generated by the project, and the additional energy consumed per trip by mode, 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.

This project requests to expand the herd from 1,095 mature cows (880 milk and 215 dry cows) to 2,200 mature cows (1,900 milk and 300 dry cows). The existing dairy facility is developed with areas for feed storage, waste containment, milking facility infrastructure, and utilities. Due to the proposed increase in animal units, the applicant is also proposing to construct four shade barns within the existing dairy production area footprints on the two project parcels, totaling 146,650 square feet. The existing facility is currently improved with 306,674± square feet of dairy facilities and approximately 26± acres of corrals, storage ponds, and feed storage. All construction activities shall be in compliance with all the San Joaquin Valley Air Pollution Control District (SJVAPCD) regulations and with Title 24, Green Building Code, which includes energy efficiency requirements.

Energy consuming equipment and processes include equipment, trucks, and the employee and customer vehicles. These activities 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. The dairy currently receives three visits for tallow and veterinary services every two weeks, and a combined total of four milk and feed truck trips per-day. The proposed request is expected to increase the number of feed truck trips from one to two per-day, and milk truck trips from three to six per-day for a new combined total of eight feed and milk truck trips per-day. Additionally, 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.

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.

Construction and operational emissions were analyzed with the California Emissions Estimator Model (CalEEMOD) as part of an Ambient Air Quality Analysis (AAQA), prepared by Trinity Consultants, dated May, 2022. 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 horse power, daily operating hours, and load factors were also used. Operational mobile sources include a diesel-fueled solids manure removal trucks, feed loading tractor, a bedding delivery tractor, and a feed delivery tractor. Other diesel-fueled sources that will not have an increase in usage as a result of the project are manure scraping tractors, milk tankers, and commodity delivery trucks. The actual total construction activities were estimated to be six 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.

Impacts to energy are considered to be less than significant.

Mitigation: None.

References: Application information; Referral response from the San Joaquin Valley Air Pollution Control District (SJVAPCD) dated July 21, 2021; Health Risk Assessment (HRA) and Ambient Air Quality Analysis (AAQA), prepared by Trinity Consultants, dated May 2022; San Joaquin Valley Air Pollution Control District - Regulation VIII Fugitive Dust/PM-10 Synopsis; www.valleyair.org; and the Stanislaus County General Plan and Support Documentation[1].

VII. GEOLOGY AND SOILS -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?			X	
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	

Discussion: The USDA Natural Resources Conservation Service's Eastern Stanislaus County Soil Survey indicates that the 66%± of the project site's soil is classified as being comprised Hilmar loamy sand, with 0 to 1 percent slopes which has a Storie Index Rating of 68 (Grade 2) and is rated Class 3w and 34%± Hilmar loamy sand slightly saline-alkali, with 0 to 1 percent slopes, which has a Storie Index Rating of 54 (Grade 3), and is rated Class 3w. As contained in Chapter 5 of the General Plan Support Documentation, the areas of the County subject to significant geologic hazard are located in the Diablo Range, west of Interstate 5; however, as per the California Building Code, all of Stanislaus County is located within a geologic hazard zone (Seismic Design Category D, E, or F) and a soils test may be required at building permit application. Results from the soils test will determine if unstable or expansive soils are present. If such soils are present, special engineering of the structure will be required to compensate for the soil deficiency. Any structures resulting from this project will be designed and built according to building standards appropriate to withstand shaking for the area in which they are constructed. An early consultation referral response received from the Department of Public Works indicated that a grading, drainage, and erosion/sediment control plan for the project will be required, subject to Public Works review and Standards and Specifications. The Department of Environmental Resources (DER) responded to the project requiring that any addition

or expansion of a septic tank or alternative waste water disposal system would require the approval of the DER through the building permit process, which also takes soil type into consideration within the specific design requirements.

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

DER, Public Works, and the Building Permits Division review and approve any building or grading permit to ensure their standards are met. Conditions of approval regarding these standards will be applied to the project. Impacts associated with geology and soils are considered to be less than significant.

Mitigation: None.

References: Application information; Referral response from the Department of Environmental Resources (DER), dated August 11, 2021; Referral response from the Stanislaus County Department of Public Works dated July 27, 2021; Stanislaus County General Plan and Support Documentation[1].

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

Discussion: This project requests to expand the herd from 1,095 mature cows (880 milk and 215 dry cows) to 2,200 mature cows (1,900 milk and 300 dry cows). The existing dairy facility is developed with areas for feed storage, waste containment, milking facility infrastructure, and utilities. Due to the proposed increase in animal units, the applicant is also proposing to construct four shade barns within the existing dairy production area footprints on the two project parcels, totaling 146,650 square-feet. The existing facility is currently improved with 306,674± square feet of dairy facilities and approximately 26± acres of corrals, storage ponds, and feed storage. The applicant anticipates increasing employees by one for a total of six employees on a maximum shift. The proposed request is expected to increase the number of feed truck trips from one to two per-day, and milk truck trips from three to six per-day for a new combined total of eight feed and milk truck trips per-day. However, the project is not expected to exceed a total of 110 vehicle trips per-day.

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, SB350 and SB32, were passed in 2015 further amending the states Renewables Portfolio Standard (RPS) for electrical generation and amending the reduction targets to 40% of 1990 levels by 2030.

Under its mandate to provide local agencies with assistance in complying with CEQA in climate change matters, the SJVAPCD developed its Guidance for Valley Land-Use Agencies in Addressing GHG Emissions Impacts for New Projects under CEQA. As a general principal to be applied in determining whether a proposed project would be deemed to have a less-than significant impact on global climate change, a project must be in compliance with an approved GHG emission reduction plan that is supported by a CEQA-compliant environmental document or be determined to have reduced or mitigated GHG emissions by 29 percent relative to Business-As-Usual conditions, consistent with GHG emission reduction targets established in ARB's Scoping Plan for AB 32 implementation. The SJVAPCD guidance is intended to streamline the process of determining if project specific GHG emissions would have a significant effect. The proposed approach relies on the use of performance-based standards and their associated pre-quantified GHG emission reduction effectiveness (Best Performance Standards, or BPS). Establishing BPS is intended to help project proponents, lead agencies, and the

public by proactively identifying effective, feasible mitigation measures. Emission reductions achieved through implementation of BPS would be pre-quantified, thus reducing the need for project specific quantification of GHG emissions.

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.

Construction and operational emissions were analyzed with the California Emissions Estimator Model (CalEEMOD), by Trinity Consultants, dated May 2022. 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. Operational mobile sources include a diesel-fueled solids manure removal trucks, feed loading tractor, a bedding delivery tractor, and a feed delivery tractor. Other diesel-fueled sources that will not have an increase in usage as a result of the project are manure scraping tractors, milk tankers, and commodity delivery trucks. The actual total construction activities were estimated to be six 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 Air District response also indicated that the project is subject to District Rule 2010 (Permits Required) and Rule 2201 (New and Modified Stationary Source Review). 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). In the event an existing building will be renovated, partially demolished or removed, the project may be subject to District Rule 4002 (National Emission Standards for Hazardous Air Pollutants). The 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) permitting process.

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 greenhouse gas emissions from new construction. The Code includes provisions to reduce water use, wastewater generation, and solid waste generation. It is the intent of the CALGreen Code that buildings constructed pursuant to the Code achieve at least a 15 percent reduction in energy usage when compared to the state's mandatory energy efficiency standards contained in Title 24. The Code also sets limits on VOCs (volatile organic compounds) and formaldehyde content of various building materials, architectural coatings, and adhesives. With the requirements of meeting the Title 24, Green Building Code energy impacts from the project are considered to be less-than significant. A development standard will be added to this project to address compliance with Title 24, Green Building Code, which includes energy efficiency requirements.

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

Mitigation: None.

References: Application information; Referral response from the San Joaquin Valley Air Pollution Control District (SJVAPCD) dated July 21, 2021; Health Risk Assessment (HRA) and Ambient Air Quality Analysis (AAQA), prepared by Trinity Consultants, dated May 2022; San Joaquin Valley Air Pollution Control District - Regulation VIII Fugitive Dust/PM-10 Synopsis; www.valleyair.org; and the Stanislaus County General Plan and Support Documentation[1].

IX. HAZARDS AND HAZARDOUS MATERIALS -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			**X**	

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			**X**	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			**X**	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			**X**	
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?			**X**	
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			**X**	
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			**X**	

Discussion: The County Department of Environmental Resources (DER) is responsible for overseeing hazardous materials. According to the Waste Management Plan (WMP), the following chemicals are utilized during the milking process: 250 gallons of iodine/teat dip, 75 gallons of acid, and 150 gallons of CIP detergent per year. 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. This project was referred to the Department of Environmental Resources – Hazardous Materials Division who responded that the applicant should contact DER for any appropriate permitting requirements for hazardous materials and/or wastes. 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 were reviewed by the Central Valley Regional Water Quality Control Board (CVRWQCB). The proposed use is otherwise not recognized as a generator and/or consumer of hazardous materials, therefore no significant impacts associated with hazards or hazardous materials are anticipated to occur as a result of the proposed project.

The project site is not listed on the EnviroStor database managed by the CA Department of Toxic Substances Control or within the vicinity of any 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 was referred to the District, and no comments have been received to date. The project was referred to the Environmental Review Committee (ERC), which responded with no comments. 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; Department of Toxic Substances Control's data management system (EnviroStar); Referral response from Stanislaus County Environmental Review Committee, dated July 16, 2021; Referral response from the Department of Environmental Resources Hazardous Materials Division, dated July 14, 2021; Stanislaus County General Plan and Support Documentation[1].

X. HYDROLOGY AND WATER QUALITY -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?		X		
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:			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 number of combined milk and dry cows from 1,095 mature cows (880 milk and 215 dry cows) to 2,200 mature cows (1,900 milk and 300 dry cows); and to increase support stock numbers by 1,015, from 885 to 1,900 heifers. The proposed support stock will consist of 600 heifers, 15-24 months old; 600 heifers, 7-14 months; 350 calves, 4-6 months old; and 350 calves, 0-3 months. The total number of animal units is to increase by 2,120. 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 were reviewed by 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 85,543 gallons per-day under normal precipitation. The existing and required storage capacities were calculated to be 10,588,324 and 10,415,722 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. Initially, CVRWQCB provided correspondence dated July 23, 2021 stating the plans were adequate provided that the operator closely follows both plans considering the NMP relies heavily on exports and following specific cropping patterns, and the WMP requires that all lagoons on-site be lowered substantially prior to the 120-day storage period/wet winter months.

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 is 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) 2021, nitrate concentrations ranged from ND to 159 mg/L. In total, 92 wells (28.9% of all wells) had baseline values that are greater than the 10 mg/L MT, and the maximum nitrate concentration was measured during WY 2021 for 52 of these wells. The average of all nitrate baseline values was 11.7 mg/L, and the median was 7.5 mg/L. Elevated nitrate concentrations are observed primarily in the Western Principal Aquifers and in the western portion of the Eastern Principal Aquifer. Of the 198 wells in the Western Principal Aquifers, 70 have baseline values greater than the MT. Of the 166 wells in the Eastern Principal Aquifer, 65 have a baseline value greater than the MT. Higher concentrations were reported in the Western Upper Principal Aquifer than the Western Lower Principal Aquifer.

An email provided by CVRWQCB dated February 18, 2022 stated the NMP is in agreement with the current Dairy General Order; however, 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. CVRWQCB is placing the review of all NMP & 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, compliance with the permit requirements to protect surface waters and groundwater from salts in wastewater, in conformance with the Central Valley Regional Water Quality Control Board's (CVRWQCB) Resolution R5-2018-0034, enrollment in the Central Valley Dairy Representative Monitoring Program (CVDRMP) to meet the requirements for groundwater monitoring, and well monitoring. With mitigation in place impacts to hydrology and water quality are considered to be less than significant.

The project site utilizes two existing wells and a storage tank for domestic water and irrigation purposes and irrigates with water from TID. The project does not currently propose to add a new well for domestic water purposes. However, should the applicant need to install a well in the future for operational or domestic water supply purposes, then the future well would

need to be evaluated to determine if it meets Public Water Supply standards. The California Safe Drinking Water Act (CA Health and Safety Code Section 116275(h)) defines a Public Water System as a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year. A public water system includes the following:

1. Any collection, treatment, storage, and distribution facilities under control of the operator of the system that are used primarily in connection with the system.

2. Any collection or pretreatment storage facilities not under the control of the operator that are used primarily in connection with the system.

3. Any water system that treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption.

DER regulates the issuance of new well permits; State law and County standards regulate public water systems and require the site to bring the existing nonconforming water system into compliance with current standards. As part of the well permitting process for a future well, the applicant will be required to submit an application and the associated technical report to DER for a public water supply permit. Groundwater extraction is subject to compliance with the West Turlock Sub-basin Groundwater Sustainability Agency's Groundwater Sustainability Management Plan when it is adopted in 2022.

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 construction and operation of wells could potentially cause degradation of water quality due to cross connection of aquifers of varying quality or induced migration of groundwater with intended to address these eventualities

To implement the 2014 Stanislaus County Groundwater Ordinance (Chapter 9.37 of the Stanislaus County Code), the County has developed its' Discretionary Well Permitting and Management Program to prevent the unsustainable extraction from new wells subject to the Stanislaus County Groundwater Ordinance. If new wells are proposed to be constructed in the future, the applicant will need to obtain a drilling permit as required by State and County regulations, to be obtained prior to the construction of new wells if proposed in future. The West Turlock Groundwater Sustainability Agency covers the western portion of the Turlock Groundwater Sub- basin, and in conjunction with the East Turlock Groundwater Sustainability Agency, is tasked with ensuring compliance with the Sustainable Groundwater Management Act (SGMA) through a Groundwater Sustainability Plan to be adopted in 2022. The existing wells are not anticipated to have a significant effect on groundwater supplies.

The water quality of the existing well has yet to be determined. If the existing on-site wells do not meet public water system standards the applicant may find it necessary to drill a new well. If the new well is proposed in the future and it does not meet Public Water System standards the applicant may need to either drill an additional well or install a water treatment system for the existing or proposed wells. Goal Two, Policy Seven, of the Stanislaus County General Plan's Conservation/Open Space Element requires that new development that does not derive domestic water from pre- existing domestic and public water supply systems be required to have a documented water supply that does not adversely impact Stanislaus County water resources. This Policy is implemented by requiring proposals for development that will be served by new water supply systems be referred to appropriate water districts, irrigation districts, community services districts, the State Water Resources Board and any other appropriate agencies for review and comment. Additionally, all development requests shall be reviewed to ensure that sufficient evidence has been provided to document the existence of a water supply sufficient to meet the short and long-term water needs of the project without adversely impacting the quality and quantity of existing local water resources.

If a new well is proposed to be drilled the project may be required to provide additional information regarding sustainable groundwater extraction pursuant to the Groundwater Ordinance and CEQA determinations. If the applicant is required to install a water treatment system, it will be required to be approved by the Regional Water Quality Control Board and the Department of Environmental Resources. Regardless of which avenue the applicant takes to meet public water system standards, public water supply permits require on-going testing.

The Sustainable Groundwater Management Act (SGMA) was passed in 2014 with the goal of ensuring the long-term sustainable management of California's groundwater resources. SGMA requires agencies throughout California to meet certain requirements including forming Groundwater Sustainability Agencies (GSA), developing Groundwater Sustainability Plans (GSP), and achieving balanced groundwater levels within 20 years. The site is located in the West Turlock Subbasin covered by the West Turlock Subbasin GSA. The West Turlock Subbasin GSA (consisting of 12 public agencies) and the East Turlock Subbasin GSA (five agencies) are jointly developing a single GSP to manage groundwater sustainably through at least 2042. The West Turlock Subbasin Groundwater Sustainability Agency (GSA) and the East Turlock Subbasin GSA submitted the Groundwater Sustainability Plan (GSP) to California's Department of Water Resources (DWR) on January 28, 2022. DWR has posted the final GSP on its website and is in the process of adopting the final plan. The GSAs jointly prepared this first annual report for the Turlock Subbasin addressing groundwater and surface water conditions during Water Year (WY) 2021 and submitted the report to DWR. Total groundwater extractions in the Turlock Subbasin during WY 2021 were approximately 557,200 AFY. This total is based on both direct measurements by local water agencies and estimates. During WY 2021, agricultural groundwater extraction accounts for 92% (513,800 AFY) of the total pumping in the Turlock Subbasin, while urban groundwater extraction accounts for the remaining 8% (43,400 AFY). The proposed dairy expansion would be subject to the requirements of the GSP for the region, when adopted, which would further minimize impacts to groundwater supplies.

Areas subject to flooding have been identified in accordance with the Federal Emergency Management Act (FEMA). Run-off is not considered an issue because of several factors which limit the potential impact. These factors include a relative flat terrain of the subject site and relatively low rainfall intensities. Areas subject to flooding have been identified in accordance with the Federal Emergency Management Act (FEMA). The project site is located in FEMA Flood Zone X, which includes areas determined to be outside the 0.2% annual chance floodplains. As such, flooding is not considered to be an issue with respect to this project. Flood zone requirements will be addressed by the Building Permits Division during the building permit application process. The Stanislaus County Department of Public Works has reviewed the project and is requiring a grading, drainage, and erosion/sediment control plan 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.

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 6 inches high and 6 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 10 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).

2. The applicant shall comply with requirements of the approved Nutrient Management Plan (NMP) and Waste Management Plan (WMP) and implement Central Valley Regional Water Quality Control Board (CVRWQCB) requirements included in the individual Waste Discharge Requirements (WDR) for the proposed expansion. The application rates of liquid and/or solid manure identified within the NMP shall not exceed agronomic rates. 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.

3. The applicant shall comply with the permit requirements to protect surface waters and groundwater from salts in wastewater, in conformance with the Central Valley Regional Water Quality Control Board's (CVRWQCB) Resolution R5-2018-0034.

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

5. Groundwater monitoring of the on-site domestic and irrigation wells as required under the General Order and individual Waste Discharge Requirements (WDR) shall be completed by the dairy operator. Potential future groundwater monitoring wells may be sampled as required by the WDR or depending on the success of the regional representative monitoring program. A well monitoring schedule shall be incorporated into the WDR issued for the facility.

6. After project implementation and subsequent groundwater monitoring, if the dairy shows increased concentration in groundwater of constituents of concern, additional manure exportation, a reduction in herd size, or additional crop acres may be necessary to accommodate the proposed expansion. A new Report of Waste Discharge (ROWD) may be required by the Central Valley Regional Water Quality Control Board (CVRWQCB). The ROWD shall clearly demonstrate that the herd size will not constitute a threat to groundwater quality. If necessary, the CVRWQCB shall revise the WDR issued to the facility.

References: Application information; Referral response from the Department of Public Works, July 27, 2021**;** Referral response from the Department of Environmental Resources, dated August 11, 2021; Referral response from the Environmental Review Committee, dated July 16, 2021; Referral response from the Central Valley Regional Water Quality Control Board, dated July 23, 2021; West Turlock Subbasin and East Turlock Subbasin Groundwater Sustainability Agencies Turlock Subbasin Groundwater Sustainability Plan First Annual Report Water Year 2021; Email from the Central Valley Regional Water Quality Control Board, dated February 18, 2022; Valley Water Collaborative Interactive Ambient Nitrate Map; Stanislaus County General Plan and Support Documentation[1].

XI. LAND USE AND PLANNING -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Physically divide an established community?			**X**	
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?			**X**	

Discussion: The project site is designated Agriculture in the Stanislaus County General Plan and is zoned General Agriculture (A-2-40). The project proposes to expand an existing dairy facility, operating on two parcels totaling 124± acres, in the General Agriculture (A-2-40) zoning district, by expanding the herd from 1,095 mature cows (880 milk and 215 dry cows) to 2,200 mature cows (1,900 milk and 300 dry cows); and to increase support stock numbers by 1,015, from 885 to 1,900 heifers. The proposed support stock will consist of 600 heifers, 15-24 months old; 600 heifers, 7-14 months; 350 calves, 4-6 months old; and 350 calves, 0-3 months. The total number of animal units is to increase by 2,120. Consequently, additional waste will be generated. The dairy's existing Waste Management plan (WMP) and Nutrient Management Plan (NMP) were revised to account for the increase in waste and resulting storage and disposal needs associated with the increase in herd size. The updated WMP estimates that the expansion will increase the daily manure production by 3,135 cubic feet, for a total of 5,889 cubic feet of manure per day, which equates to approximately 10,588,324 gallons and 1,415,453 cubic feet of manure per year (pre-separation). The estimated wastewater storage needs will be accommodated by the existing capacity of the on-site lagoons.

The existing dairy facility is developed with areas for feed storage, waste containment, milking facility infrastructure, and utilities. Due to the proposed increase in animal units, the applicant is also proposing to construct four shade barns within the existing dairy production area footprints on the two project parcels, totaling 146,650 square-feet. The existing facility is currently improved with 306,674± square feet of dairy facilities and approximately 26± acres of corrals, storage ponds, and feed storage. Confined Animal Facilities (CAF), which include dairies, are considered to be permitted agricultural uses; however, the Regional Water Quality Control Board (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 Section 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 site is served by an on-site domestic well and private septic system. The attached Waste Management Plan (WMP) and Nutrient Management Plan (NMP) provide details on managing the expanded dairy cow stock. The nutrients produced by the herd will be utilized to fertilize on-site and surrounding farmable acres of irrigated cropland.

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 was referred to the Department of Conservation, and no response has been received to date. This request will not physically divide an established community, nor conflict with any habitat conservation plans. Impacts associated with land use and planning and considered to be less than significant.

Mitigation: None.

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

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

Discussion: The location of all commercially viable mineral resources in Stanislaus County has been mapped by the State Division of Mines and Geology in Special Report 173. 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: Application information; Stanislaus County General Plan and Support Documentation[1].

XIII. NOISE -- Would the project result in:	**Potentially Significant Impact**	**Less Than Significant With Mitigation Included**	**Less Than Significant Impact**	**No Impact**
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			**X**	
b) Generation of excessive 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. Noise impacts associated with on-site activities and traffic are not anticipated to exceed the normally acceptable level of noise. 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 Elaine Road, Ehrlich Road and South Faith Home Road 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 Included**	**Less Than Significant Impact**	**No Impact**
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			**X**	
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?			**X**	

Discussion: The site is not included in the vacant sites inventory for the 2016 Stanislaus County Housing Element, which covers the 5th cycle Regional Housing Needs Allocation (RHNA) for the county and will therefore not impact the County's ability to meet their RHNA. No population growth will be induced, nor will any existing housing be displaced as a result of this project. The project site is adjacent to large scale agricultural operations, and the nature of the use is considered consistent with the General Agriculture (A-2) zoning district.

The Department of Environmental Resources addresses housing standards, who responded that the Facility is subjected to the California Employee Housing Act and an Employee Housing Permit will be required for all facilities providing living accommodations for 5 employees or more. Septic and water requirements shall be met prior to Employee Housing permit process, if applicable, pursuant to Health & Safety Code Section 17008. Should any new employee housing be proposed in the future, it will be evaluated to determine which permits are necessary or if environmental review is required. The provisions of the California Building Standards Code (Title 24) govern the construction of permanent buildings used for employee housing. Additionally, Title 25 of the California Code of Regulations includes specific requirements for the construction of housing, maintenance of grounds and buildings, minimum allowable sleeping space and facilities, sanitation,

and heating. These comments will be applied as conditions of approval. Impacts to population and housing are considered to be less than significant.

Mitigation: None.

References: Application information; Referral response from the Department of Environmental Resources, dated August 11, 2021; Stanislaus County General Plan and Support Documentation[1].

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

Discussion: The project site is served by the Mountain View Fire District for fire protection services, the Stanislaus County Sherriff for police services, the Chatom Union and Turlock Unified School Districts for schools, by the Turlock Irrigation District (TID) for electrical services, and by Stanislaus County for other public services such as environmental health, roads, and parks services. 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, as well as the Stanislaus County Environmental Review Committee (ERC), which includes the Sheriff's Department. This project was circulated to all applicable school, fire, police, irrigation, and public works departments and districts during the early consultation referral period and no concerns regarding impacts to County services were identified. The Turlock Irrigation District responded with no comments regarding irrigation or electrical facilities. A referral response received from the Department of Public Works indicated that a grading, drainage, and erosion/sediment control plan for the project shall be submitted prior to the herd increase or issuance of any grading or building permit, an encroachment permit shall be required for the unpaved driveways, and a Storm Water Pollution Prevention Plan (SWPPP) will be required for future construction. Public Works also requested road dedication be provided for the half-width of Elaine and Faith Home Roads. These comments will be applied as conditions of approval. Impacts to Public Services are considered to be less than significant.

Mitigation: None.

References: Application information; Referral response from the Department of Public Works, dated July 27, 2021; Referral response from the Turlock Irrigation District, dated July 21, 2022; Referral response from Stanislaus County Environmental Review Committee, dated July 16, 2021; Stanislaus County General Plan and Support Documentation[1].

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

Discussion: The project site is served by Stanislaus County for parks services. This project will not increase demands for recreational facilities, as such impacts typically are associated with residential development. Non-residential development pays parks fees through the payment of public facilities fees, which are collected during the issuance of a building permit. This requirement will be incorporated into the project as a development standard.

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

Discussion: The site takes access off County-maintained Elaine Road, a 60-foot-wide local, and off County-maintained South Faith Home Road, an 80-foot-wide major collector, via one driveway each.

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. The applicant does not anticipate any customers on-site. The dairy currently receives three visits for tallow and veterinary services every two weeks, and a combined total of four milk and feed truck trips per-day. The proposed request is expected to increase the number of feed truck trips from one to two per-day, and milk truck trips from three to six per-day for a new combined total of eight feed and milk truck trips per-day. The VMT increase associated with the proposed project is less-than significant as the number of vehicle trips will not exceed 110 per-day.

It is not anticipated that the project would substantially affect the level of service on Elaine Road or South Faith Home Road. 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.

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 from the Department of Public Works, dated July 27, 2021; Stanislaus County General Plan and Support Documentation[1].

XVIII. TRIBAL CULTURAL RESOURCES -- Would the project:	**Potentially Significant Impact**	**Less Than Significant With Mitigation Included**	**Less Than Significant Impact**	**No Impact**
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 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:				
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. The project site is already improved with multiple buildings. In accordance with SB 18 and AB 52, 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 and no tribes have requested consultation or project referral noticing. While the site is already developed, if any resources are found during future construction, construction activities would halt until a qualified survey takes place and the appropriate authorities are notified.

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 Included	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			X	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

Discussion: Limitations on providing services have not been identified. The project proposes to utilize an existing well and existing septic facilities. The project site is served by the Turlock Irrigation District (TID) for electrical services and Kamps Propane Service for natural gas. Any intensity of these utilities will be subject to any regulatory requirements during the building permitting phase. A referral response received from the Department of Public Works indicated that a grading, drainage, and erosion/sediment control plan for the project shall be submitted prior to the issuance any building permit. A Storm Water Pollution Prevention Plan (SWPPP) will be required for future construction prior to the approval of any grading. TID responded stating they had no comments. The project was also referred to PG&E and AT&T and no response has been received to date.

No new wells or septic systems are proposed for this expansion; The project was referred to DER, who responded that any new building permit or installation of any future wells or septic systems must be reviewed and approved by the Department of Environmental Resources (DER) and must adhere to current Local Agency Management Program (LAMP) standards. LAMP standards include minimum setbacks from wells to prevent negative impacts to groundwater quality. DER also commented that if a new well is proposed to be drilled it will be subject to review under the County's Groundwater Ordinance, 9.37 and, subject to review of such additional information, the project may be required to provide additional information regarding sustainable groundwater extraction pursuant to the Groundwater Ordinance and CEQA determinations. The California Safe Drinking Water Act (CA Health and Safety Code Section 116275(h)) defines a Public Water System as a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year. A public water system includes the following:

1) Any collection, treatment, storage, and distribution facilities under control of the operator of the system that are used primarily in connection with the system.
2) Any collection or pretreatment storage facilities not under the control of the operator that are used primarily in connection with the system.
3) Any water system that treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption.

No comments were received regarding wastewater. The project was also referred to the Environmental Review Committee who responded with no comment. The project site also utilizes an existing on-site basin for the capture of stormwater runoff.

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

Mitigation: None.

References: Referral response from Public Works, dated July 27, 2021; Referral response from the Turlock Irrigation District, dated July 21, 2022; Referral response from DER, dated August 11, 2021 and e-mail correspondence dated July 8, 2021; Referral response from the Environmental Review Committee, dated July 16, 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 Included	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?			X	
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?			X	
c) Require the installation of maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?			X	
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?			X	

Discussion: The 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 City and 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 four shade barns within the existing dairy production area footprints on the two project parcels, totaling 146,650 square feet 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 Material; 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 Included	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X	
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

Discussion: The proposed use is considered to be a permitted agricultural use. Discretionary approval is required for the expansion of the dairy to allow for amendments to the operation's Waste Discharge Requirements. The site is surrounded by A-2-40 zoned parcels improved with agricultural uses, including confined animal facilities, irrigated cropland, and scattered single-family dwellings in all directions. The City of Turlock is located approximately 3 miles northeast of the project site and the County of Merced is located directly to the south of the project site. 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 are restricted by Williamson Act Contracts and are limited to the uses found to be compatible with the Williamson Act. Any uses beyond those 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 which would take into consideration impacts from the loss of farmland and the potential for farmland conversion and cumulative impacts to the surrounding area. 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 April 5, 2016.

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

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

August 05, 2022

1. Project title and location:	Use Permit Application No. PLN2021-0030-Silva's Holsteins Dairy 6706 Elaine Road and 6612 South Faith Home Road, between Ehrlich Road and the Merced County border, in the Turlock area. (APNs: 057-013-019, 057-022-012).
2. Project Applicant name and address:	Adrian Silva and Manuel Silva 6706 Elaine Road Turlock, CA 95380
3. Person Responsible for Implementing Mitigation Program (Applicant Representative):	Adrian Silva, Silva's Holsteins Dairy
4. Contact person at County:	Avleen K. Aujla, Assistant 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 Three, Division Two, Chapter One, 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 6 inches high and 6 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 10 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).

Who Implements the Measure:	Applicant/Property Owner
When should the measure be implemented:	Prior to issuance of a grading or building permit
When should it be completed:	Prior to final inspection of a building permit
Who verifies compliance:	Stanislaus County Department of Planning and Community Development
Other Responsible Agencies:	None

No.2 Mitigation Measure: The applicant shall comply with requirements of the approved Nutrient Management Plan (NMP) and Waste Management Plan (WMP) and implement Central Valley Regional Water Quality Control Board (CVRWQCB) requirements included in the individual Waste Discharge Requirements (WDR) for the proposed expansion. The application rates of liquid and/or solid manure identified within the NMP shall not exceed agronomic rates. 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.

Who Implements the Measure:	Applicant/Property Owner
When should the measure be implemented:	Prior to issuance of a grading or building permit
When should it be completed:	Ongoing
Who verifies compliance:	Stanislaus County Department of Planning and Community Development
Other Responsible Agencies:	Central Valley Regional Water Quality Control Board

No.3 Mitigation Measure: The applicant shall comply with the permit requirements to protect surface waters and groundwater from salts in wastewater, in conformance with the Central Valley Regional Water Quality Control Board's (CVRWQCB) Resolution R5-2018-0034.

Who Implements the Measure:	Applicant/Property Owner
When should the measure be implemented:	Prior to issuance of a grading or building permit
When should it be completed:	Ongoing
Who verifies compliance:	Stanislaus County Department of Planning and Community Development
Other Responsible Agencies:	Central Valley Regional Water Quality Control Board; Stanislaus County Department of

Environmental Resources (DER)

No.4 Mitigation Measure: The applicant shall enroll in the Central Valley Dairy Representative Monitoring Program (CVDRMP) to meet the requirements for groundwater monitoring.

Who Implements the Measure:	Applicant/Property Owner
When should the measure be implemented:	Prior to issuance of a grading or building permit
When should it be completed:	Prior to onset of any ground disturbing activities
Who verifies compliance:	Stanislaus County Department of Planning and Community Development
Other Responsible Agencies:	Central Valley Dairy Representative Monitoring Program

No.5 Mitigation Measure: Groundwater monitoring of the on-site domestic and irrigation wells as required under the General Order and individual Waste Discharge Requirements (WDR) shall be completed by the dairy operator. Potential future groundwater monitoring wells may be sampled as required by the WDR or depending on the success of the regional representative monitoring program. A well monitoring schedule shall be incorporated into the WDR issued for the facility.

Who Implements the Measure:	Applicant/Property Owner
When should the measure be implemented:	After issuance of the WDR, if required
When should it be completed:	Ongoing
Who verifies compliance:	Stanislaus County Department of Planning and Community Development
Other Responsible Agencies:	Central Valley Regional Water Quality Control Board; Stanislaus County Department of Environmental Resources (DER)

No.6 Mitigation Measure: After project implementation and subsequent groundwater monitoring, if the dairy shows increased concentration in groundwater of constituents of concern, additional manure exportation, a reduction in herd size, or additional crop acres may be necessary to accommodate the proposed expansion. A new Report of Waste Discharge (ROWD) may be required by the Central Valley Regional Water Quality Control Board (CVRWQCB). The ROWD shall clearly demonstrate that the herd size will not constitute a threat to groundwater quality. If necessary, the CVRWQCB shall revise the WDR issued to the facility.

Who Implements the Measure:	Applicant/Property Owner
When should the measure be implemented:	In the event groundwater monitoring shows increased concentration in groundwater of constituents of concern

Who verifies compliance:	Stanislaus County Department of Planning and Community Development
Other Responsible Agencies:	Central Valley Regional Water Quality Control Board; Stanislaus County Department of Environmental Resources (DER)

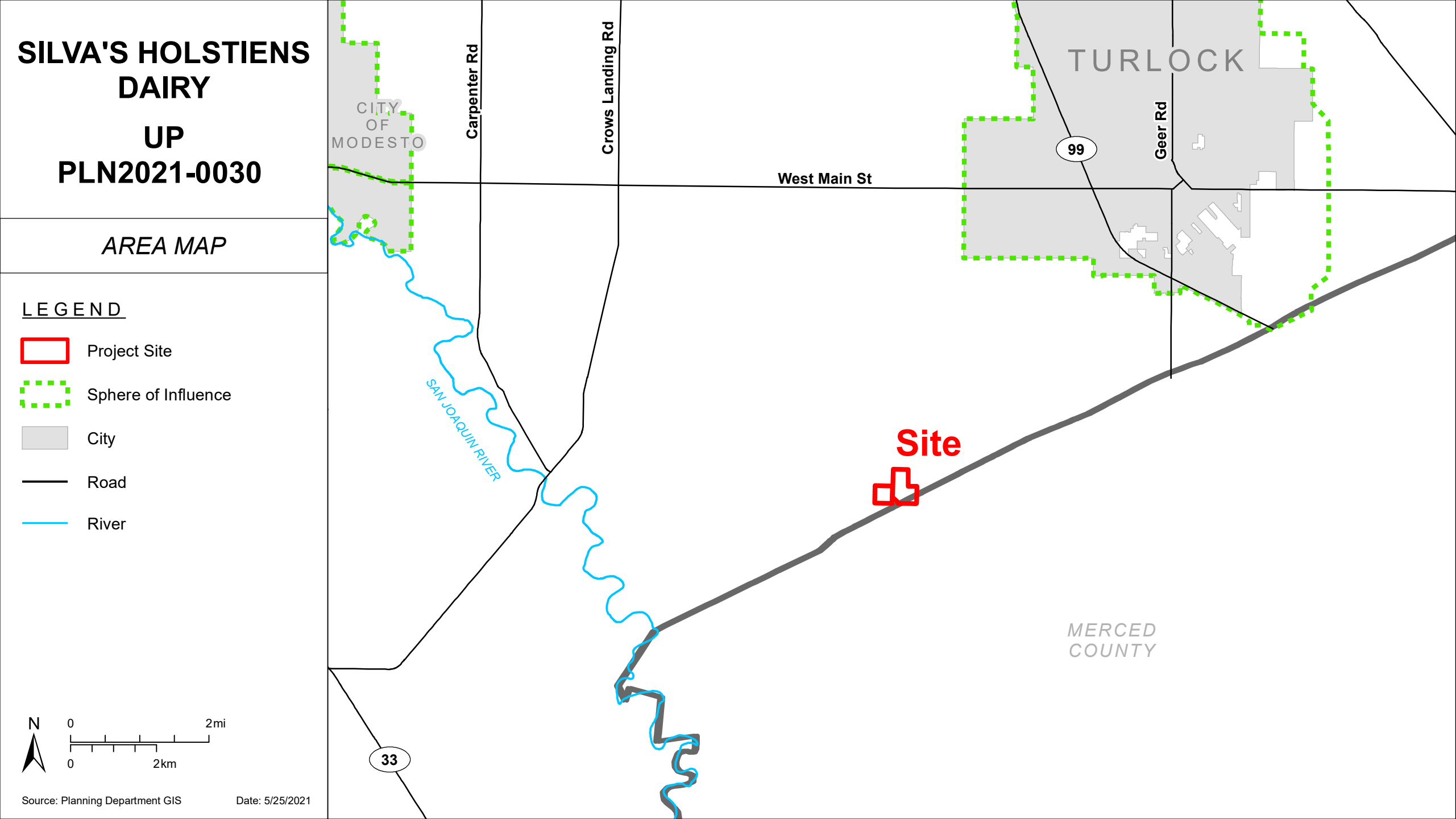
I, the undersigned, do hereby certify that I understand and agree to be responsible for implementing the Mitigation Program for the above listed project.

Signature on file	August 5, 2022
Person Responsible for Implementing Mitigation Program	Date

SILVA'S HOLSTIENS DAIRY

UP PLN2021-0030

AREA MAP



SILVA'S HOLSTIENS DAIRY

UP PLN2021-0030

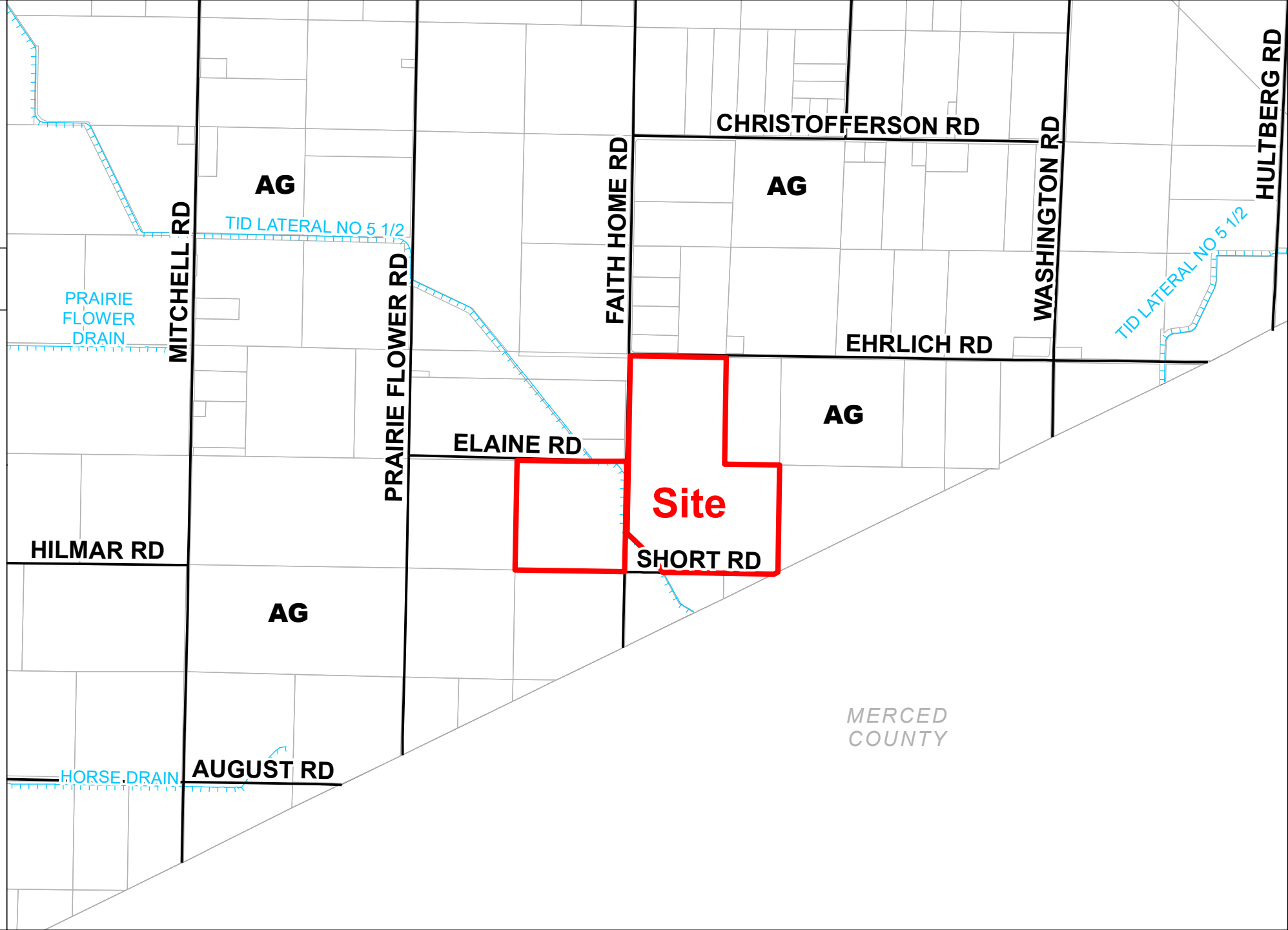
GENERAL PLAN MAP

LEGEND

- Project Site
- Parcel
- Road
- Canal

General Plan

- Agriculture



N

0 1,500 ft

0 300 m

Source: Planning Department GIS

Date: 5/25/2021

SILVA'S HOLSTIENS DAIRY

UP PLN2021-0030

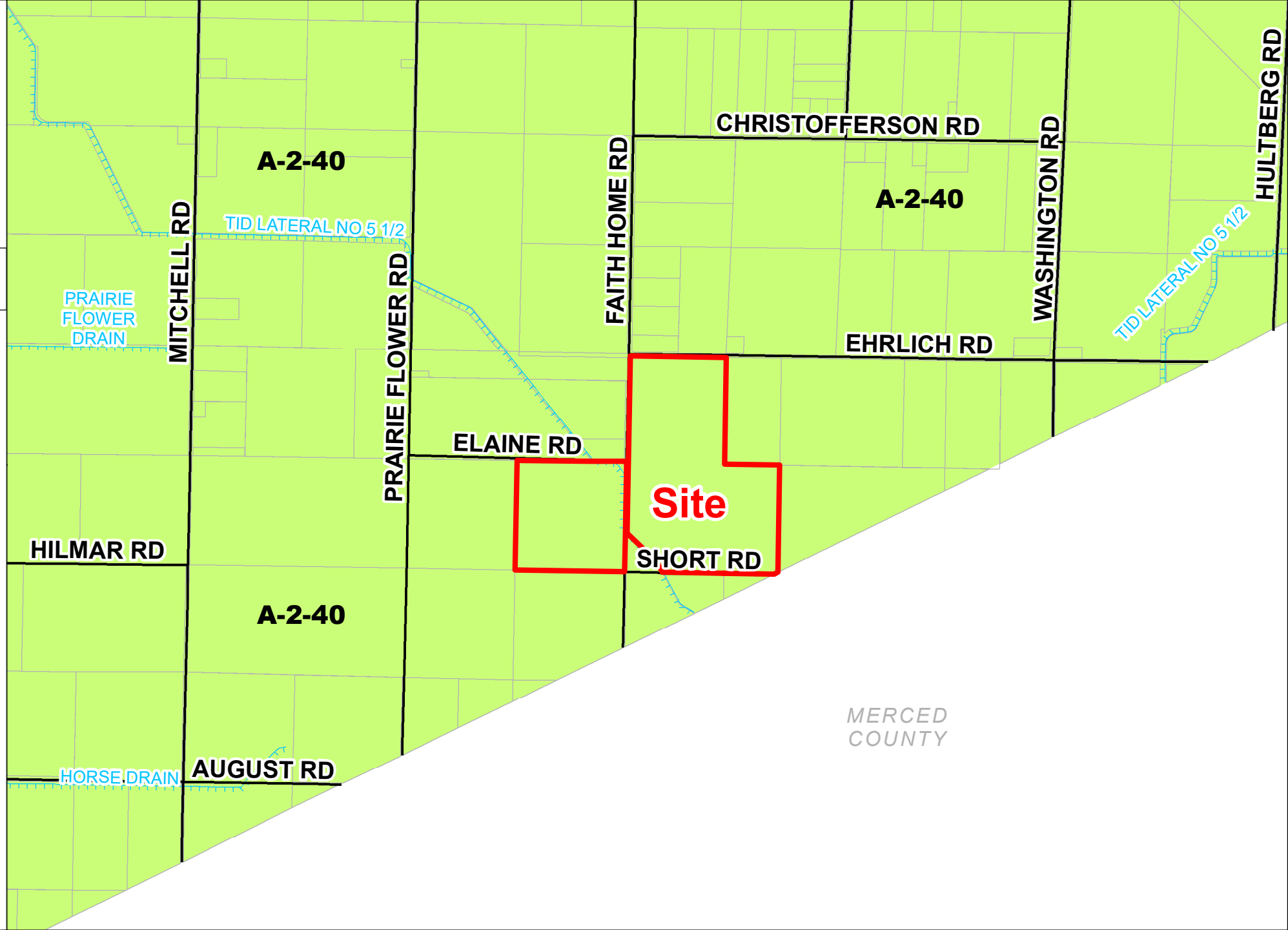
ZONING MAP

LEGEND

- Project Site
- Parcel
- Road
- Canal

Zoning Designation

- General Agriculture 40 Acre



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0 1,500 ft

0 300 m

Source: Planning Department GIS

Date: 5/25/2021

SILVA'S HOLSTIENS DAIRY

UP PLN2021-0030

2017 AERIAL AREA MAP

LEGEND

- Project Site
- Road
- Canal

N

0 1,500 ft

0 300 m

Source: Planning Department GIS

Date: 5/25/2021

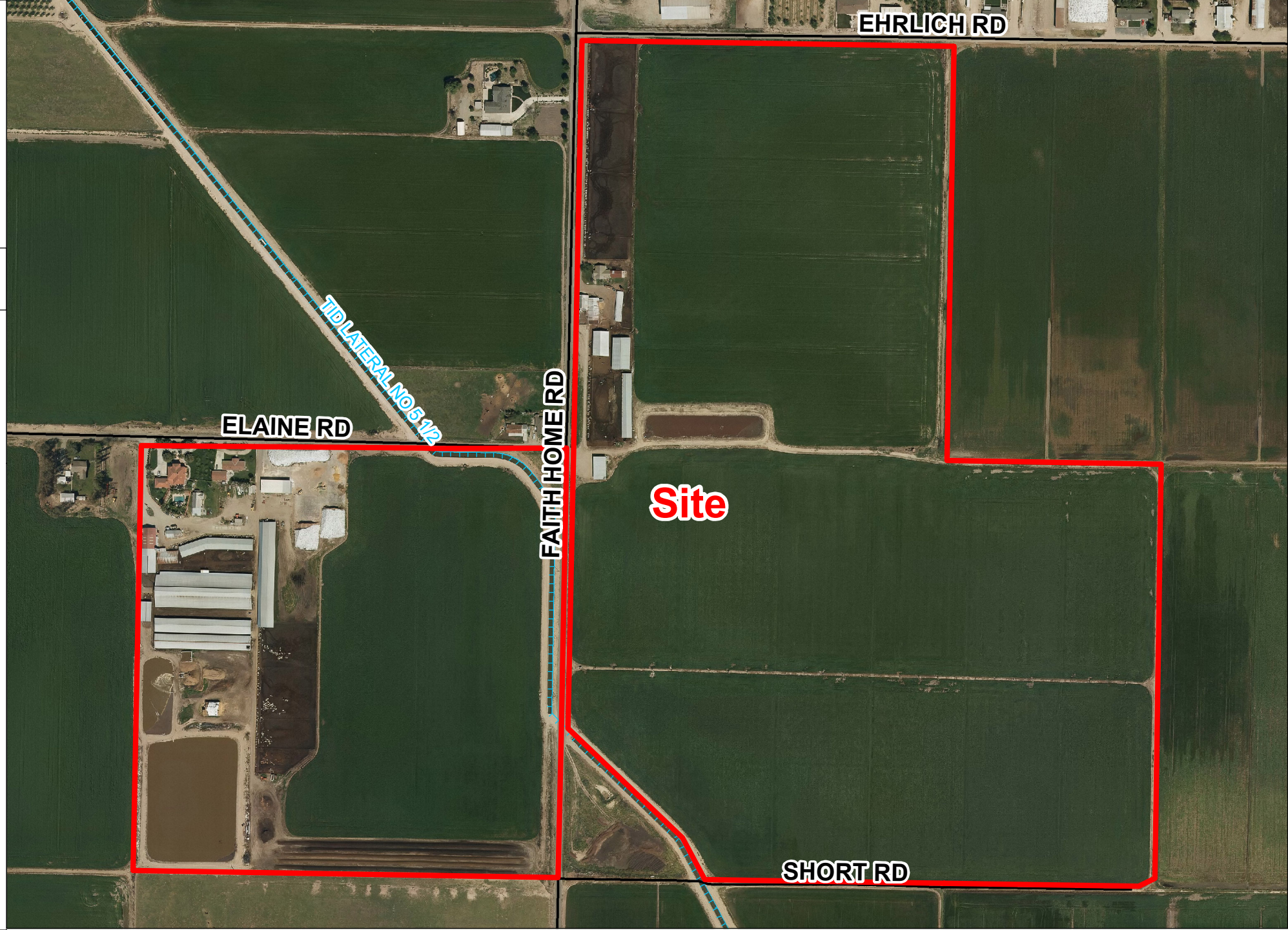
SILVA'S HOLSTIENS DAIRY

UP PLN2021-0030

2017 AERIAL SITE MAP

LEGEND

- Project Site
- Road
- Canal



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0 400 ft

0 100 m

Source: Planning Department GIS

Date: 5/25/2021

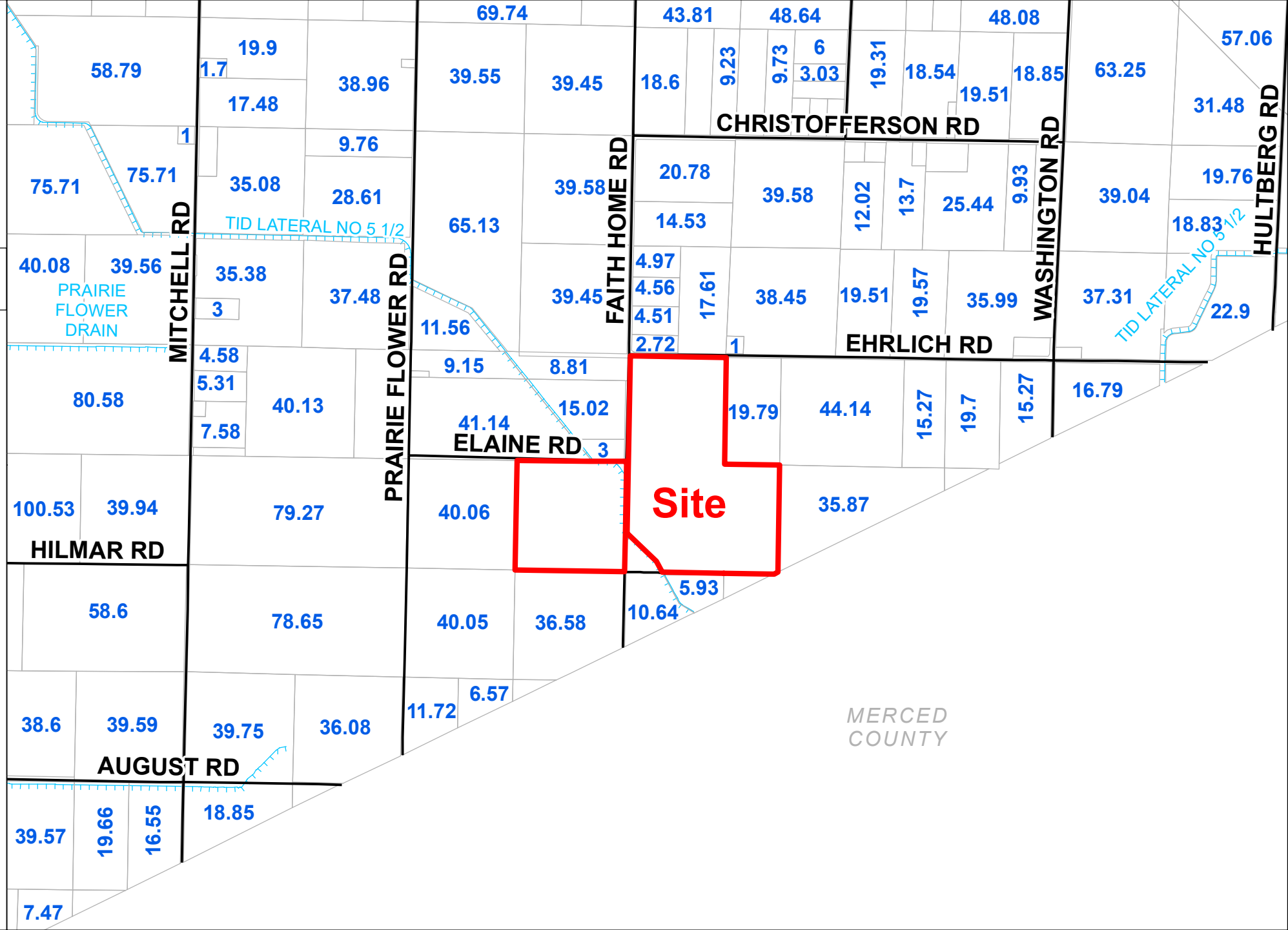
SILVA'S HOLSTIENS DAIRY

UP PLN2021-0030

ACREAGE MAP

LEGEND

- Project Site
- # Parcel/Acres
- Road
- Canal



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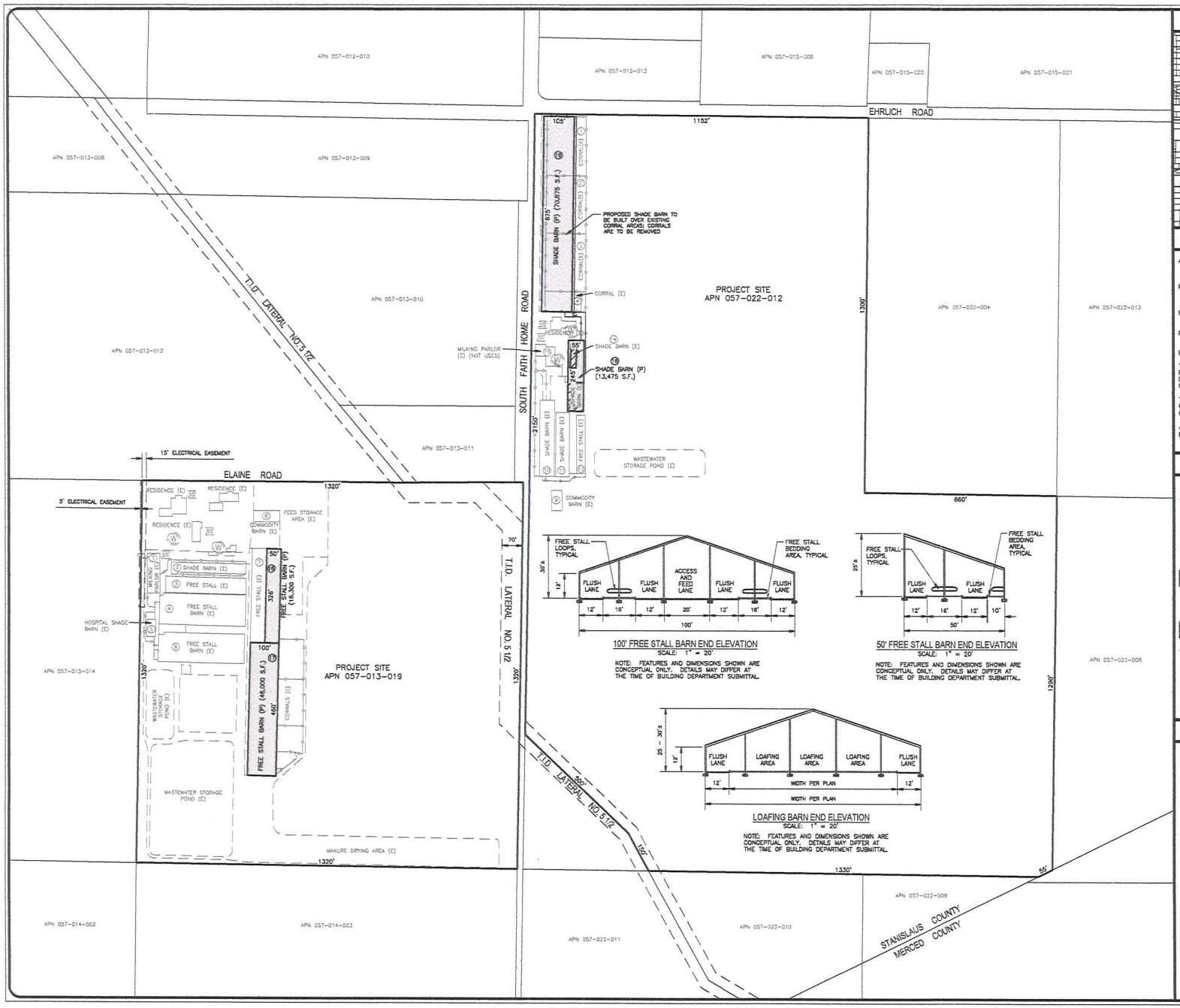
0 1,500 ft

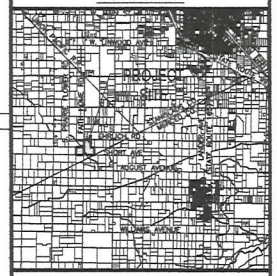
0 300 m

Source: Planning Department GIS

Date: 5/25/2021



VICINITY MAP



PROJECT SITE INFORMATION

APPLICANT: SILVAS HOLSTEINS DAIRY
6706 ELAINE ROAD
TURLOCK, CA 95380

PROPERTY OWNER: MANUEL SILVA
6706 ELAINE ROAD
TURLOCK, CA 95380

PROPERTY ADDRESS: 6706 ELAINE ROAD
TURLOCK, CA 95380

PROPERTY ASSESSOR'S PARCEL NUMBER: 057-013-019, 057-022-012

PROPOSED BUILDING SQUARE FOOTAGE: 59,475 S.F.

THE PROJECT SITE IS LOCATED IN ZONE X PER FEMA FLOOD INSURANCE RATE MAP 06099C0850E. ZONE X IS DEFINED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

THE PROJECT SITE IS LOCATED BETWEEN THE 70' AND 80' CONTOURS ACCORDING TO USGS TOPOGRAPHIC MAPS (NAVD88 DATUM).

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

LEGEND

- CORRAL (E) — EXISTING FACILITY IMPROVEMENT
- EXISTING FENCE
- (W) — EXISTING WELL
- SS — APPROXIMATE LOCATION OF EXISTING SEPTIC TANK AND LEACH FIELD
- (WT) — EXISTING WATER TANK
- (3) — EXISTING BUILDING NUMBER
- FREE STALL BARN (E) — EXISTING STRUCTURE OR IMPROVEMENT TO BE REMOVED
- (17) — PROPOSED BUILDING NUMBER
- CORRAL (P) — PROPOSED FACILITY IMPROVEMENT
- FREE STALL BARN (P) — PROPOSED STRUCTURE OR IMPROVEMENT
- PROPOSED FENCE

FACILITY BUILDING DIMENSIONS

BUILDING NO.	LENGTH (FT.)	WIDTH (FT.)	AREA (SQ. FT.)
1	138	44	6,072
2	264	35	9,240
3	280	56	15,680
4	300	108	32,400
5	60	32	1,920
6	300	102	30,600
7	326	50	16,300
8	92	40	3,680
9	70	37	2,590
10	262	51	13,362
11	220	47	10,340
12	200	30	6,000
13	100	55	5,500
14	93	20	1,860
15	IRREGULAR	IRREG.	3,590
16	326	50	16,300
17	460	100	46,000
18	245	55	13,475
19	675	105	70,875

N

SCALE: 1" = 150'
0 75 150 300

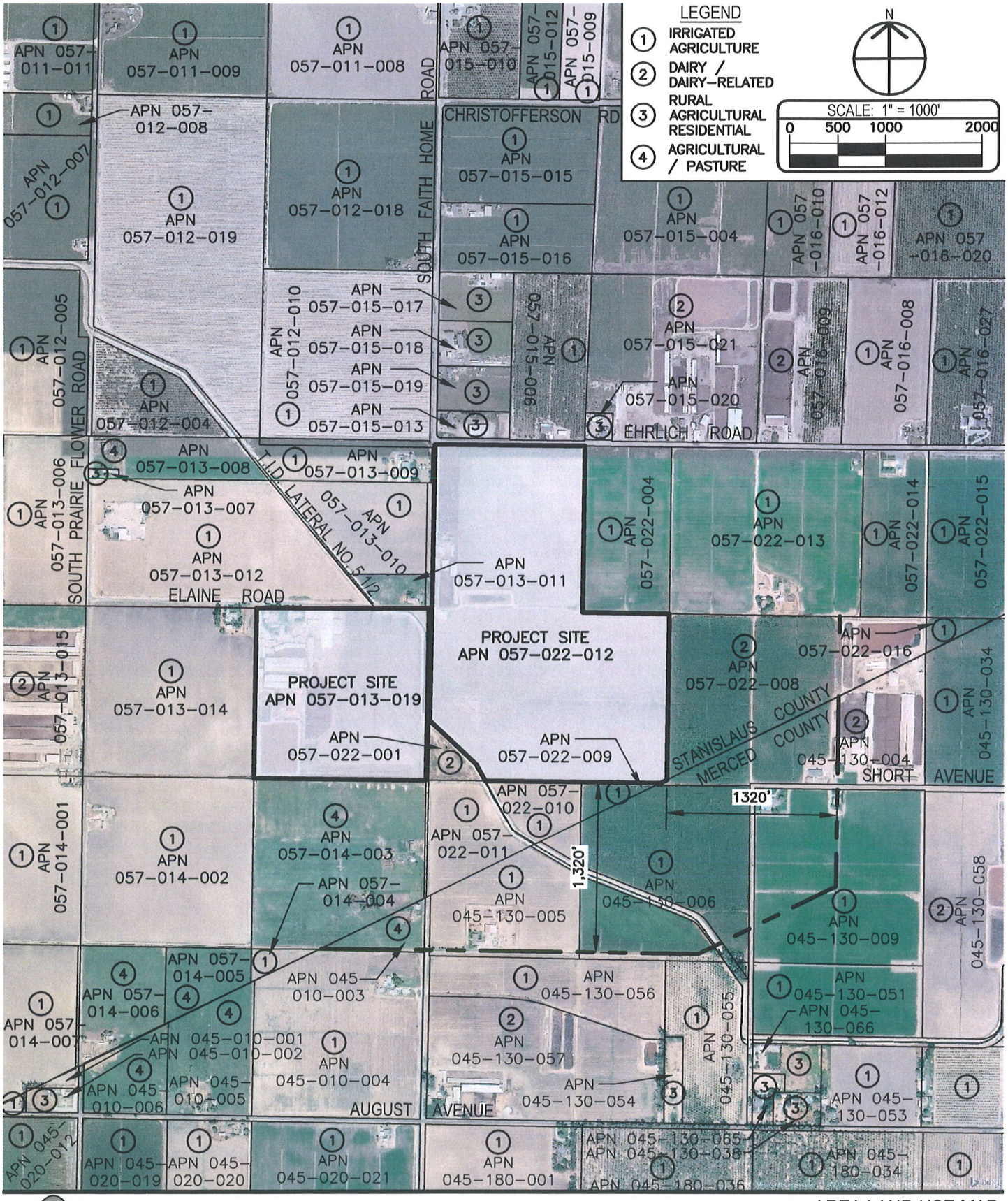
SHEET 1 OF 1

SOUSA ENGINEERING
INFRASTRUCTURE + DEVELOPMENT - AGRICULTURE
PH (209)239-3151
WWW.SOUSAENG.COM
PO BOX 1513
OAKDALE, CA 95361

SITE PLAN
TO ACCOMPANY USE PERMIT APPLICATION
SILVA'S HOLSTEINS
STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 3/15/2021
FILE: 01_24.dwg
JOB NO.: 2021-003

SYMBOL	DESCRIPTION	APPD.
	REVISIONS	



SOUSA
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT - AGRICULTURE

PO BOX 1613
OAKDALE, CA 95361

PH: (209)238-3151
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AREA LAND USE MAP
SILVA'S HOLSTEINS DAIRY

STANISLAUS COUNTY, CA

VICINITY MAP

PROJECT SITE INFORMATION

APPLICANT: SILVAS HOLSTEINS DAIRY
6706 ELAINE ROAD
TURLOCK, CA 95380

PROPERTY OWNER: MANUEL SILVA
6706 ELAINE ROAD
TURLOCK, CA 95380

PROPERTY ADDRESS: 6706 ELAINE ROAD
TURLOCK, CA 95380

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LEGEND

- CORRAL (E) — EXISTING FACILITY IMPROVEMENT
- EXISTING FENCE
- (W) — EXISTING WELL
- 55 — APPROXIMATE LOCATION OF EXISTING SEPTIC TANK AND LEACH FIELD
- (WT) — EXISTING WATER TANK
- (3) — EXISTING BUILDING NUMBER
- FREE STALL BARN (E) — EXISTING STRUCTURE OR IMPROVEMENT TO BE REMOVED
- (7) — PROPOSED BUILDING NUMBER
- CORRAL (P) — PROPOSED FACILITY IMPROVEMENT
- FREE STALL BARN (P) — PROPOSED STRUCTURE OR IMPROVEMENT
- PROPOSED FENCE

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

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

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

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

LOAFING BARN END ELEVATION
SCALE: 1" = 20'

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

FACILITY BUILDING DIMENSIONS

BUILDING NO.	LENGTH (FT.)	WIDTH (FT.)	AREA (SQ. FT.)
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11	220	47	10,340
12	200	30	6,000
13	100	55	5,500
14	93	20	1,860
15	IRREGULAR	IRREG.	3,590
16	326	50	16,300
17	460	100	46,000
18	245	55	13,475
19	675	105	70,875

SHEET 1 OF 1

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INFRASTRUCTURE - DEVELOPMENT - AGRICULTURE
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SITE PLAN
TO ACCOMPANY USE PERMIT APPLICATION
SILVA'S HOLSTEINS

STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 3/15/2021
FILE: 01_site.dwg
JOB NO.: 2021-003

SYMBOL	DESCRIPTION	APPD.
	REVISIONS	

Waste Management Plan
For
Silva's Holsteins Dairy
Stanislaus County, CA

Prepared For:
Silva's Holsteins Dairy
6706 Elaine Road
Turlock, CA 95380

SOUSA
ENGINEERING
INFRASTRUCTURE-DEVELOPMENT-
AGRICULTURE

ATTACHMENT I

SOUSA
ENGINEERING
INFRASTRUCTURE-DEVELOPMENT-
AGRICULTURE

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

WASTE MANAGEMENT PLAN
FOR
SILVA'S HOLSTEINS DAIRY
STANISLAUS COUNTY, CA

TABLE OF CONTENTS

1. NARRATIVE

INTRODUCTION

This Waste Management Plan (WMP) has been prepared at the request of the subject dairy's owner and/or operator in order to comply with Section H.1.b., *Waste Management Plan,* of Order No. R5-2013-0122, *Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies,* (Order) adopted by the California Regional Water Quality Control Board (CRWQCB) Central Valley Region. Per the requirements set forth by the aforementioned Order it is the intent of this plan to provide an evaluation of the existing milk cow facility's design, construction, operation, and maintenance for flood protection and waste containment and to determine whether the facility complies with Prohibition A.14, 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 facility is in the San Joaquin River Basin and was constructed before 27 November 1984. However, the facility has been expanded since 27 November 1984 and thus must have protection against the 100-year storm event.

The relevant Flood Zone Map published by the Federal Emergency Management Agency (FEMA) is Panel No. 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, WWS2, and WWS3 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. Any areas requiring improvement are noted on Exhibit Sheets 3 and 4 and in Section 3.b.

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.

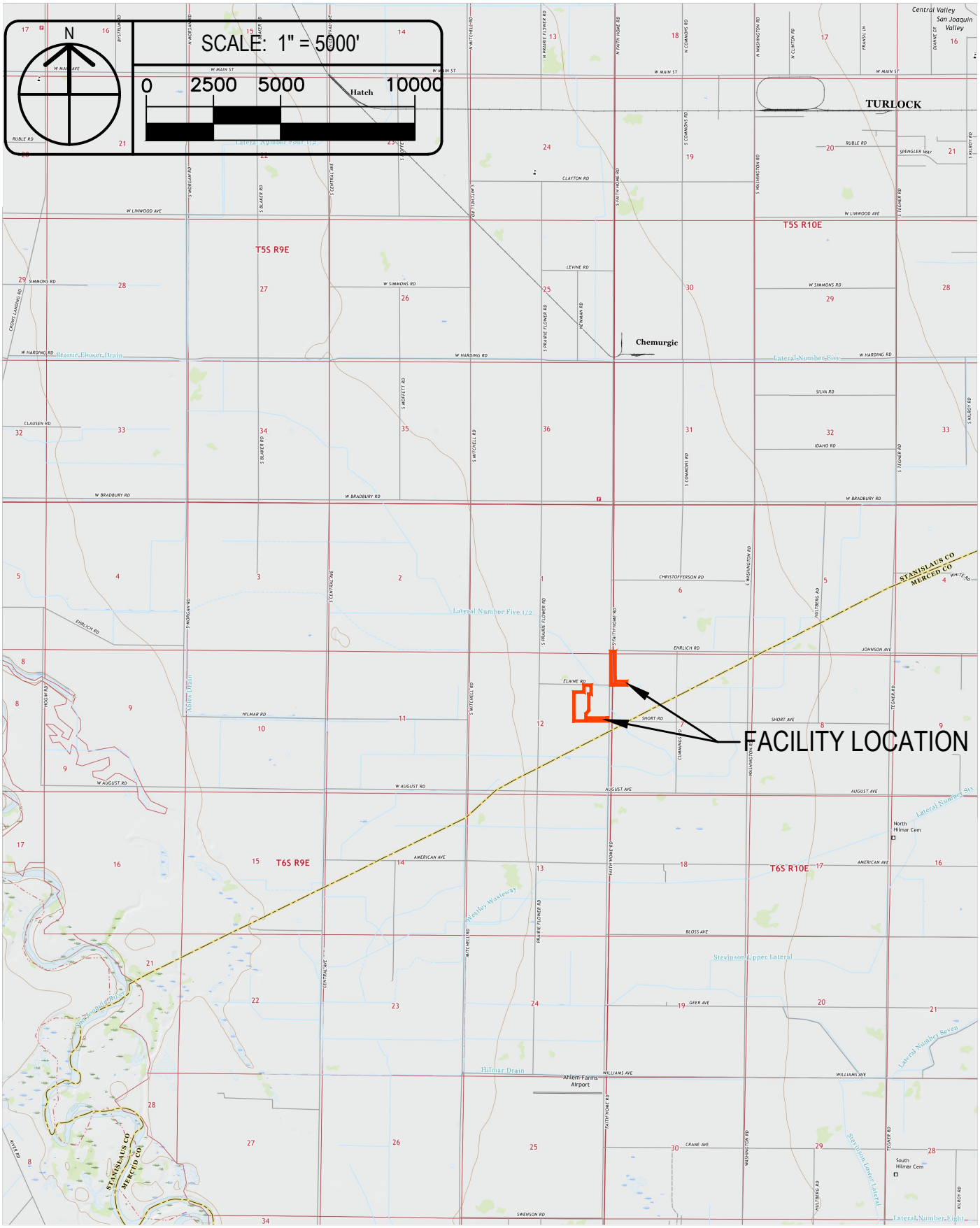
Production Area Specification D.5: *"Roof drainage from barns, milk houses, or shelters shall not drain into the corrals unless the corrals are properly graded and drained. (Cal Code Regs., title 3, § 661.)."*

Most roof drainage is collected by gutters, downspouts, and drains and is conveyed to the wastewater retention ponds or to adjacent fields. Roofs without gutters drain directly to adjacent fields or to flush lanes which convey the runoff to the wastewater retention ponds.

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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ENGINEERING
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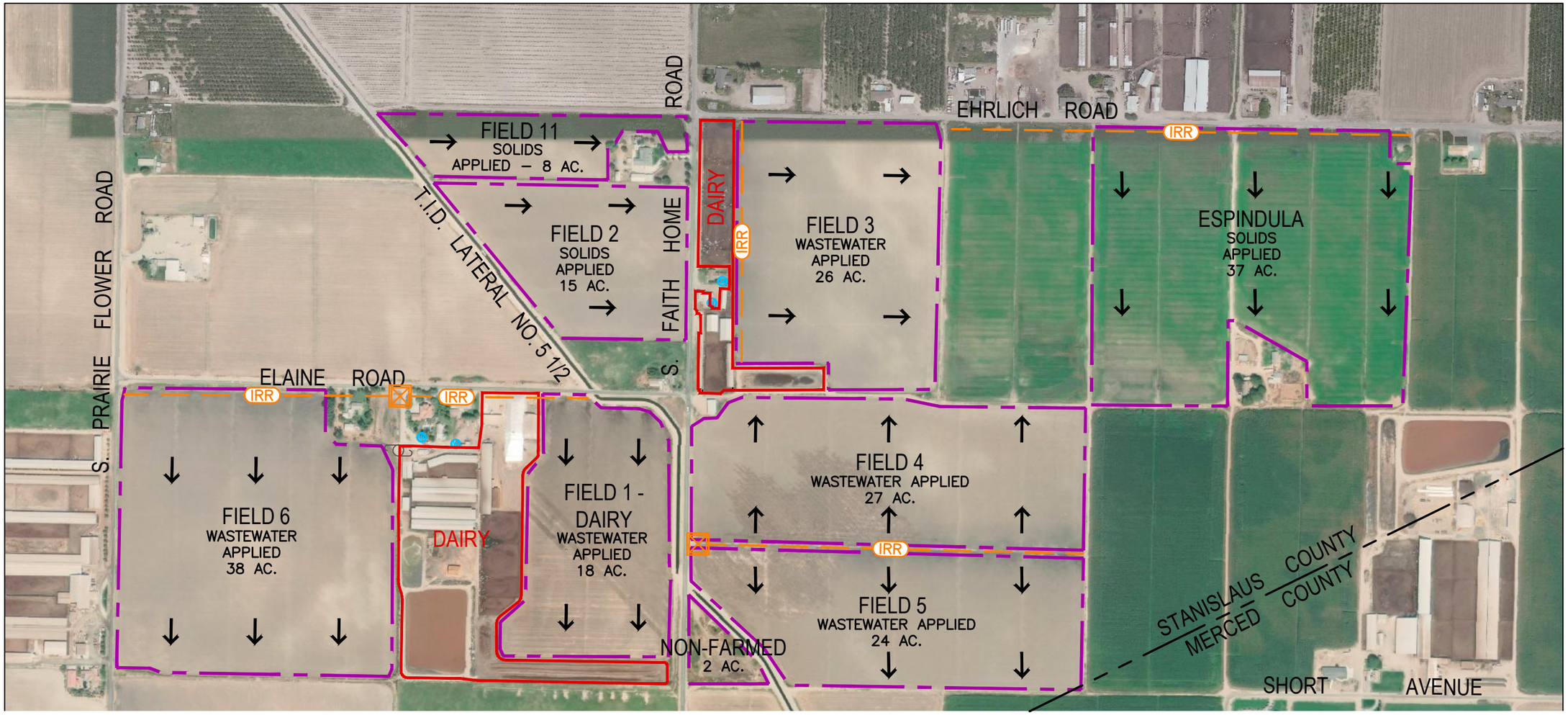
VICINITY MAP
SILVA'S HOLSTEINS DAIRY

STANISLAUS COUNTY, CA



LEGEND

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

N

SCALE: 1" = 500'

0 250 500 1000

DISCHARGE POINTS		
LAND APP. AREA	LATITUDE	LONGITUDE
NON–FARMED	N37° 25' 36.96"	W120° 55' 17.77"
FIELD 1–DAIRY	N37° 25' 42.05"	W120° 55' 25.25"
FIELD 2	N37° 25' 55.03"	W120° 55' 25.62"
FIELD 3	N37° 25' 54.82"	W120° 55' 11.21"
FIELD 4	N37° 25' 45.20"	W120° 55' 08.26"
FIELD 5	N37° 25' 38.54"	W120° 55' 08.46"
FIELD 6	N37° 25' 42.68"	W120° 55' 45.26"
FIELD 11	N37° 26' 00.43"	W120° 55' 29.68"
ESPINDULA	N37° 25' 55.83"	W120° 54' 48.41"

SHEET 2 OF 6

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SITE MAP
LAND APPLICATION AREAS
SILVAS HOLSTEINS DAIRY
STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 3/8/2021
FILE: 02_1aa.dwg
JOB NO.: 2021-003

SYMBOL	REVISIONS DESCRIPTION	APPD.

DISCHARGE POINTS		
LAND APP. AREA	LATITUDE	LONGITUDE
FIELD 9	N37° 27' 29.31"	W120° 53' 36.46"
FIELD 10	N37° 27' 29.18"	W120° 53' 44.40"

LEGEND

LAND APPLICATION AREA

N

SCALE: 1" = 200'

0 100 200 400

SHEET 3 OF 6

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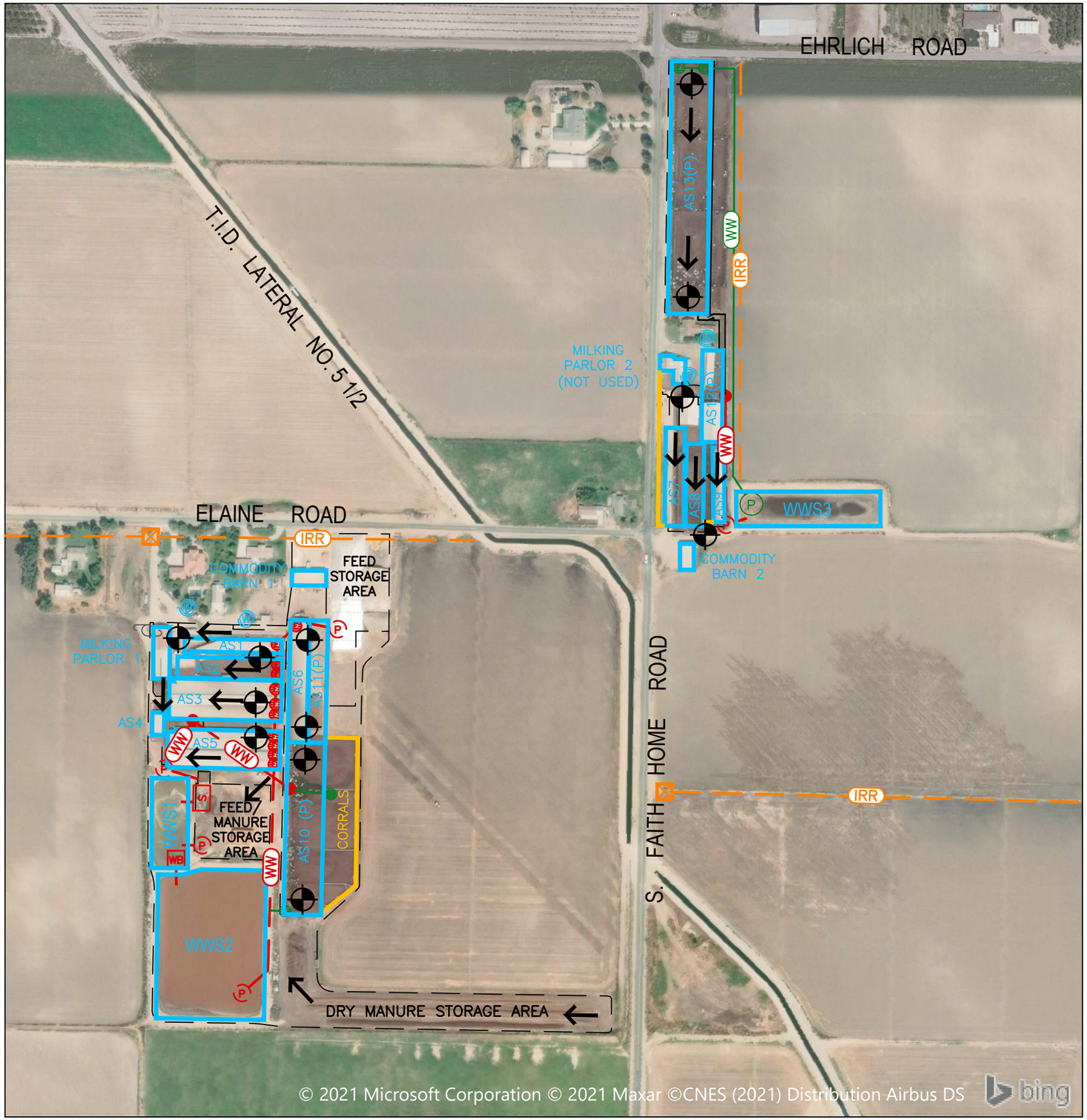
SITE MAP
LAND APPLICATION AREAS
SILVAS HOLSTEINS DAIRY
STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 3/8/2021
FILE: 03_sa.dwg
JOB NO.: 2021-003

SYMBOL	REVISIONS DESCRIPTION	APPD.



LEGEND

- ROOF AREA
- (P) ROOF AREA (PROPOSED)
- CORRAL AREA
- IRR IRRIGATION LINE
- WW WASTEWATER LINE
- WW WASTEWATER LINE (PROPOSED)
- P WASTEWATER SUMP WITH PUMP
- FLUSH SYSTEM DRAIN INLET
- FLUSH SYSTEM DRAIN INLET (PROPOSED)
- FS FLUSH SYSTEM DISCHARGE VALVE
- FS 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" = 300'

0 150 300 600

SHEET 4 OF 6

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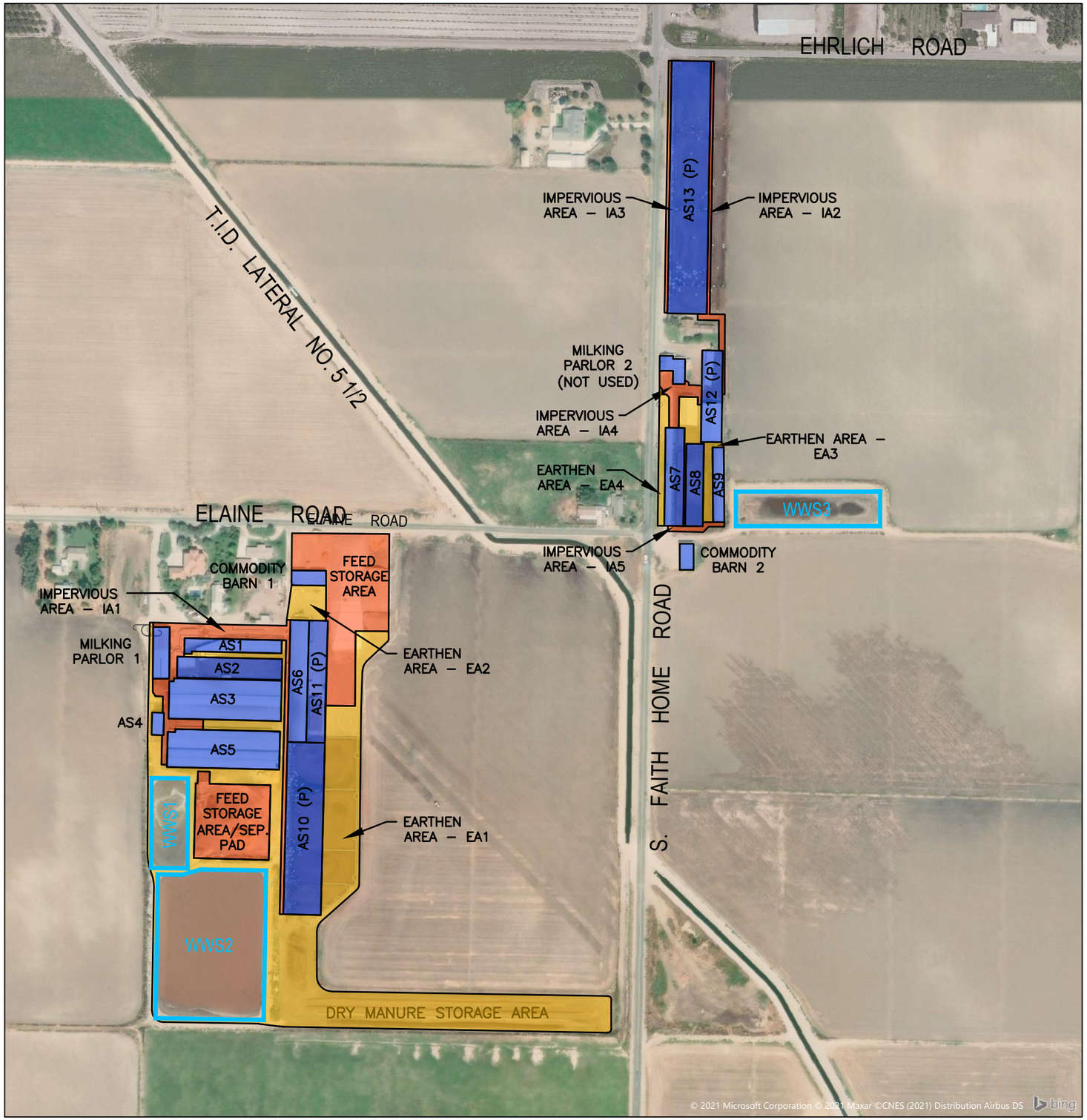
SITE MAP - PRODUCTION AREA

SILVAS HOLSTEINS DAIRY

STANISLAUS COUNTY, CA

DRAWN BY: MS
DATE: 3/8/2021
FILE: 04_dpa.dwg
JOB NO.: 2021-003

SYMBOL	REVISIONS DESCRIPTION	APPD.



LEGEND

- ROOF AREA
- EARTHEN AREA
- IMPERVIOUS AREA

N

SCALE: 1" = 300'

0 150 300 600

SHEET 5 OF 6

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PRODUCTION AREA
HYDROLOGIC MAP
SILVAS HOLSTEINS DAIRY
STANISLAUS COUNTY, CA

DRAWN BY: 3/9/2021
DATE: 12/27/2018
FILE: 05_hydro.dwg
JOB NO.: 2021-003

SYMBOL	REVISIONS DESCRIPTION	APPD.

National Flood Hazard Layer FIRMette

FEMA

120°55'51"W 37°26'3"N

120°55'14"W 37°25'34"N

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

1:6,000

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

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

N

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 2/13/2021 at 5:53 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: Silva's Holsteins Dairy

Physical address of dairy:

6706 Elaine RD	Turlock	Stanislaus	95380
Number and Street	City	County	Zip Code

Street and nearest cross street (if no address):

TRS Data and Coordinates:

6S	9E	12	Mt. Diablo	37° 25' 46.10" N	120° 55' 35.90" W
Township (T_)	Range (R_)	Section (S_)	Baseline meridian	Latitude (N)	Longitude (W)

Date facility was originally placed in operation: 01/01/1970

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

County Assessor Parcel Number(s) for dairy facility:

0057-0013-0019-0000 0057-0022-0012-0000

B. OPERATOR NAME: Silva, Adrian J Telephone no.: (209) 632-1223 (Landline) (209) 595-1846 (Cellular)

6706 Elaine RD	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: Silva, Manuel M Telephone no.: (209) 632-1223 (Landline) (209) 595-1846 (Cellular)

6706 Elaine RD	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:

2,200 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	1,900	1,900	20	1,400
Dry Cows	300	300	20	1,450
Bred Heifers (15-24 mo.)	600	600	18	900
Heifers (7-14 mo.)	600	600	18	600
Calves (4-6 mo.)	350	350	0	
Calves (0-3 mo.)	350	350	0	

Predominant milk cow breed: Holstein

Average milk production: 70 pounds per cow per day

Average number of milk cows per string sent to the milkbarn: 190 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: 18.0 hours per day

B. MILKBARN EQUIPMENT AND FLOOR WASH

Bulk tank wash and sanitizing: 3.0 run cycles/wash

Bulk tank wash vat volume: 40 gallons/cycle

Bulk tank wash wastewater: 240.0 gallons/day

Pipeline wash and sanitizing: 3.0 run cycles/wash

Pipeline wash vat volume: 50 gallons/cycle

Pipeline wash wastewater: 300.0 gallons/day

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

Milkbarn / parlor floor wash volume: 2,000 gallons/day

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

Plate coolers volume: 30,930 gallons/day

Vacuum pumps / air compressors / chillers type: Mechanically/Air Cooled

Vacuum pumps / air compressors / chillers volume: 0 gallons/day

Milkbarn and equipment wastewater volume generated daily: 31,470 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 1,900*	0 *of 300*	0 *of 600*	0 *of 600*	0 *of 350*	0 *of 350*
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: 1 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: 30,930 gallons/day

Recycled water reused: 2,000 gallons/day

Recycled water leaving system: 0 gallons/day

Reusable water balance: 28,930 gallons/day

Volume of milkbarn and equipment wastewater generated for storage period: 3,776,400 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	150	40.0	50%	3,750
			Total:	3,750

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:

Processing pit and mechanical separator

C. MANURE AND BEDDING SOLIDS SUMMARY

	cubic feet		gallons	
	day	storage period	day	storage period
Manure generated by the herd (pre-separation):	5,889.31	706,718	44,055.13	5,286,615
Manure generated by the herd sent to pond(s):	4,015.49	481,859	30,037.94	3,604,553
Manure generated by the herd sent to dry lot(s):	1,242.47	149,096	9,294.29	1,115,314
Manure solids (herd) removed by separation:	305.64	36,677	2,286.34	274,361
Liquid component in separated solids not send to pond(s):	325.72	39,087	2,436.56	292,388
Imported and facility generated bedding sent to pond(s):	31.25	3,750	233.77	28,052
Total manure and bedding sent to pond(s):	4,046.74	485,609	30,271.71	3,632,605
Residual manure solids and bedding sent to pond(s) w/factor:	244.85	29,383	1,831.64	219,796
	cubic feet per year		gallons per year	
Residual manure solids and bedding sent to pond(s) w/factor:	89,372		668,548	

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
Feed Storage Area	68,200	1	0.95	0.50	Drains into pond(s).
Feed Storage Area / Separator Pad	41,000	1	0.95	0.50	Drains into pond(s).
Impervious Area 1 - IA1	31,050	1	0.95	0.50	Drains into pond(s).
Impervious Area 2 - IA2	8,500	1	0.95	0.50	Drains into pond(s).
Impervious Area 3 - IA3	5,400	1	0.95	0.50	Drains into pond(s).
Impervious Area 4 - IA4	7,200	1	0.95	0.50	Drains into pond(s).
Impervious Area 5 - IA5	2,200	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):	163,550	sq. ft.
Total surface area:	163,550	sq. ft.
Runoff from normal storage period rainfall:	436,360	gallons/storage period
Runoff from normal storage period rainfall with 1.5 factor:	654,540	gallons/storage period
25 year/24 hour storm event runoff:	242,139	gallons/storage period
Total surface area runoff:	678,499	gallons/storage period
Total surface area runoff with 1.5 factor:	896,679	gallons/storage period

C. ROOF AREAS

Name	Surface Area (sq. ft.)	Quantity	Runoff Destination
Animal Shelter 1 - AS1	9,240	1	Wastewater pond
Animal Shelter 10 - AS10	46,000	1	Field 1 - Dairy
Animal Shelter 11 - AS11	16,300	1	Field 1 - Dairy
Animal Shelter 12 - AS12	13,475	1	Field 3
Animal Shelter 13 - AS13	70,875	1	Field 3
Animal Shelter 2 - AS2	15,680	1	Wastewater pond
Animal Shelter 3 - AS3	32,400	1	Field 6
Animal Shelter 4 - AS4	1,920	1	Wastewater pond
Animal Shelter 5 - AS5	30,600	1	Field 6
Animal Shelter 6 - AS6	16,300	1	Wastewater pond
Animal Shelter 7 - AS7	13,362	1	Wastewater pond
Animal Shelter 8 - AS8	10,340	1	Wastewater pond
Animal Shelter 9 - AS9	6,000	1	Wastewater pond
Commodity Barn 1	3,680	1	Wastewater pond
Commodity Barn 2	2,590	1	Adjacent field
Milking Parlor 1	6,072	1	Field 6
Milking Parlor 2 (not used)	3,590	1	Wastewater pond

Surface area that does not run off into pond(s):	218,312	sq. ft.
Surface area that runs off into pond(s):	80,112	sq. ft.
Total surface area:	298,424	sq. ft.
Runoff from normal storage period rainfall:	427,486	gallons/storage period
Runoff from normal storage period rainfall with 1.5 factor:	641,229	gallons/storage period
25 year/24 hour storm event runoff:	124,850	gallons/storage period
Total surface area runoff:	552,336	gallons/storage period
Total surface area runoff with 1.5 factor:	766,079	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	244,600	1	0.35	0.20	Drains into pond(s).
Earthen Area 2 - EA2	9,175	1	0.35	0.20	Drains into pond(s).
Earthen Area 3 - EA3	13,500	1	0.35	0.20	Drains into pond(s).
Earthen Area 4 - EA4	7,100	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):	274,375	sq. ft.
Total surface area:	274,375	sq. ft.
Runoff from normal storage period rainfall:	292,819	gallons/storage period
Runoff from normal storage period rainfall with 1.5 factor:	439,228	gallons/storage period
25 year/24 hour storm event runoff:	149,659	gallons/storage period
Total surface area runoff:	442,478	gallons/storage period
Total surface area runoff with 1.5 factor:	588,887	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):	240 ft.	Earthen Depth (ED):	12 ft.
Earthen Width (EW):	97 ft.	Side Slope (S):	1.0 ft. (h:1v)
Free Board (FB):	2 ft.	Dead Storage Loss (DS):	0.0 ft.

Calculations			
Liquid Length (LL):	236 ft.	Storage Volume Adjusted for Dead Storage Loss:	187,913 cu. ft.
Liquid Width (LW):	93 ft.		
Pond Surface Area:	23,280 sq. ft.	Pond Marker Elevation:	9.3 ft.
Storage Volume:	187,913 cu. ft.	Evaporation Volume:	116,862 gals/period
		Adjusted Surface Area:	21,735 sq. ft.

POND OR BASIN DESCRIPTION: WWS2

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

Dimensions			
Earthen Length (EL):	396 ft.	Earthen Depth (ED):	12 ft.
Earthen Width (EW):	285 ft.	Side Slope (S):	1.0 ft. (h:1v)
Free Board (FB):	2 ft.	Dead Storage Loss (DS):	1.0 ft.

Calculations			
Liquid Length (LL):	392 ft.	Storage Volume Adjusted for Dead Storage Loss:	937,827 cu. ft.
Liquid Width (LW):	281 ft.		
Pond Surface Area:	112,860 sq. ft.	Pond Marker Elevation:	9.4 ft.
Storage Volume:	1,035,553 cu. ft.	Evaporation Volume:	589,983 gals/period
		Adjusted Surface Area:	109,731 sq. ft.

POND OR BASIN DESCRIPTION: WWS3

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

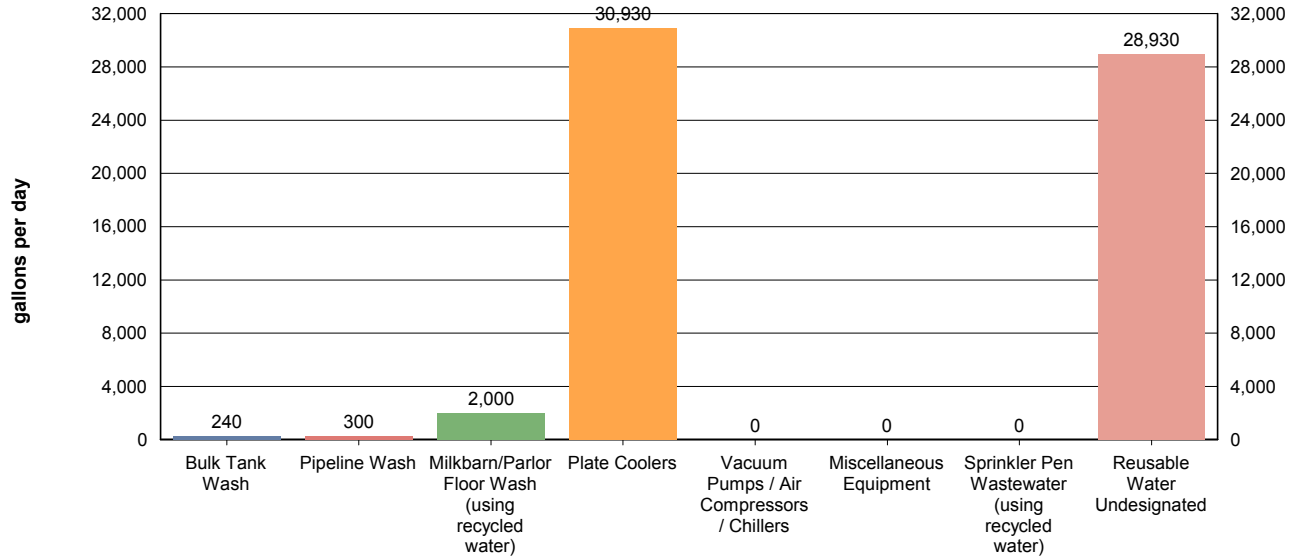
Dimensions			
Earthen Length (EL):	385 ft.	Earthen Depth (ED):	12 ft.
Earthen Width (EW):	92 ft.	Side Slope (S):	1.0 ft. (h:1v)
Free Board (FB):	2 ft.	Dead Storage Loss (DS):	0.0 ft.

Calculations			
Liquid Length (LL):	381 ft.	Storage Volume Adjusted for Dead Storage Loss:	289,713 cu. ft.
Liquid Width (LW):	88 ft.		
Pond Surface Area:	35,420 sq. ft.	Pond Marker Elevation:	9.3 ft.
Storage Volume:	289,713 cu. ft.	Evaporation Volume:	178,642 gals/period
		Adjusted Surface Area:	33,226 sq. ft.

Potential storage losses (due to dead storage):	97,726.0 cubic feet - or -	731,041.2 gallons
Liquid storage surface area:	165,628	sq. ft.
Rainfall onto retention pond(s):	915,462	gallons/storage period
Rainfall runoff into retention pond(s):	1,156,665	gallons/storage period
Normal rainfall onto retention pond(s) with 1.5 factor:	1,373,193	gallons/storage period
Normal rainfall runoff into retention pond(s) with 1.5 factor:	1,734,997	gallons/storage period
Storage period evaporation (default):	11.50	inches/storage period
Storage period evaporation (user-override):		inches/storage period
Storage period evaporation volume:	885,487	gallons/storage period
Manure and bedding sent to pond(s):	3,632,605	gallons/storage period
Milkbarn water sent to pond(s):	3,776,400	gallons/storage period
Fresh flush water for storage period:	0	gallons/storage period

CHARTS

A. MILKBARN WASTEWATER SENT TO POND(S)

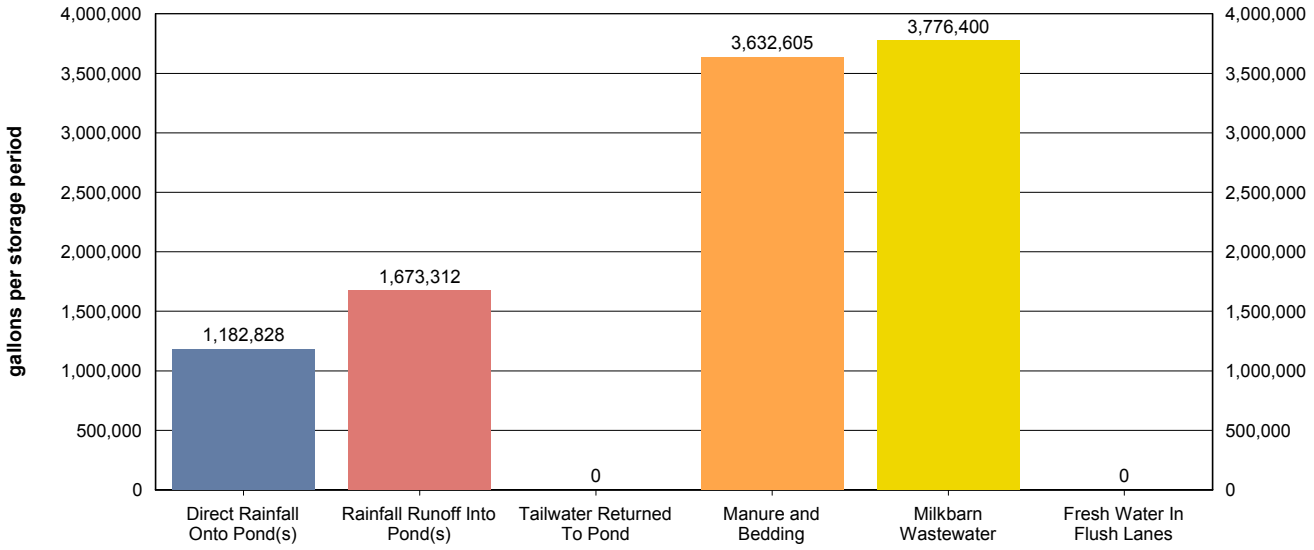


Values shown in chart are approximate values per day.

Total milkbarn wastewater generated daily: 31,470 gallons/day

Total milkbarn wastewater generated per period: 3,776,400 gallons/storage period

B. PROCESS WASTEWATER (NORMAL PRECIPITATION)

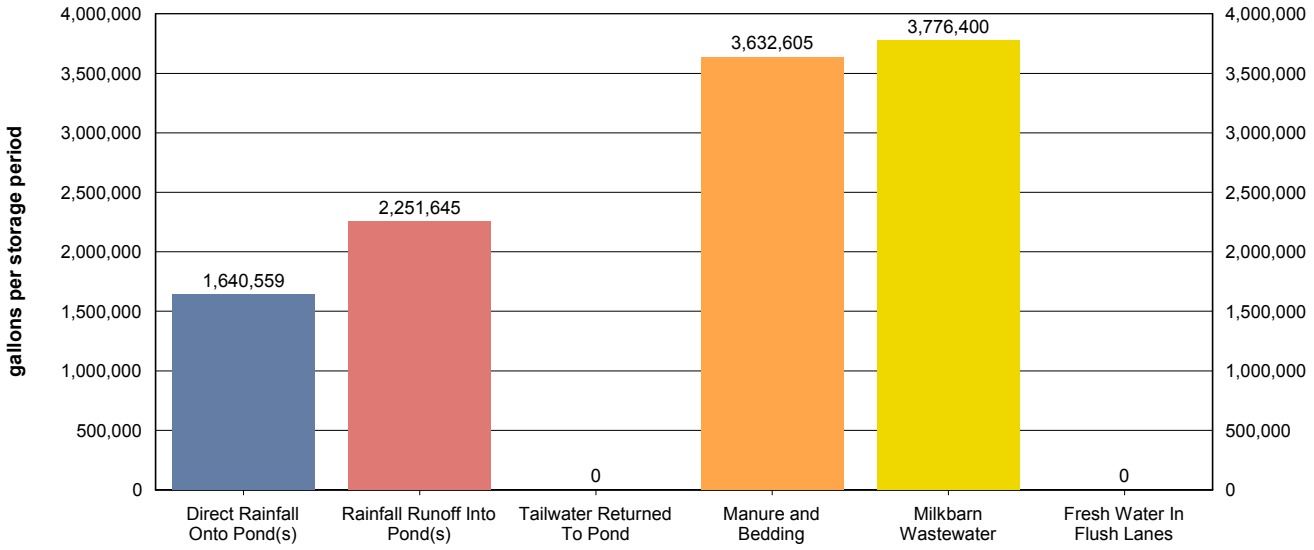


Values shown in chart are approximate values for storage period.

Storage period:	120	days
Total process wastewater generated daily:	85,543	gallons/day
Total process wastewater generated per period:	10,265,145	gallons/storage period
Total process wastewater removed due to evaporation:	885,487	gallons/storage period
Total storage capacity required:	9,379,658	gallons
	1,253,878	cu. ft.
Existing storage capacity (adjusted for dead storage loss):	10,588,324	gallons
	1,415,453	cu. ft.

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

C. PROCESS WASTEWATER (NORMAL PRECIPITATION WITH 1.5 FACTOR)

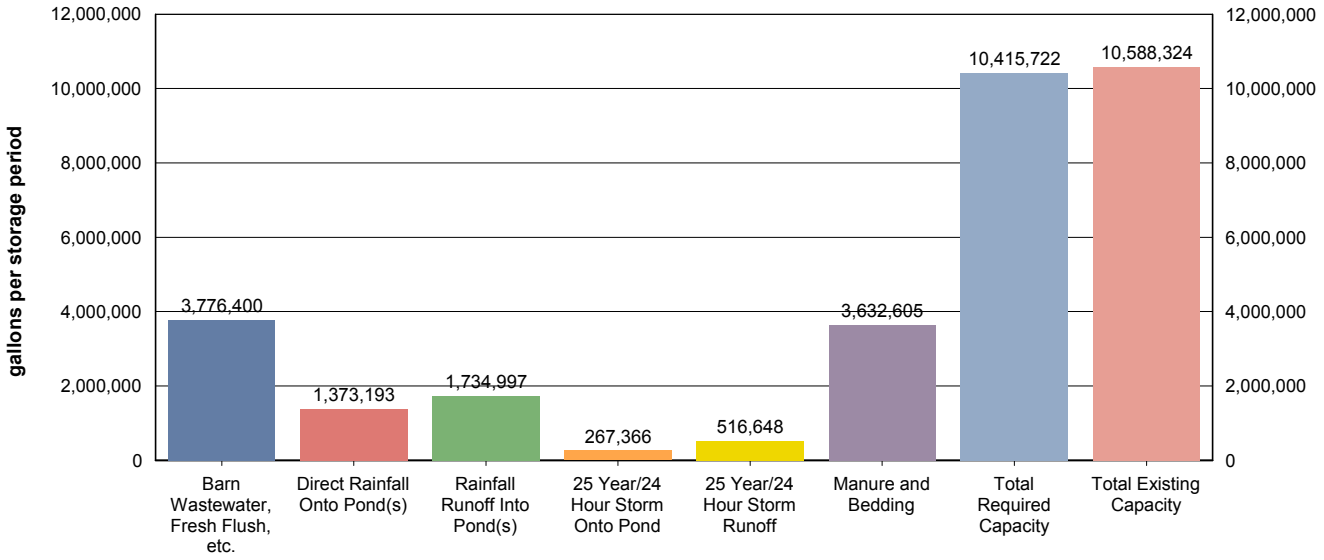


Values shown in chart are approximate values for storage period.

Storage period:	120	days
Total process wastewater generated daily:	94,177	gallons/day
Total process wastewater generated per period:	11,301,209	gallons/storage period
Total process wastewater removed due to evaporation:	885,487	gallons/storage period
Total storage capacity required:	10,415,722	gallons
	1,392,379	cu. ft.
Existing storage capacity (adjusted for dead storage loss):	10,588,324	gallons
	1,415,453	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:	3,776,400	gallons/storage period
Manure and bedding sent to pond:	3,632,605	gallons/storage period
Precipitation onto pond:	1,373,193	gallons/storage period
Precipitation runoff:	1,734,997	gallons/storage period
25 year/24 hour storm onto pond:	267,366	gallons/storage period
25 year/24 hour storm runoff:	516,648	gallons/storage period
Residual solids after liquids have been removed (liquid equivalent):	219,796	gallons/storage period
Total process wastewater removed due to evaporation:	885,487	gallons/storage period
Total required capacity:	10,415,722	gallons/storage period
Total existing capacity:	10,588,324	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: WWS3

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 0.0 feet above the pond invert beginning in August 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 1.0 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 0.0 feet above the pond invert beginning in August 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 1.0 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: 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 August 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 1.0 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	9,240
Animal Shelter 10 - AS10	1	46,000
Animal Shelter 11 - AS11	1	16,300
Animal Shelter 12 - AS12	1	13,475

Animal Shelter 13 - AS13	1	70,875
Animal Shelter 2 - AS2	1	15,680
Animal Shelter 3 - AS3	1	32,400
Animal Shelter 4 - AS4	1	1,920
Animal Shelter 5 - AS5	1	30,600
Animal Shelter 6 - AS6	1	16,300
Animal Shelter 7 - AS7	1	13,362
Commodity Barn 1	1	3,680
Commodity Barn 2	1	2,590
Milking Parlor 1	1	6,072
Milking Parlor 2 (not used)	1	3,590
Buildings without rooftop rainfall collection systems	Quantity	Surface Area (sq. ft.)
Animal Shelter 8 - AS8	1	10,340
Animal Shelter 9 - AS9	1	6,000

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, inlets, and drainage piping will be inspected for proper operation. Repairs will be made as needed prior to the rain season.

C. CORRAL MAINTENANCE

i. Monthly from June 1st through September 30th (dry season) and weekly from October 1st through May 31st (wet season), the perimeter of the corrals and pens will be assessed to ensure that runon and runoff controls such as berms are functioning correctly, and that all water that contacts waste is collected and diverted into the wastewater retention pond (s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Corrals.

ii. The corrals will be assessed by the designated date to determine:

1. Whether manure needs to be removed from the corrals based on the owner, operator, and/or designer specified conditions.

2. Whether there are depressions within the corrals that should be filled/groomed to prevent ponding.

iii. Removal of manure and/or regrading, when necessary, will be completed on or before the designated month/day of each year.

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

Day of the week wet season assessment will occur: Monday

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

Conditions requiring manure removal and/or regrading:

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: 1st of October

Animal housing area drainage system assessment and maintenance methods:

Animal housing drainage systems will be inspected for proper operation. Repairs will be made as soon as possible after identification of damaged facilities.

G. MORTALITY MANAGEMENT

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

Rendering company or landfill name: Darling International

Rendering company or landfill telephone number: (559) 268-5325

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.

Chemical Name	Quantity	Units	Frequency	Usage Area	Destination (Used Chemical / Container)	Disposal Company		Collection Frequency
						Name	Phone	
Acid	360	gallons	year	Milking Parlor	Picked up by distributor			
Chlorine	360	gallons	year	Milking Parlor	Picked up by distributor			
CIP Detergent	360	gallons	year	Milking Parlor	Picked up by distributor			
Iodine	5,000	gallons	year	Milking Parlor	Picked up by distributor			

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 4

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 6

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: Silva's Holsteins Dairy

Physical address of dairy:

6706 Elaine RD	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

3/17/2021

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.

Manuel M Silva	
SIGNATURE OF OWNER	SIGNATURE OF OPERATOR
Manuel M Silva	Adrian J Silva
PRINT OR TYPE NAME	PRINT OR TYPE NAME
3/16/2021	3/16/2021
DATE	DATE

SOUSA
ENGINEERING
INFRASTRUCTURE-DEVELOPMENT-
AGRICULTURE

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

VECTOR CONTROL PLAN
FOR
SILVA'S HOLSTEINS DAIRY
STANISLAUS COUNTY, CA

TABLE OF CONTENTS

1. INTRODUCTION

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

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

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

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

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

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

2. BEST MANAGEMENT PRACTICES (BMPs)

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

Common Vector Development Areas

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

Special Concerns

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

General Vector Reduction Principles

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

Vector Reduction BMPs for Land Application Areas

Ditches and Drains

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

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

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

Irrigated Pastures

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

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

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

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

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

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

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

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

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

Common Vector Development Areas
- Wastewater lagoons
- Animal washing areas

- Drain ditches
- Sumps/ponds
- Watering troughs

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

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

Vector Reduction BMPs for Dairy Production Area

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

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

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

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

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

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

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

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

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

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

3. CONTACT INFORMATION

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

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

NUTRIENT MANAGEMENT PLAN-PROPOSED

MARCH 2021

PREPARED FOR:

SILVA HOLSTEINS DAIRY

6706 ELAINE RD

TURLOCK CA 95380

NOTES:

Prepared to reflect proposed conditions

PREPARED BY:

CAS
CARDOSO AG SERVICES

MARIANN PEDROSO
PO BOX 906
NEWMAN CA 95360

ATTACHMENT II

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: Silvas Holsteins Dairy

Physical address of dairy:

6706 Elaine Rd	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: 01/01/1970

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

County Assessor Parcel Number(s) for dairy facility:

0057-0013-0019-0000 0057-0022-0012-0000

B. OPERATOR NAME: Silva, Adrian J Telephone no.: (209) 632-1223 (Landline) (209) 595-1846 (Cellular)

6706 Elaine Rd	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: Silva, Manuel M Telephone no.: (209) 632-1223 (Landline) (209) 595-1846 (Cellular)

6706 Elaine Rd	Turlock	CA	95380
Mailing Address Number and Street	City	State	Zip Code

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

D. CONTACT NAME: Pedroso, Mariann Telephone no.: (209) 862-4291 (Landline) (209) 277-2817 (Cellular)

Title: Technical Service Provider

P.O. Box 906	Newman	CA	95360
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:

2,200 *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	1,900	300	600	600	350	350
Maximum count	1,900	300	600	600	350	350
Avg live weight (lbs)	1,400	1,450	900	600		
Daily hours on flush	20	20	18	18	0	0

Predominant milk cow breed: Holstein

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
TID Canal	Surface water (canal, river)	0.90	0.00	0.00	15 *cfs*

C. NUTRIENT IMPORTS

No nutrient imports entered.

D. NUTRIENT EXPORTS

Nutrient Type/Name	Quantity	Moisture	Nitrogen	Phosphorus (as P2O5)	Potassium (as K2O)
Corral solids	9,000.00 *ton*	40.0%	1.820%	0.470%	1.260%
Separator solids	9,000.00 *ton*	69.0%	2.450%	1.950%	1.650%
Separator solids	9,000.00 *ton*	69.0%	2.450%	1.950%	1.650%

Total nitrogen exported: 469,980.00 *lbs*

Total phosphorus exported: 117,282.06 *lbs*

Total potassium exported: 265,782.60 *lbs*

E. STORAGE PERIOD

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

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

Storage period: 120 *days*

APPLICATION AREA

A. ASSESSOR PARCEL NUMBER: 0044-0041-0008-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0044-0041-0009-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0057-0013-0009-0000

Legal owner of parcel: Barreiro, Jonine Telephone no.: Landline (209) 556-7185 Cellular

6419 Faith Home Ave	Turlock	CA	95380
Mailing Address Number and Street	City	State	Zip Code

ASSESSOR PARCEL NUMBER: 0057-0013-0010-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0057-0013-0014-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0057-0013-0019-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0057-0022-0001-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0057-0022-0012-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0057-0022-0013-0000

Legal owner of parcel: Espindula, George Telephone no.: Landline (209) 678-0558 Cellular

5542 Ehrlich Rd	Turlock	CA	95380
Mailing Address Number and Street	City	State	Zip Code

B. FIELD NAME: 10

Cropable acres: 19

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? [ ] Yes [X] No

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

Tailwater management method: Bermed

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Almond, in shell	Middle January	Early October	19

FIELD NAME: 11

Cropable acres: 8

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? [ ] 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
Wheat, silage, soft dough	Middle October	Late April	8
Corn, silage	Late May	Late September	8

FIELD NAME: 1-Dairy

Cropable acres: 18

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? [ ] Yes [X] No

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

Tailwater management method: Bermed

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Wheat, silage, soft dough	Middle October	Late April	18
Corn, silage	Late May	Late September	18

FIELD NAME: 2

Cropable acres: 15

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? [ ] 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
Wheat, silage, soft dough	Middle October	Late April	15
Corn, silage	Late May	Late September	15

FIELD NAME: 3

Cropable acres: 26

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? [ ] Yes [X] No

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

Tailwater management method: Bermed

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Wheat, silage, soft dough	Middle October	Late April	26
Corn, silage	Late May	Late September	26

FIELD NAME: 4

Cropable acres: 27

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? [ ] Yes [X] No

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

Tailwater management method: Bermed

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Wheat, silage, soft dough	Middle October	Late April	27
Corn, silage	Late May	Late September	27

FIELD NAME: 5

Cropable acres: 24

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? [ ] Yes [X] No

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

Tailwater management method: Bermed

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Wheat, silage, soft dough	Middle October	Late April	24
Corn, silage	Late May	Late September	24

FIELD NAME: 6

Cropable acres: 38

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? [ ] Yes [X] No

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

Tailwater management method: Bermed

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Wheat, silage, soft dough	Middle October	Late April	38
Corn, silage	Late May	Late September	38

FIELD NAME: 9

Cropable acres: 13

Predominant soil type: Sandy loam

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

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

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

Tailwater management method: Bermed

Crops grown and rotation:

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

FIELD NAME: Espindula

Cropable acres: 37

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? [ ] 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
Wheat, silage, soft dough	Middle October	Late April	37
Corn, silage	Late May	Late September	37

FIELD NAME: Non Application Area

Cropable acres: 2

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? [ ] Yes [X] No

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

Tailwater management method: Non farmed

No crop entered for this field.

C. LAND APPLICATION AREA FIELDS AND PARCELS

Field name	Cropable acres	Total harvests	Parcel number
10	19	1	0044-0041-00090000
11	8	2	0057-0013-00090000
1-Dairy	18	2	0057-0013-00190000
2	15	2	0057-0013-00100000
3	26	2	0057-0022-00120000
4	27	2	0057-0022-00120000
5	24	2	0057-0022-00120000
6	38	2	0057-0013-00140000
9	13	1	0044-0041-00080000
Espindula	37	2	0057-0022-00130000
Non Application Area	2	0	0057-0022-00010000
Land application area totals	227	18	

NUTRIENT BUDGET

A. NUTRIENT BUDGET FOR CROP: 10 / Almond, in shell

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure *Nutrient source:* From dairy *Application method:* Broadcast/incorporate	1	250.0 50%	42.0 80%	207.0 80%	250.0
In season irrigation (no fertilizer) *Nutrient source:* Water only *Application method:* Surface	18	0.0 0%	0.0 0%	0.0 0%	8.6

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.5	0.0	0.0	3.0
	0.5	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	8.6	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	250.0	42.0	207.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	14.0		
Nutrients applied	272.6	42.0	207.0
Potential crop nutrient removal	195.0	30.0	148.5
Nutrient balance	77.6	12.0	58.5
Applied to removal ratio	1.40	1.40	1.39

Fresh water applied: 3.52 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 11 / Wheat, silage, soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure *Nutrient source:* From dairy *Application method:* Broadcast/incorporate	1	268.0 50%	42.0 80%	209.0 80%	268.0
In season irrigation (no fertilizer) *Nutrient source:* Water only *Application method:* Surface	3	0.0 0%	0.0 0%	0.0 0%	2.3

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.8	0.0	0.0	2.0
	0.8	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	2.3	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	268.0	42.0	209.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	277.3	42.0	209.0
Potential crop nutrient removal	198.0	30.6	149.4
Nutrient balance	79.3	11.4	59.6
Applied to removal ratio	1.40	1.37	1.40

Fresh water applied: 0.93 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 11 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure *Nutrient source:* From dairy *Application method:* Broadcast/incorporate	1	320.0 50%	63.0 80%	277.0 80%	320.0
In season irrigation (no fertilizer) *Nutrient source:* Water only *Application method:* Surface	9	0.0 0%	0.0 0%	0.0 0%	8.5

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

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	8.5	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	320.0	63.0	277.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	335.5	63.0	277.0

Potential crop nutrient removal	240.0	45.0	198.0
Nutrient balance	95.5	18.0	79.0
Applied to removal ratio	1.40	1.40	1.40

Fresh water applied: 3.49 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 1-Dairy / Wheat, 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 (with fertilizer) *Nutrient source:* Retention pond (lagoon) *Application method:* Pipeline	3	89.0 50%	14.0 80%	69.0 80%	269.0

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.7	0.0	0.0	4.0
	0.7	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	2.0	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	267.0	42.0	207.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	276.0	42.0	207.0
Potential crop nutrient removal	198.0	30.6	149.4
Nutrient balance	78.0	11.4	57.6
Applied to removal ratio	1.39	1.37	1.39

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

NUTRIENT BUDGET FOR CROP: 1-Dairy / 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	5	0.0 0%	0.0 0%	0.0 0%	5.1

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	1.0	0.0	0.0	6.0
	1.0	0.0	0.0	

NUTRIENT BUDGET FOR CROP (CONTINUED): 1-Dairy / 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 (with fertilizer) *Nutrient source:* Retention pond (lagoon) *Application method:* Pipeline	4	80.0 50%	15.0 80%	69.0 80%	324.0

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	1.0	0.0	0.0	6.0
	1.0	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	9.1	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	320.0	60.0	276.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	336.1	60.0	276.0
Potential crop nutrient removal	240.0	45.0	198.0
Nutrient balance	96.1	15.0	78.0
Applied to removal ratio	1.40	1.33	1.39

Fresh water applied: 3.72 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 2 / Wheat, silage, soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure *Nutrient source:* From dairy *Application method:* Broadcast/incorporate	1	268.0 50%	42.0 80%	209.0 80%	268.0
In season irrigation (no fertilizer) *Nutrient source:* Water only *Application method:* Surface	3	0.0 0%	0.0 0%	0.0 0%	2.1

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.7	0.0	0.0	3.5
	0.7	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	2.1	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	268.0	42.0	209.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	277.1	42.0	209.0
Potential crop nutrient removal	198.0	30.6	149.4
Nutrient balance	79.1	11.4	59.6
Applied to removal ratio	1.40	1.37	1.40

Fresh water applied: 0.87 *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)
Dry manure *Nutrient source:* From dairy *Application method:* Broadcast/incorporate	1	320.0 50%	63.0 80%	277.0 80%	320.0
In season irrigation (no fertilizer) *Nutrient source:* Water only *Application method:* Surface	9	0.0 0%	0.0 0%	0.0 0%	9.1

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	1.0	0.0	0.0	5.0
	1.0	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	9.1	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	320.0	63.0	277.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	336.1	63.0	277.0
Potential crop nutrient removal	240.0	45.0	198.0
Nutrient balance	96.1	18.0	79.0
Applied to removal ratio	1.40	1.40	1.40

Fresh water applied: 3.72 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 3 / Wheat, 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 (with fertilizer) *Nutrient source:* Retention pond (lagoon) *Application method:* Pipeline	3	89.0 50%	14.0 80%	69.0 80%	269.1

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.7	0.0	0.0	6.0
	0.7	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	2.1	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	267.0	42.0	207.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	276.1	42.0	207.0
Potential crop nutrient removal	198.0	30.6	149.4
Nutrient balance	78.1	11.4	57.6
Applied to removal ratio	1.39	1.37	1.39

Fresh water applied: 0.86 *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)
In season irrigation (no fertilizer) *Nutrient source:* Water only *Application method:* Surface	5	0.0 0%	0.0 0%	0.0 0%	5.3

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	1.1	0.0	0.0	9.0
	1.1	0.0	0.0	

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 (with fertilizer) *Nutrient source:* Retention pond (lagoon) *Application method:* Pipeline	4	80.0 50%	15.0 80%	69.0 80%	324.2

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	1.1	0.0	0.0	9.0
	1.1	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	9.5	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	320.0	60.0	276.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	336.5	60.0	276.0
Potential crop nutrient removal	240.0	45.0	198.0
Nutrient balance	96.5	15.0	78.0
Applied to removal ratio	1.40	1.33	1.39

Fresh water applied: 3.86 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 4 / Wheat, 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 (with fertilizer) *Nutrient source:* Retention pond (lagoon) *Application method:* Pipeline	3	89.0 50%	14.0 80%	69.0 80%	269.0

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.7	0.0	0.0	6.0
	0.7	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	2.0	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	267.0	42.0	207.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	276.0	42.0	207.0
Potential crop nutrient removal	198.0	30.6	149.4
Nutrient balance	78.0	11.4	57.6
Applied to removal ratio	1.39	1.37	1.39

Fresh water applied: 0.83 *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)
In season irrigation (no fertilizer) *Nutrient source:* Water only *Application method:* Surface	5	0.0 0%	0.0 0%	0.0 0%	5.1

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	1.0	0.0	0.0	9.0
	1.0	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	4	80.0 50%	15.0 80%	69.0 80%	324.0

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	1.0	0.0	0.0	9.0
	1.0	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	9.1	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	320.0	60.0	276.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	336.1	60.0	276.0
Potential crop nutrient removal	240.0	45.0	198.0

Nutrient balance	96.1	15.0	78.0
Applied to removal ratio	1.40	1.33	1.39

Fresh water applied: 3.72 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 5 / Wheat, 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 (with fertilizer) *Nutrient source:* Retention pond (lagoon) *Application method:* Pipeline	3	89.0 50%	14.0 80%	69.0 80%	269.1

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.7	0.0	0.0	5.5
	0.7	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	2.1	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	267.0	42.0	207.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	276.1	42.0	207.0
Potential crop nutrient removal	198.0	30.6	149.4
Nutrient balance	78.1	11.4	57.6
Applied to removal ratio	1.39	1.37	1.39

Fresh water applied: 0.85 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 5 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (no fertilizer) *Nutrient source:* Water only *Application method:* Surface	5	0.0 0%	0.0 0%	0.0 0%	5.1

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	1.0	0.0	0.0	8.0
	1.0	0.0	0.0	

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

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (with fertilizer) *Nutrient source:* Retention pond (lagoon) *Application method:* Pipeline	4	80.0 50%	15.0 80%	69.0 80%	324.0

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	1.0	0.0	0.0	8.0
	1.0	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	9.1	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	320.0	60.0	276.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	336.1	60.0	276.0
Potential crop nutrient removal	240.0	45.0	198.0
Nutrient balance	96.1	15.0	78.0
Applied to removal ratio	1.40	1.33	1.39

Fresh water applied: 3.72 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 6 / Wheat, 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 (with fertilizer) *Nutrient source:* Retention pond (lagoon) *Application method:* Pipeline	3	89.0 50%	14.0 80%	69.0 80%	269.2

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.7	0.0	0.0	9.0
	0.7	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	2.2	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	267.0	42.0	207.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	276.2	42.0	207.0
Potential crop nutrient removal	198.0	30.6	149.4
Nutrient balance	78.2	11.4	57.6
Applied to removal ratio	1.39	1.37	1.39

Fresh water applied: 0.88 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 6 / 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	5	0.0 0%	0.0 0%	0.0 0%	5.2

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	1.0	0.0	0.0	13.0
	1.0	0.0	0.0	

In season irrigation (with fertilizer) *Nutrient source:* Retention pond (lagoon) *Application method:* Pipeline	4	80.0 50%	15.0 80%	69.0 80%	324.2

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	1.0	0.0	0.0	13.0
	1.0	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	9.3	0.0	0.0
Existing soil nutrient content	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	320.0	60.0	276.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	336.3	60.0	276.0
Potential crop nutrient removal	240.0	45.0	198.0

Nutrient balance	96.3	15.0	78.0
Applied to removal ratio	1.40	1.33	1.39

Fresh water applied: 3.82 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: 9 / Almond, in shell

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure *Nutrient source:* From dairy *Application method:* Broadcast/incorporate	1	250.0 50%	42.0 80%	207.0 80%	250.0
In season irrigation (no fertilizer) *Nutrient source:* Water only *Application method:* Surface	18	0.0 0%	0.0 0%	0.0 0%	8.4

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.5	0.0	0.0	2.0
	0.5	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	8.4	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	250.0	42.0	207.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	14.0		
Nutrients applied	272.4	42.0	207.0
Potential crop nutrient removal	195.0	30.0	148.5
Nutrient balance	77.4	12.0	58.5
Applied to removal ratio	1.40	1.40	1.39

Fresh water applied: 3.43 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: Espindula / Wheat, silage, soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure *Nutrient source:* From dairy *Application method:* Broadcast/incorporate	1	268.0 50%	42.0 80%	209.0 80%	268.0

NUTRIENT BUDGET FOR CROP (CONTINUED): Espindula / Wheat, 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) *Nutrient source:* Water only *Application method:* Surface	3	0.0 0%	0.0 0%	0.0 0%	2.2

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	0.7	0.0	0.0	9.0
	0.7	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	2.2	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	268.0	42.0	209.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	277.2	42.0	209.0
Potential crop nutrient removal	198.0	30.6	149.4
Nutrient balance	79.2	11.4	59.6
Applied to removal ratio	1.40	1.37	1.40

Fresh water applied: 0.90 *feet* Total harvests: 1

NUTRIENT BUDGET FOR CROP: Espindula / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure *Nutrient source:* From dairy *Application method:* Broadcast/incorporate	1	320.0 50%	63.0 80%	277.0 80%	320.0
In season irrigation (no fertilizer) *Nutrient source:* Water only *Application method:* Surface	9	0.0 0%	0.0 0%	0.0 0%	9.2

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
TID Canal	1.0	0.0	0.0	12.5
	1.0	0.0	0.0	

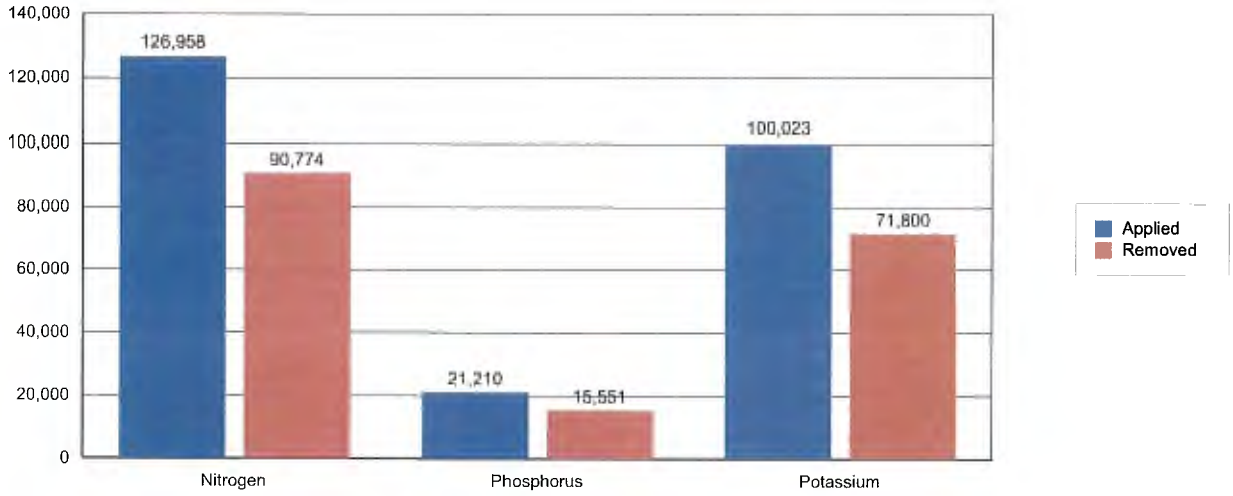
	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	9.2	0.0	0.0

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	320.0	63.0	277.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	336.2	63.0	277.0
Potential crop nutrient removal	240.0	45.0	198.0
Nutrient balance	96.2	18.0	79.0
Applied to removal ratio	1.40	1.40	1.40

Fresh water applied: 3.77 *feet* Total harvests: 1

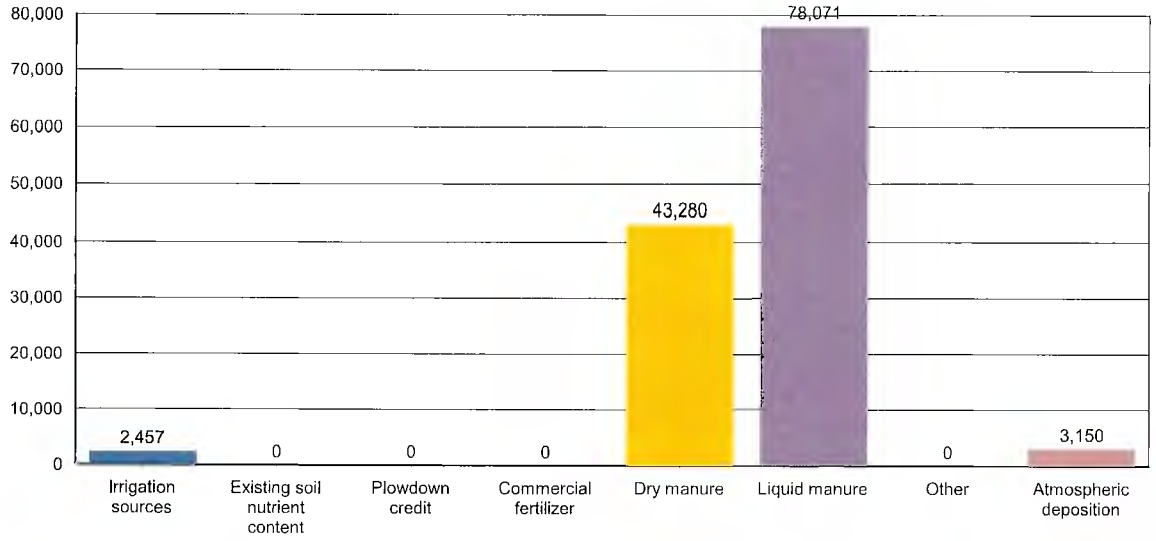
NUTRIENT APPLICATIONS, POTENTIAL REMOVAL, AND BALANCE

A. POUNDS OF NUTRIENT APPLIED VS. CROP REMOVAL POTENTIAL



	Total N (lbs)	Total P (lbs)	Total K (lbs)
Irrigation sources	2,457.4	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	43,280.0	7,644.0	35,784.0
Liquid manure	78,071.0	13,566.0	64,239.0
Other	0.0	0.0	0.0
Atmospheric deposition	3,150.0		
Nutrients applied to all crops	126,958.4	21,210.0	100,023.0
Potential crop nutrient removal	90,774.0	15,550.8	71,800.2
Nutrient balance	36,184.4	5,659.2	28,222.8
Applied to removal ratio	1.40	1.36	1.39

B. POUNDS OF NITROGEN APPLIED BY NUTRIENT SOURCE



	Total N (lbs)	Total P (lbs)	Total K (lbs)
Irrigation sources	2,457.4	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	43,280.0	7,644.0	35,784.0
Liquid manure	78,071.0	13,566.0	64,239.0
Other	0.0	0.0	0.0
Atmospheric deposition	3,150.0		
Nutrients applied to all crops	126,958.4	21,210.0	100,023.0
Potential crop nutrient removal	90,774.0	15,550.8	71,800.2
Nutrient balance	36,184.4	5,659.2	28,222.8
Applied to removal ratio	1.40	1.36	1.39

NUTRIENT BALANCE

A. WHOLE FARM BALANCE

	Total N (lbs)	Total P (lbs)	Total K (lbs)
Nutrients in storage from herd*			
Daily gross	2,305.8	375.1	996.9
Annual gross	841,622.2	136,906.3	363,867.5
Net to pond storage after ammonia losses (30% loss applied)	463,437.4	110,374.7	303,222.9
Net to drylot storage after ammonia losses (30% loss applied)	125,698.1	26,531.6	60,644.6
Net in storage (30% loss applied)	589,135.5	136,906.3	363,867.5
Irrigation sources	2,457.4	0.0	0.0
Atmospheric deposition	3,150.0		
Imports	0.0	0.0	0.0
Exports	469,980.0	117,282.1	265,782.6
Potential crop nutrient removal	90,774.0	15,550.8	71,800.2
Nutrient balance	33,989.0	4,073.5	26,284.7
Nutrient balance ratio	1.37	1.26	1.37

* Potassium excretion from milk cows and dry cows only.

SAMPLING AND ANALYSIS PLAN

A. SAMPLING AND ANALYSIS PLAN

No sampling and analysis plan entered. An alternative sampling and analysis plan must be attached to the Nutrient Management Plan.

NUTRIENT MANAGEMENT PLAN REVIEW

A. NUTRIENT MANAGEMENT PLAN REVIEW

Person who created the NMP:	Pedroso, Mariann	*See above for contact information.*
Date the NMP was drafted:	03/01/2021	
Person who approved the final NMP:	Pedroso, Mariann	*See above for contact information.*
Date of NMP implementation:	11/01/2022	

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: Land Application Map

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

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

Non-application area map reference number: Land Application Map

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: Land Application Map

C. PROCESS WASTEWATER WRITTEN AGREEMENTS

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

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

SAMPLING AND ANALYSIS PLAN CERTIFICATION

A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: Silvas Holsteins Dairy

Physical address of dairy:

6706 Elaine Rd	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.

Technical Service Provider
TITLE/QUALIFICATIONS OF CERTIFIED NUTRIENT MANAGEMENT SPECIALIST

SIGNATURE OF TRAINED PROFESSIONAL — DATE: 3/15/2021

Mariann Pedroso
PRINT OR TYPE NAME

P.O. Box 906; Newman, CA 95360
MAILING ADDRESS

(209) 862-4291
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
Manuel M Silva	Adrian J Silva
PRINT OR TYPE NAME	PRINT OR TYPE NAME
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: Silvas Holsteins Dairy

Physical address of dairy:

6706 Elaine Rd	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.

Technical Service Provider
TITLE/QUALIFICATIONS OF CERTIFIED NUTRIENT MANAGEMENT SPECIALIST

SIGNATURE OF TRAINED PROFESSIONAL — DATE: 3/15/2021

Mariann Pedroso
PRINT OR TYPE NAME

P.O. Box 906; Newman, CA 95360
MAILING ADDRESS

(209) 862-4291
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
Manuel M Silva	Adrian J Silva
PRINT OR TYPE NAME	PRINT OR TYPE NAME
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: Silvas Holsteins Dairy

6706 Elaine Rd	Turlock	Stanislaus	95380
Number and Street	City	County	Zip Code

Street and nearest cross street (if no address):

Operator name: Silva, Adrian J — Telephone no.: (209) 632-1223 (Landline) (209) 595-1846 (Cellular)

6706 Elaine Rd	Turlock	CA	95380
Mailing Address Number and Street	City	State	Zip Code

Legal owner name: Silva, Manuel M — Telephone no.: (209) 632-1223 (Landline) (209) 595-1846 (Cellular)

6706 Elaine Rd	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.

Manuel M Silva	
SIGNATURE OF OWNER OF FACILITY	SIGNATURE OF OPERATOR OF FACILITY
Manuel M Silva	Adrian J Silva
PRINT OR TYPE NAME	PRINT OR TYPE NAME
DATE	DATE

Legend:

- Field Boundary
- Flow Direction
- Wastewater Pipeline
- Freshwater Pipeline
- Irrigation Pipeline
- Canal
- Berms
- Pump

CAS
CARDOSO AG SERVICES

1276 Ft.
Scale

Project No.

Silva Holsteins Dairy
6706 Elaine Road
Turlock CA 95380

Date:	Drawn By:	App By:
02/05/2020	MD	MP

Field Map #1

Legend:

Field Boundary

CARDOSO AG SERVICES

482 Ft.

Scale

Project No.

Silva Holsteins Dairy
6706 Elaine Road
Turlock CA 95380

Date:	Drawn By:	App By:
02/05/2020	MD	MP

Field Map #2

CARDOSO AG SERVICES

LAND APPLICATION AREA INFORMATION

DAIRY NAME: SILVA HOLSTEINS DAIRY
DAIRY ADDRESS: 6706 ELAINE ROAD TURLOCK CA 95380

APN	FIELD ID	ACRES	CROPS	OP/OW	NUTRIENTS APPLIED
0057-0013-0019-0000	1	18	WHEAT/CORN	OP/OW	WW
0057-0013-0010-0000	2	15	WHEAT/CORN	OP/OW	SM
0057-0022-0012-0000	3	26	WHEAT/CORN	OP/OW	WW
0057-0022-0012-0000	4	27	WHEAT/CORN	OP/OW	WW
0057-0022-0012-0000	5	24	WHEAT/CORN	OP/OW	WW
0057-0013-0014-0000	6	38	WHEAT/CORN	OP/OW	WW
0044-0041-0008-0000	9	13	ALMONDS	OP/OW	SM
0044-0041-0009-0000	10	19	ALMONDS	OP/OW	SM
0057-0013-0009-0000	11	8	WHEAT/CORN	OP	SM
0057-0022-0013-0000	ESPINDULA	37	WHEAT/CORN	OP	SM
	TOTAL:	225			

Health Risk Assessment

Silva's Holsteins Dairy Facility

6706 Elaine 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

May 2022

Project 210505.0199

ATTACHMENT III

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. EXECUTIVE SUMMARY

This document contains the health risk assessment (HRA) performed on behalf of Sousa Engineering for the Silva's Holsteins 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.

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.

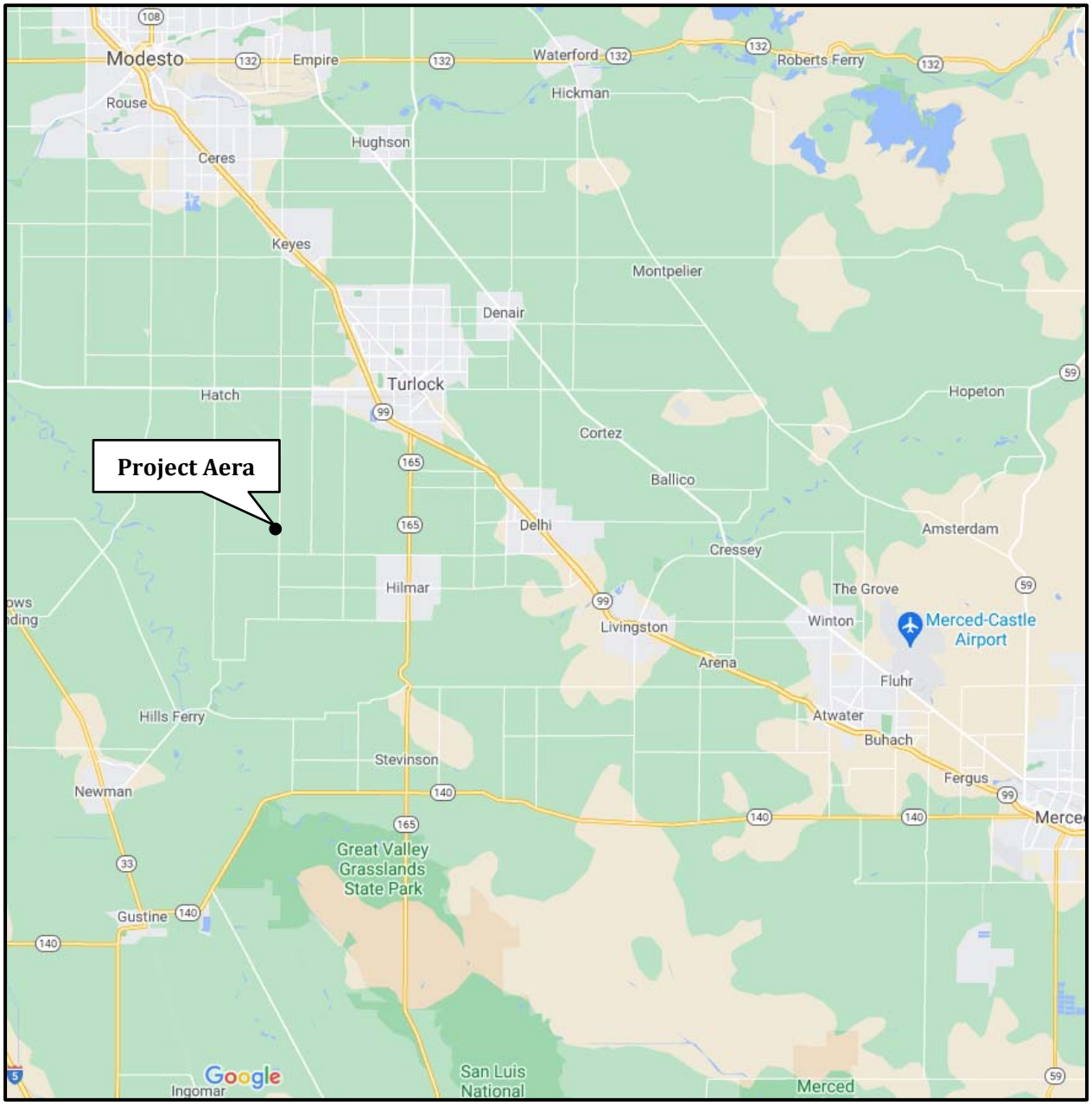
The San Joaquin Valley Air Pollution Control District (SJVAPCD) has set the level of significance for carcinogenic risk to twenty in one million (20×10^{-6}), which is understood as the possibility of causing twenty additional cancer cases in a population of one million people. The level of significance for acute and chronic non-cancer risk is a hazard index of 1.0. The maximum predicted cancer risk among the modeled receptors is 19.66 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 0.744 and 0.340, respectively, which is below the significance level for chronic and acute significance level.

In accordance with the SJVAPCD's *Guide for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015a) and polices (SJVAPCD 2015b; SJVAPCD 2015c) the potential health risk attributable to the proposed project is determined to be less than significant.

2. INTRODUCTION

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

Figure 2-1. Location Map



2.1. PROJECT DESCRIPTION

The existing dairy is located at 6706 Elaine Road 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 within three phases. Construction would include the construction of four new animal housing structures totaling 146,650 square feet. Construction of Phases 1, 2 and 3 were estimated to take approximately six, two and six months, respectively, beginning within two years of issuance of a Conditional Use Permit (CUP) and completing during the first six years.

After modification, the dairy will house approximately 4,100 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	880	1,900	1,020
Dry Cows	215	300	85
Bred Heifers 15-24 mos.	500	600	100
Heifers 7-14 mos.	193	600	407
Heifers 4-6 mos.	192	350	158
Calves 0-3 mos.	0	350	350
Bulls	0	0	0
TOTAL	**1,980**	**4,100**	**2,120**

This section describes the methodology used to predict the potential health risk to the population attributable to emissions of hazardous air pollutants from the proposed expansion of the dairy operation.

3.1. HAZARD IDENTIFICATION

The basis for evaluating potential health risk is the identification of sources of hazardous air pollutants (HAPs). The proposed dairy 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 feed loading tractor, a manure loading tractor, and a feed delivery tractor. Other diesel-fueled sources that will not have an increase in usage as a result of the Project are bedding delivery tractor manure scraping tractor, milk tankers, solids manure removal trucks, and commodity delivery trucks. 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 3-1**.

Table 3-1. Sources of Potential Emissions

Source ID	Description
MTI	Milk Truck Idling
MTT	Milk Truck Travel
SMTI	Solid Manure Truck Idling
SMTT	Solid Manure Truck Travel
CTI1-2	Commodity Truck Idling
CTT1-2	Commodity Truck Travel
FLT	Feed Loading Tractor
MLT	Manure Loading Tractor
FDT1-2	Feed and Bedding Delivery Tractor
SB2,10,11,18,19	Shade Barns
FS3,4,6,7,12,16,17	Free Stall Barns
MILK1	Milk Parlor
LAGOON1-3	Lagoons
MS1	Solid Manure Storage
LLA	Liquid Land Application
SLA	Solids Land Application
CONSTP1-3	Construction Activities

Table 3-2 lists the toxic substances emitted from each of these activities and also presents the classification of these species as to their potential for producing carcinogenic and non-cancer acute or chronic health impacts, if any.

Table 3-2. Chemicals of Potential Concern

CAS	Pollutant	Source	Cancer	Non-Cancer	
				Acute	Chronic
9901	Diesel Exhaust, Particulate Matter	Tractors, Diesel Trucks	X		X
9960	Sulfates	Animal Movement		X	X
50000	Formaldehyde	Animal Movement	X	X	X
56235	Carbon tetrachloride	Animal Movement, Lagoons	X	X	X
67630	Isopropyl Alcohol	Animal Movement		X	X
67663	Chloroform	Animal Movement, Lagoons	X	X	X
71432	Benzene	Animal Movement, Lagoons	X	X	X
71556	1,1,1-trichloroethane	Lagoons		X	X
74873	Methyl Chloride	Animal Movement	X	X	X
75003	Ethyl Chloride	Animal Movement			X
75070	Acetaldehyde	Animal Movement	X		X
75150	Carbon disulfide	Animal Movement		X	X
75252	Tribromomethane *	Lagoons			
75694	Trichloromonofluoromethane *	Lagoons			
76131	1,1,2-Trichloro-1,2,2-trifluoroethane	Lagoons			X
78933	Methyl Ethyl Ketone (MEK)	Animal Movement, Lagoons		X	X
79005	1,1,2-Trichloroethane	Animal Movement	X		
79016	Trichloroethylene	Animal Movement, Lagoons	X		X
79345	1,1,2,2-Tetrachloroethane	Animal Movement	X		
91203	Naphthalene	Animal Movement	X		X
95501	1,2-Dichlorobenzene *	Animal Movement, Lagoons			
95636	1,2,4-Trichlorobenzene *	Lagoons			
96128	1,2-Dibromo-3-chloropropane	Animal Movement	X		X
96184	1,2,3-Trichloropropane *	Animal Movement			
98828	Cumene *	Animal Movement			
100414	Ethylbenzene	Animal Movement			X
100425	Styrene	Animal Movement, Lagoons		X	X
100447	Benzyl chloride	Animal Movement	X	X	X
106467	1,4-Dichlorobenzene	Animal Movement, Lagoons	X		X
106934	1,2-Dibromoethane (EDB)	Animal Movement	X		X
106990	1,3-Butadiene	Lagoons	X		X
107062	1,2-Dichloroethane (EDC)	Animal Movement	X		X
107131	Acrylonitrile	Animal Movement	X		X
108054	Vinyl acetate	Animal Movement, Lagoons			X
108101	Methyl Isobutyl Ketone *	Animal Movement, Lagoons			
108883	Toluene	Animal Movement, Lagoons		X	X
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.

3.2. EXPOSURE ASSESSMENT

3.2.1. Source Emissions and Characterization

Peak one-hour emission rates and annual-averaged emission rates were calculated for all pollutants for each modeled source. Emissions attribute to animal movement and manure management were estimated by the SJVAPCD using PM_{10} emission factors and HAPs speciation spreadsheets. The 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 lagoon's H_2S emissions calculations are based on the surface area of the lagoon. As there

will be no increase in the surface area of the existing lagoons, there will be no increase in H_2S emission associated with the proposed expansion.

The actual total construction activities were estimated to be six months for Phase 1, two months for Phase 2 and six months for Phase 3. Therefore, a two-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**.

3.2.2. Dispersion Modeling

A version of EPA's AMS/EPA Regulatory Model - AERMOD (recompiled for the Lakes ISC-AERMOD View interface) was used to predict the dispersion of emissions from the dairy expansion. The construction activities, animal housing areas, milk barn, lagoons, solid manure storage and land application areas were modeled as area sources. Unit emission rates for the area sources of 1 g/sec divided by the area of the source were input into AERMOD. The travel route for the feed delivery tractors, solids removal trucks, milk tankers and commodity trucks were modeled as line sources, which represents a series of volume sources, with a unit emission rate of 1 g/sec. The feed loading tractor, manure loading tractor, solids removal truck idling, milk tanker idling, and commodity truck idling were modeled as point sources, with a unit emission rate of 1 g/sec. Modeled sources are identified in **Table 3-1**.

All of the AERMOD regulatory default parameters were employed. Rural dispersion parameters were used because the facility and surrounding land are considered "rural" under the Auer land use classification method. The AERMOD files are provided in electronic format on a CD in **Appendix B.**

3.2.2.1. Meteorological Data

The SJVAPCD provided meteorological data for 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.

3.2.2.2. 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 303 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 3-3**.

3.2.3. 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 (HARP 2) (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

[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/

Assessment (OEHHA). ADMRT site parameters were set for mandatory minimum exposure pathways for carcinogenic risk. The deposition rate was set to 0.02 m/s. The "fraction of time at home" options were both selected since the nearest school is 3.7 miles away and the nearest job center is over 4.5 miles away from the project site. Both the nearest school and nearest job center are well outside the 1 in a million cancer-risk isopleth. Risk reports were generated for carcinogenic risk, non-carcinogenic chronic risk and non-carcinogenic acute risk. Site parameters are included in the HARP output files.

3.3. RISK CHARACTERIZATION

For permitting and CEQA purposes, SJVAPCD has set the level of significance for carcinogenic risk at 20 in one million, which is understood as the possibility of causing twenty additional cancer cases in a population of one million people (SJVAPCD 2015b). The level of significance for chronic and acute non-cancer risk is a hazard index of one (SJVAPCD 2015c).

HARP 2 post-processing was used to assess the potential for the following: excess cancer risk, acute non-cancer effects, and chronic non-cancer effects. Total cancer risk was predicted for inhalation and non-inhalation 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 3-3**. The HARP2 output files for cancer, acute, and chronic risks are provided in electronic format on **Appendix B.**

As shown below in **Table 3-3,** the maximum predicted cancer risk is 1.97E-05. Cancer risks are primarily attributable to emissions of naphthalene and DPM through the inhalation pathway. Carcinogenic risks are tabulated by pollutant in **Table 3-4**.

The maximum predicted acute non-cancer hazard index is 0.744. Acute risks are primarily attributable to emissions of ammonia, which affects the respiratory system and eyes. Acute risks are tabulated by pollutant in **Table 3-5**.

The maximum predicted chronic non-cancer hazard index is 0.340. Chronic risks, tabulated by pollutant in **Table 3-6**, are primarily attributable to emissions of ammonia which affect the respiratory system.

Table 3-3. Risk Predicted By HARP

	Maximum Lifetime Excess Cancer Risk	Maximum Non-Cancer Chronic Hazard Index	Maximum Non-Cancer Acute Hazard Index
Construction	2.85E-06	1.96E-03	0.00E+00
Operational	1.68E-05	3.38E-01	7.44E-01
Total	1.97E-05	3.40E-01	7.44E-01
Receptor #, Name	1, On-Site Residence	1, On-Site Residence	2, On-site Residence
UTM Easting (m)	683494.64	683494.64	683528.15
UTM Northing (m)	4144569.51	4144569.51	4144603.27

Table 3-4. Risk by Pollutant – Maximum Cancer Risk at Receptor #1

CHEM	INHAL	SOIL	DERM	MOTHER	WATER	FISH	CROP	BEEF	DAIRY	PIG	CHICK	EGG	TOTAL
DieselExhPM	3.94E-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	3.94E-06
Arsenic	5.00E-08	2.71E-07	1.15E-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	3.32E-07
Cr(VI)	9.29E-08	3.95E-09	5.60E-11	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	9.69E-08
Lead	3.83E-10	3.36E-09	7.14E-11	3.70E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.85E-09
Nickel	1.66E-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	1.66E-09
TetraClEthane	8.24E-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	8.24E-07
1,1,2TriClEthan	1.66E-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	1.66E-07
DBCP	3.03E-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	3.03E-06
1,4-Dioxane	4.13E-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	4.13E-07
p-DiClBenzene	4.26E-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	4.26E-07
Acetaldehyde	2.30E-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	2.30E-07
Acrylonitrile	2.99E-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	0.00E+00	0.00E+00	0.00E+00	2.99E-06
Benzene	3.14E-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	3.14E-07
Benzyl Chloride	1.06E-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	1.06E-06
CCl4	7.72E-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	7.72E-08
Chloroform	2.18E-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	2.18E-08
Ethyl Benzene	3.67E-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	3.67E-08
EDB	1.09E-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	1.09E-06
EDC	7.16E-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	7.16E-08
Formaldehyde	9.34E-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	9.34E-08
Naphthalene	3.87E-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	3.87E-06
Perc	5.52E-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	5.52E-07
TCE	9.22E-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	9.22E-09
SUM	1.94E-05	2.78E-07	1.17E-08	3.70E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E-05

Table 3-5. Risk by Pollutant – Maximum Acute Noncancer Risk at Receptor #2

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	7.27E-01	0.00E+00	7.27E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.27E-01
Arsenic	2.09E-03	2.09E-03	0.00E+00	0.00E+00	0.00E+00	2.09E-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	2.09E-03
Copper	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.44E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.44E-05
Mercury	0.00E+00	1.74E-04	0.00E+00	0.00E+00	0.00E+00	1.74E-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	1.74E-04
Nickel	0.00E+00	0.00E+00	9.13E-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	0.00E+00	0.00E+00	9.13E-04
SULFATES	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-03
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.61E-05	0.00E+00	2.61E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.61E-05
1,4-Dioxane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.59E-04	0.00E+00	4.59E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.59E-04
Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.36E-03	0.00E+00	3.36E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.36E-03
Benzene	0.00E+00	0.00E+00	8.60E-03	0.00E+00	0.00E+00	8.60E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.60E-03	0.00E+00	0.00E+00	8.60E-03
Benzyl Chloride	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.29E-03	0.00E+00	4.29E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.29E-03
CS2	0.00E+00	3.71E-04	0.00E+00	0.00E+00	0.00E+00	3.71E-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	3.71E-04
CCl4	0.00E+00	1.45E-05	0.00E+00	0.00E+00	1.45E-05	1.45E-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	1.45E-05
Chloroform	0.00E+00	4.11E-04	0.00E+00	0.00E+00	0.00E+00	4.11E-04	4.11E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.11E-04
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	7.63E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.63E-03
Isopropyl Alcoh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.05E-04	0.00E+00	3.05E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.05E-04
MEK	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.59E-04	0.00E+00	5.59E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.59E-04
Perc	0.00E+00	2.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-04	0.00E+00	2.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-04
Styrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.02E-05	3.02E-05	0.00E+00	3.02E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.02E-05
Toluene	0.00E+00	1.72E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.72E-04	0.00E+00	1.72E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.72E-04
Xylenes	0.00E+00	6.29E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.29E-05	0.00E+00	6.29E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.29E-05
SUM	2.09E-03	3.56E-03	9.52E-03	0.00E+00	1.45E-05	1.17E-02	7.38E-01	0.00E+00	7.44E-01	0.00E+00	0.00E+00	8.60E-03	0.00E+00	0.00E+00	7.44E-01

Table 3-6. Risk by Pollutant – Maximum Chronic Noncancer Risk at Receptor #1

CHEM	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/ DEVEL	RESP	SKIN	EYE	BONE/ TEETH	ENDO	BLOOD	ODOR	GENERAL	MAX
DieselExhPM	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.23E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.23E-03
NH3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.14E-01
Arsenic	1.69E-02	1.69E-02	0.00E+00	0.00E+00	0.00E+00	1.69E-02	1.69E-02	1.69E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E-02
Cr(VI)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.18E-07	0.00E+00	0.00E+00	1.26E-06
Manganese	0.00E+00	3.03E-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	0.00E+00	3.03E-03
Mercury	0.00E+00	1.35E-04	0.00E+00	1.35E-04	0.00E+00	1.35E-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	1.35E-04
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.15E-06	1.80E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.80E-04	0.00E+00	0.00E+00	1.80E-04
Selenium	7.04E-07	7.04E-07	0.00E+00	0.00E+00	7.04E-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	7.04E-07
1,4-Dioxane	7.05E-06	0.00E+00	0.00E+00	7.05E-06	7.05E-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	7.05E-06
p-DiClBenzene	0.00E+00	1.84E-05	0.00E+00	1.84E-05	1.84E-05	0.00E+00	1.84E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-05
Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-04
Acrylonitrile	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.27E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.27E-04
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	1.44E-03	0.00E+00	0.00E+00	1.44E-03
CS2	0.00E+00	4.57E-05	0.00E+00	0.00E+00	0.00E+00	4.57E-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	4.57E-05
CCl4	0.00E+00	1.78E-05	0.00E+00	0.00E+00	1.78E-05	1.78E-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	1.78E-05
Chlorobenzn	0.00E+00	0.00E+00	0.00E+00	5.43E-06	5.43E-06	5.43E-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	5.43E-06
Chloroform	0.00E+00	0.00E+00	0.00E+00	5.29E-06	5.29E-06	5.29E-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	5.29E-06
Ethyl Chloride	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-07	1.22E-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	1.22E-07
Ethyl Benzene	0.00E+00	0.00E+00	0.00E+00	2.92E-06	2.92E-06	2.92E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.92E-06	0.00E+00	0.00E+00	0.00E+00	2.92E-06
EDB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.56E-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	7.56E-03
EDC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.44E-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	3.44E-06
Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.83E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.83E-04
Hexane	0.00E+00	1.51E-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	1.51E-06
Isopropyl Alcoh	0.00E+00	0.00E+00	0.00E+00	2.98E-06	0.00E+00	2.98E-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	2.98E-06
Naphthalene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.95E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.95E-03
Perc	0.00E+00	0.00E+00	0.00E+00	1.04E-03	1.04E-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	1.04E-03
Styrene	0.00E+00	7.77E-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	7.77E-06
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	3.57E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.57E-05
Vinyl Acetate	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-04
Xylenes	0.00E+00	3.55E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.55E-05	0.00E+00	3.55E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.55E-05
TCE	0.00E+00	3.03E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.03E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.03E-06
Sum	1.69E-02	2.02E-02	0.00E+00	1.22E-03	1.10E-03	2.47E-02	3.40E-01	1.69E-02	7.43E-05	0.00E+00	2.92E-06	1.62E-03	0.00E+00	0.00E+00	3.40E-01

4. CONCLUSIONS

In accordance with the *Guide for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015a) and San Joaquin Valley Air Pollution Control District policies (SJVAPCD 2015b; SJVAPCD 2016c), the unmitigated potential health risk attributable to the Silva's Holsteins 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.

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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? yes
   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	880				880
Dry Cows		215			215
Support Stock (Heifers, Calves, and Bulls)	390	303		192	885
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							0

Total Herd Summary

Total Milk Cows	880
Total Mature Cows	1,095
Support Stock (Heifers, Calves, and Bulls)	885
Total Calves	0
Total Dairy Head	1,980

Pre-Project Silage Information

Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn			
Alfalfa			
Wheat			

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? yes
   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	1,900				1,900
Dry Cows		300			300
Support Stock (Heifers, Calves, and Bulls)	1,090	810			1,900
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							0

Total Herd Summary

Total Milk Cows	1,900
Total Mature Cows	2,200
Support Stock (Heifers, Calves, and Bulls)	1,900
Total Calves	0
Total Dairy Head	4,100

Post-Project Silage Information

Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn			
Alfalfa			
Wheat			

PM10 Mitigation Measures and Control Efficiencies

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	Corral 1	open corral	support stock	55	55	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	Corral 2	open corral	support stock	55	55	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	Corral 3	open corral	support stock	55	55	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	Corral 4	open corral	support stock	27	27	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
5	Free Stall 3	freestall	milk cows	130	130	1	☐	☐	☐	☐	☑	☐	☐	☐	☐
6	Free Stall 4	freestall	milk cows	375	375	1	☐	☐	☐	☐	☑	☐	☐	☐	☐
7	Free Stall 6	freestall	milk cows	375	375	1	☐	☐	☐	☐	☑	☐	☐	☐	☐
8	Free Stall 7	freestall	support stock	250	250	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
9	Free Stall 12	freestall	dry cows	100	100	1	☐	☐	☐	☐	☑	☐	☐	☐	☐
10	Shade Barn 2	saudi style barn	support stock	140	140	1	☐	☐	☐	☐	☐	☐	☑	☐	☐
11	Shade Barn 10	saudi style barn	support stock	190	190	1	☐	☐	☐	☐	☐	☐	☑	☐	☐
12	Shade Barn 11	saudi style barn	dry cows	115	115	1	☐	☐	☐	☐	☐	☐	☑	☐	☐
13	Shade Barn 11	saudi style barn	support stock	45	45	1	☐	☐	☐	☐	☐	☐	☑	☐	☐
14	Shade Barn 13	saudi style barn	support stock	39	39	1	☐	☐	☐	☐	☐	☐	☑	☐	☐
15	Shade Barn 14	saudi style barn	support stock	29	29	1	☐	☐	☐	☐	☐	☐	☑	☐	☐
			Pre-Project Total # of Cows	1,980											

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	Corral 1	open corral	support stock	55	55	10.550										10.55
2	Corral 2	open corral	support stock	55	55	10.550										10.55
3	Corral 3	open corral	support stock	55	55	10.550										10.55
4	Corral 4	open corral	support stock	27	27	10.550										10.55
5	Free Stall 3	freestall	milk cows	130	130	1.370					80%					0.27
6	Free Stall 4	freestall	milk cows	375	375	1.370					80%					0.27
7	Free Stall 6	freestall	milk cows	375	375	1.370					80%					0.27
8	Free Stall 7	freestall	support stock	250	250	1.370										1.37
9	Free Stall 12	freestall	dry cows	100	100	1.370					80%					0.27
10	Shade Barn 2	saudi style barn	support stock	140	140	1.370							15%			1.17
11	Shade Barn 10	saudi style barn	support stock	190	190	1.370							15%			1.17
12	Shade Barn 11	saudi style barn	dry cows	115	115	1.370							15%			1.17
13	Shade Barn 11	saudi style barn	support stock	45	45	1.370							15%			1.17
14	Shade Barn 13	saudi style barn	support stock	39	39	1.370							15%			1.17
15	Shade Barn 14	saudi style barn	support stock	29	29	1.370							15%			1.17
			Pre-Project Total # of Cows	1,980												

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 3	freestall	milk cows	210	210		☐	☑	☑	☐	☑	☐	☐	☐	☐
2	Free Stall 4	freestall	milk cows	385	385		☐	☑	☑	☐	☑	☐	☐	☐	☐
3	Free Stall 6	freestall	milk cows	385	385		☐	☑	☑	☐	☑	☐	☐	☐	☑
4	Free Stall 7	freestall	milk cows	260	260		☐	☑	☑	☐	☑	☐	☐	☐	☑
5	Free Stall 12	freestall	dry cows	110	110		☐	☑	☑	☐	☑	☐	☐	☐	☑
6	Shade Barn 2	saudi style barn	support stock	140	140		☐	☑	☑	☐	☐	☐	☑	☐	☑
7	Shade Barn 10	saudi style barn	support stock	350	350		☐	☑	☑	☐	☐	☐	☑	☐	☐
8	Shade Barn 11	saudi style barn	dry cows	190	190		☐	☑	☑	☐	☐	☐	☑	☐	☐
9	Shade Barn 11	saudi style barn	support stock	110	110		☐	☑	☑	☐	☐	☐	☑	☐	☐

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	Free Stall 16	freestall	milk cows	260	260		☐	☑	☑	☐	☑	☐	☐	☐	☐
2	Free Stall 17	freestall	milk cows	400	400		☐	☑	☑	☐	☐	☐	☐	☐	☐
3	Free Stall 17	freestall	support stock	70	70		☐	☑	☑	☐	☐	☐	☐	☐	☐
4	Shade Barn 18	saudi style barn	support stock	350	350		☐	☑	☑	☐	☐	☐	☑	☐	☐
5	Shade Barn 19	saudi style barn	support stock	880	880		☐	☑	☑	☐	☐	☐	☑	☐	☐
		Post-Project Total # of Cows		4,100	(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 3	freestall	milk cows	210	210	1.370		12.5%	10%		80%					0.22
2	Free Stall 4	freestall	milk cows	385	385	1.370		12.5%	10%		80%					0.22
3	Free Stall 6	freestall	milk cows	385	385	1.370		12.5%	10%		80%				10%	0.19
4	Free Stall 7	freestall	milk cows	260	260	1.370		12.5%	10%		80%				10%	0.19
5	Free Stall 12	freestall	dry cows	110	110	1.370		12.5%	10%		80%				10%	0.19
6	Shade Barn 2	saudi style barn	support stock	140	140	1.370		12.5%	10%				15%		10%	0.83
7	Shade Barn 10	saudi style barn	support stock	350	350	1.370		12.5%	10%				15%			0.92
8	Shade Barn 11	saudi style barn	dry cows	190	190	1.370		12.5%	10%				15%			0.92
9	Shade Barn 11	saudi style barn	support stock	110	110	1.370		12.5%	10%				15%			0.92

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	Free Stall 16	freestall	milk cows	260	260	1.370		12.5%	10%		80%					0.22
2	Free Stall 17	freestall	milk cows	400	400	1.370		12.5%	10%							1.08
3	Free Stall 17	freestall	support stock	70	70	1.370		12.5%	10%							1.08
4	Shade Barn 18	saudi style barn	support stock	350	350	1.370		12.5%	10%				15%			0.92
5	Shade Barn 19	saudi style barn	support stock	880	880	1.370		12.5%	10%				15%			0.92

Pre-Project Potential to Emit - Cow Housing

	Pre-Project Potential to Emit - Cow Housing											
	Housing Name(s) or #(s)	Type of Cow	# of Cows	Controlled VOC EF (lb/hd-yr)	Controlled NH3 EF (lb/hd-yr)	Controlled PM10 EF (lb/hd-yr)	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1	Corral 1	support stock	55	6.13	10.08	10.55	0.9	337	1.5	554	1.6	580
2	Corral 2	support stock	55	6.13	10.08	10.55	0.9	337	1.5	554	1.6	580
3	Corral 3	support stock	55	6.13	10.08	10.55	0.9	337	1.5	554	1.6	580
4	Corral 4	support stock	27	6.13	10.08	10.55	0.5	166	0.7	272	0.8	285
5	Free Stall 3	milk cows	130	14.2	38.38	0.27	5.1	1,846	13.7	4,989	0.1	36
6	Free Stall 4	milk cows	375	14.2	38.38	0.27	14.6	5,325	39.4	14,391	0.3	103
7	Free Stall 6	milk cows	375	14.2	38.38	0.27	14.6	5,325	39.4	14,391	0.3	103
8	Free Stall 7	support stock	250	6.13	10.08	1.37	4.2	1,533	6.9	2,520	0.9	343
9	Free Stall 12	dry cows	100	7.88	19.44	0.27	2.2	788	5.3	1,944	0.1	27
10	Shade Barn 2	support stock	140	6.13	10.08	1.17	2.4	858	3.9	1,411	0.4	163
11	Shade Barn 10	support stock	190	6.13	10.08	1.17	3.2	1,165	5.2	1,915	0.6	221
12	Shade Barn 11	dry cows	115	7.88	19.44	1.17	2.5	906	6.1	2,236	0.4	134
13	Shade Barn 11	support stock	45	6.13	10.08	1.17	0.8	276	1.2	454	0.1	52
14	Shade Barn 13	support stock	39	6.13	10.08	1.17	0.7	239	1.1	393	0.1	45
15	Shade Barn 14	support stock	29	6.13	10.08	1.17	0.5	178	0.8	292	0.1	34
	Pre-Project Total # of Cows		**1,980**				**54.0**	**19,616**	**128.2**	**46,870**	**9.0**	**3,286**

*Multiple emissions units (freestalls, corrals, calf hutch areas, etc.) are combined in these rows.

Pre-Project Totals						
Total # of Cows	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1,980	54.0	19,616	128.2	46,870	9.0	3,286

Calculations:

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

Post-Project Potential to Emit - Cow Housing

	Post-Project Potential to Emit - Cow Housing											
	Housing Name(s) or #(s)	Type of Cow	# of Cows	Controlled VOC EF (lb/hd-yr)	Controlled NH3 EF (lb/hd-yr)	Controlled PM10 EF (lb/hd-yr)	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1	Free Stall 3	milk cows	210	9.86	38.38	0.22	5.7	2,071	22.1	8,059	0.1	45
2	Free Stall 4	milk cows	385	9.86	38.38	0.22	10.4	3,796	40.5	14,775	0.2	83
3	Free Stall 6	milk cows	385	9.86	38.38	0.19	10.4	3,796	40.5	14,775	0.2	75
4	Free Stall 7	milk cows	260	9.86	38.38	0.19	7.0	2,564	27.3	9,978	0.1	50
5	Free Stall 12	dry cows	110	5.57	19.44	0.19	1.7	613	5.9	2,138	0.1	21
6	Shade Barn 2	support stock	140	4.27	10.08	0.83	1.6	598	3.9	1,411	0.3	116
7	Shade Barn 10	support stock	350	4.27	10.08	0.92	4.1	1,495	9.7	3,528	0.9	321
8	Shade Barn 11	dry cows	190	5.57	19.44	0.92	2.9	1,058	10.1	3,694	0.5	174
9	Shade Barn 11	support stock	110	4.27	10.08	0.92	1.3	470	3.0	1,109	0.3	101
	Post-Project # of Cows (non-expansion)		**2,140**				**45.1**	**16,461**	**163.0**	**59,467**	**2.7**	**986**

*Multiple emissions units (freestalls, corrals, calf hutch areas, etc.) are combined in these rows.

	Post-Project Potential to Emit - Cow Housing: New Housing Units at an Expanding Dairy											
	Housing Name(s) or #(s)	Type of Cow	# of Cows	Controlled VOC EF (lb/hd-yr)	Controlled NH3 EF (lb/hd-yr)	Controlled PM10 EF (lb/hd-yr)	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1	Free Stall 16	milk cows	260	9.86	38.38	0.22	7.0	2,564	27.3	9,978	0.2	56
2	Free Stall 17	milk cows	400	9.86	38.38	1.08	10.8	3,944	42.1	15,350	1.2	432
3	Free Stall 17	support stock	70	4.27	10.08	1.08	0.8	299	1.9	706	0.2	76
4	Shade Barn 18	support stock	350	4.27	10.08	0.92	4.1	1,495	9.7	3,528	0.9	321
5	Shade Barn 19	support stock	880	4.27	10.08	0.92	10.3	3,758	24.3	8,870	2.2	807
	Total # of Cows From Expansion		**1,960**				**33.0**	**12,060**	**105.3**	**38,432**	**4.7**	**1,692**

*Multiple emissions units (freestalls, corrals, calf hutch areas, etc.) are combined in these rows.

Post-Project Totals						
Total # of Cows	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
4,100	78.1	28,521	268.3	97,899	7.4	2,678

Calculations:

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

Increase in Emissions

SSIPE (lb/yr)							
	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0	0	0	0	390	93	0
Cow Housing	0	0	-608	0	8,905	51,029	0
Liquid Manure	0	0	0	0	2,766	14,824	0
Solid Manure	0	0	0	0	618	3,769	0
Feed Handling	0	0	0	0	16,987	0	0
Total	**0**	**0**	**-608**	**0**	**29,666**	**69,715**	**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	1.1	0.2	0.0
Cow Housing	0.0	0.0	-1.6	0.0	24.1	140.1	0.0
Liquid Manure	0.0	0.0	0.0	0.0	7.5	40.6	0.0
Solid Manure	0.0	0.0	0.0	0.0	1.6	10.4	0.0
Feed Handling	0.0	0.0	0.0	0.0	46.5	0.0	0.0
Total	**0.0**	**0.0**	**-1.6**	**0.0**	**80.8**	**191.3**	**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	1,329	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**	**1,329**	**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.			
Author or updater	Matthew Cegielski	*Last Update*	September 24, 2018	
Facility:	Silvas Dairy		0	Not Set
ID#:				
Project #:				

*Notes:

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)
Shade Barn 19	Support Stock	880	0.2958	2,581	0.7958	6,936	-0.1083	-1,218
Free Stall Barn 3	Milk	210	0.0250	225	0.3500	3,070	0.0000	9
Free Stall Barn 4	Milk	385	-0.1750	-1,529	0.0458	384	-0.0042	-20
Free Stall Barn 6	Milk	385	-0.1750	-1,529	0.0458	384	-0.0042	-28
Free Stall Barn 7	Milk	260	0.1167	1,031	0.8500	7,458	-0.0333	-293
Free Stall Barn 12	Dry	110	-0.0208	-175	0.0250	194	0.0000	-6
Free Stall Barn 16	Milk	260	0.2917	2,564	1.1375	9,978	0.0083	56
Free Stall Barn 17	Milk/Support Stock	470	0.4833	4,243	1.8333	16,056	0.0583	508
Shade Barn 2	Support Stock	140	-0.0333	-260	0.0000	0	-0.0042	-47
Shade Barn 10	Support Stock	350	0.0375	330	0.1875	1,613	0.0125	100
Shade Barn 11	Dry/Support Stock	300	0.0375	346	0.2417	2,113	0.0125	89
Shade Barn 18	Support Stock	350	0.1208	1,078	0.3250	2,843	0.0292	242

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	-	-	0.04	390	0.01	93	-
Cow Housing	-0.07	-608	1.02	8,905	5.83	51,029	-
Liquid Manure	-	-	0.32	2,766	1.69	14,824	-
Solid Manure	-	-	0.07	618	0.43	3,769	-
Feed Handling	-	-	1.94	16,987	-	-	-
Lagoon/Storage Pond	-	-	0.15	1,351	0.81	7,118	0
Land Application (Liquid)	-	-	0.16	1,424	0.88	7,702	-
Land Application (Solid)	-	-	0.04	329	0.23	2,008	-
Solid Manure Storage	-	-	0.03	256	0.20	1,789	-

SSIPE Total Herd Summary	
Change in Milk Cows	1,020
Change in Dairy Head	2,120
Change in Dairy Head (Flushed)	1,720

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:	Silvas Dairy
ID#:	0
Project #:	0

Formula

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

Substances	CAS#	Dust* lb/lb PM_{10}	Shade Barn 19		Free Stall Barn 3		Free Stall Barn 4		Free Stall Barn 6		Free Stall Barn 7		Free Stall Barn 12		Free Stall Barn 16		Free Stall Barn 17		Shade Barn 2		Shade Barn 10		Shade Barn 11		Shade Barn 18	
			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	lb/hr	lb/yr	lb/hr	lb/yr
PM_{10} Emissions Rates			0.00E+00	0.00E+00	0.00E+00	9.00E+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	0.01	56.00	5.83E-02	5.08E+02	0.00E+00	0.00E+00	1.25E-02	1.00E+02	1.25E-02	8.90E+01	2.92E-02	2.42E+02
			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	LB/HR	LB/YR	LB/HR	LB/YR
Aluminum	**7429905**	4.66E-02	0.00E+00	0.00E+00	0.00E+00	4.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.88E-04	2.61E+00	2.72E-03	2.37E+01	0.00E+00	0.00E+00	5.83E-04	4.66E+00	5.83E-04	4.15E+00	1.36E-03	1.13E+01
Antimony	**7440360**	1.90E-05	0.00E+00	0.00E+00	0.00E+00	1.71E-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	1.58E-07	1.06E-03	1.11E-06	9.65E-03	0.00E+00	0.00E+00	2.38E-07	1.90E-03	2.38E-07	1.69E-03	5.54E-07	4.60E-03
Arsenic	**7440382**	1.60E-05	0.00E+00	0.00E+00	0.00E+00	1.44E-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	1.33E-07	8.96E-04	9.33E-07	8.13E-03	0.00E+00	0.00E+00	2.00E-07	1.60E-03	2.00E-07	1.42E-03	4.67E-07	3.87E-03
Barium	**7440393**	4.69E-04	0.00E+00	0.00E+00	0.00E+00	4.22E-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	3.91E-06	2.63E-02	2.74E-05	2.38E-01	0.00E+00	0.00E+00	5.86E-06	4.69E-02	5.86E-06	4.17E-02	1.37E-05	1.13E-01
Bromine	**7726956**	4.40E-05	0.00E+00	0.00E+00	0.00E+00	3.96E-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	3.67E-07	2.46E-03	2.57E-06	2.24E-02	0.00E+00	0.00E+00	5.50E-07	4.40E-03	5.50E-07	3.92E-03	1.28E-06	1.06E-02
Chromium	**7440473**	1.40E-05	0.00E+00	0.00E+00	0.00E+00	1.26E-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	1.17E-07	7.84E-04	8.17E-07	7.11E-03	0.00E+00	0.00E+00	1.75E-07	1.40E-03	1.75E-07	1.25E-03	4.08E-07	3.39E-03
Copper	**7440508**	1.32E-04	0.00E+00	0.00E+00	0.00E+00	1.19E-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	1.10E-06	7.39E-03	7.70E-06	6.71E-02	0.00E+00	0.00E+00	1.65E-06	1.32E-02	1.65E-06	1.17E-02	3.85E-06	3.19E-02
Hexavalent Chromium**	**18540299**	7.00E-07	0.00E+00	0.00E+00	0.00E+00	6.30E-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	5.83E-09	3.92E-05	4.08E-08	3.56E-04	0.00E+00	0.00E+00	8.75E-09	7.00E-05	8.75E-09	6.23E-05	2.04E-08	1.69E-04
Lead	**7439921**	3.50E-05	0.00E+00	0.00E+00	0.00E+00	3.15E-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	2.92E-07	1.96E-03	2.04E-06	1.78E-02	0.00E+00	0.00E+00	4.38E-07	3.50E-03	4.38E-07	3.12E-03	1.02E-06	8.47E-03
Manganese	**7439965**	7.59E-04	0.00E+00	0.00E+00	0.00E+00	6.83E-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	6.33E-06	4.25E-02	4.43E-05	3.86E-01	0.00E+00	0.00E+00	9.49E-06	7.59E-02	9.49E-06	6.76E-02	2.21E-05	1.84E-01
Mercury	**7439976**	4.00E-06	0.00E+00	0.00E+00	0.00E+00	3.60E-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	3.33E-08	2.24E-04	2.33E-07	2.03E-03	0.00E+00	0.00E+00	5.00E-08	4.00E-04	5.00E-08	3.56E-04	1.17E-07	9.68E-04
Nickel	**7440020**	7.00E-06	0.00E+00	0.00E+00	0.00E+00	6.30E-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	5.83E-08	3.92E-04	4.08E-07	3.56E-03	0.00E+00	0.00E+00	8.75E-08	7.00E-04	8.75E-08	6.23E-04	2.04E-07	1.69E-03
Phosphorus	**7723140**	4.01E-02	0.00E+00	0.00E+00	0.00E+00	3.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.35E-04	2.25E+00	2.34E-03	2.04E+01	0.00E+00	0.00E+00	5.02E-04	4.01E+00	5.02E-04	3.57E+00	1.17E-03	9.71E+00
Selenium	**7782492**	1.00E-06	0.00E+00	0.00E+00	0.00E+00	9.00E-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	8.33E-09	5.60E-05	5.83E-08	5.08E-04	0.00E+00	0.00E+00	1.25E-08	1.00E-04	1.25E-08	8.90E-05	2.92E-08	2.42E-04
Sulfates	**9960**	7.28E-03	0.00E+00	0.00E+00	0.00E+00	6.55E-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	6.07E-05	4.08E-01	4.25E-04	3.70E+00	0.00E+00	0.00E+00	9.10E-05	7.28E-01	9.10E-05	6.48E-01	2.12E-04	1.76E+00
Vanadium	**7440622**	3.00E-05	0.00E+00	0.00E+00	0.00E+00	2.70E-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	2.50E-07	1.68E-03	1.75E-06	1.52E-02	0.00E+00	0.00E+00	3.75E-07	3.00E-03	3.75E-07	2.67E-03	8.75E-07	7.26E-03
Zinc	**7440666**	3.42E-04	0.00E+00	0.00E+00	0.00E+00	3.08E-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	2.85E-06	1.92E-02	2.00E-05	1.74E-01	0.00E+00	0.00E+00	4.28E-06	3.42E-02	4.28E-06	3.04E-02	9.98E-06	8.28E-02
Ammonia	**7664417**		7.96E-01	6.94E+03	3.50E-01	3.07E+03	4.58E-02	3.84E+02	4.58E-02	3.84E+02	8.50E-01	7.46E+03	2.50E-02	1.94E+02	1.14E+00	9.98E+03	1.83E+00	1.61E+04	0.00E+00	0.00E+00	1.88E-01	1.61E+03	2.42E-01	2.11E+03	3.25E-01	2.84E+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:	Silvas Dairy
ID#:	0
Project #:	0

Formula

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

			Shade Barn 19		Free Stall Barn 3		Free Stall Barn 4		Free Stall Barn 6		Free Stall Barn 7		Free Stall Barn 12		Free Stall Barn 16		Free Stall Barn 17		Shade Barn 2		Shade Barn 10		Shade Barn 11		Shade Barn 18	
			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	lb/hr	lb/yr	lb/hr	lb/yr
VOC Emission Rates			**2.96E-01**	**2,581.0**	**2.50E-02**	**225.0**	**0.00E+00**	**0.0**	**0.00E+00**	**0.0**	**1.17E-01**	**1,031.0**	**0.00E+00**	**0.0**	**2.92E-01**	**2,564.0**	**4.83E-01**	**4,243.0**	**0.00E+00**	**0.0**	**3.75E-02**	**330**	**3.75E-02**	**346.0**	**1.21E-01**	**1,078.0**
Substances	**CAS#**	**Volatiles (lb/lb VOC)***	**LB/HR**	**LB/YR**	**LB/HR**	**LB/YR**	**LB/HR**	**LB/YR**	**LB/HR**	**LB/YR**	**LB/HR**	**LB/YR**	**LB/HR**	**LB/YR**	**LB/HR**	**LB/YR**	**LB/HR**	**LB/YR**	**LB/HR**	**LB/YR**	**LB/HR**	**LB/YR**	**LB/HR**	**LB/YR**	**LB/HR**	**LB/YR**
1,1,2,2-Tetrachloroethane	**79345**	8.73E-06	2.58E-06	2.25E-02	2.18E-07	1.96E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-06	9.00E-03	0.00E+00	0.00E+00	2.55E-06	2.24E-02	4.22E-06	3.70E-02	0.00E+00	0.00E+00	3.27E-07	2.88E-03	3.27E-07	3.02E-03	1.05E-06	9.41E-03
1,1,2-Trichloroethane	**79005**	2.26E-04	6.69E-05	5.83E-01	5.65E-06	5.09E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-05	2.33E-01	0.00E+00	0.00E+00	6.59E-05	5.79E-01	1.09E-04	9.59E-01	0.00E+00	0.00E+00	8.47E-06	7.46E-02	8.48E-06	7.82E-02	2.73E-05	2.44E-01
1,2,3-Trichloropropane	**96184**	2.76E-04	8.17E-05	7.12E-01	6.90E-06	6.21E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.22E-05	2.85E-01	0.00E+00	0.00E+00	8.05E-05	7.08E-01	1.33E-04	1.17E+00	0.00E+00	0.00E+00	1.04E-05	9.11E-02	1.04E-05	9.55E-02	3.34E-05	2.98E-01
1,2,4-Trichlorobenzene	**120821**	7.79E-04	2.30E-04	2.01E+00	1.95E-05	1.75E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.09E-05	8.03E-01	0.00E+00	0.00E+00	2.27E-04	2.00E+00	3.77E-04	3.31E+00	0.00E+00	0.00E+00	2.92E-05	2.57E-01	2.92E-05	2.70E-01	9.41E-05	8.40E-01
1,2-Dibromo-3-chloropropane	**96128**	4.94E-05	1.46E-05	1.28E-01	1.24E-06	1.11E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.76E-06	5.09E-02	0.00E+00	0.00E+00	1.44E-05	1.27E-01	2.39E-05	2.10E-01	0.00E+00	0.00E+00	1.85E-06	1.63E-02	1.85E-06	1.71E-02	5.97E-06	5.33E-02
1,2-Dichlorobenzene	**95501**	5.48E-04	1.62E-04	1.41E+00	1.37E-05	1.23E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.39E-05	5.65E-01	0.00E+00	0.00E+00	1.60E-04	1.41E+00	2.65E-04	2.33E+00	0.00E+00	0.00E+00	2.06E-05	1.81E-01	2.06E-05	1.90E-01	6.62E-05	5.91E-01
1,3-Dichlorobenzene	**541731**	4.90E-04	1.45E-04	1.26E+00	1.23E-05	1.10E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.72E-05	5.05E-01	0.00E+00	0.00E+00	1.43E-04	1.26E+00	2.37E-04	2.08E+00	0.00E+00	0.00E+00	1.84E-05	1.62E-01	1.84E-05	1.70E-01	5.92E-05	5.28E-01
1,4 Dioxane	**123911**	1.41E-03	4.17E-04	3.64E+00	3.53E-05	3.17E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-04	1.45E+00	0.00E+00	0.00E+00	4.11E-04	3.62E+00	6.82E-04	5.98E+00	0.00E+00	0.00E+00	5.29E-05	4.65E-01	5.29E-05	4.88E-01	1.70E-04	1.52E+00
1,4-Dichlorobenzene	**106467**	5.19E-04	1.54E-04	1.34E+00	1.30E-05	1.17E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.06E-05	5.35E-01	0.00E+00	0.00E+00	1.51E-04	1.33E+00	2.51E-04	2.20E+00	0.00E+00	0.00E+00	1.95E-05	1.71E-01	1.95E-05	1.80E-01	6.27E-05	5.59E-01
Acetaldehyde	**75070**	2.41E-03	7.13E-04	6.22E+00	6.03E-05	5.42E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.81E-04	2.48E+00	0.00E+00	0.00E+00	7.03E-04	6.18E+00	1.16E-03	1.02E+01	0.00E+00	0.00E+00	9.04E-05	7.95E-01	9.04E-05	8.34E-01	2.91E-04	2.60E+00
Acrylonitrile	**107131**	2.43E-04	7.19E-05	6.27E-01	6.08E-06	5.47E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.84E-05	2.51E-01	0.00E+00	0.00E+00	7.09E-05	6.23E-01	1.17E-04	1.03E+00	0.00E+00	0.00E+00	9.11E-06	8.02E-02	9.11E-06	8.41E-02	2.94E-05	2.62E-01
Benzene	**71432**	3.19E-04	9.44E-05	8.23E-01	7.98E-06	7.18E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.72E-05	3.29E-01	0.00E+00	0.00E+00	9.30E-05	8.18E-01	1.54E-04	1.35E+00	0.00E+00	0.00E+00	1.20E-05	1.05E-01	1.20E-05	1.10E-01	3.85E-05	3.44E-01
Benzyl chloride	**100447**	2.89E-04	8.55E-05	7.46E-01	7.23E-06	6.50E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.37E-05	2.98E-01	0.00E+00	0.00E+00	8.43E-05	7.41E-01	1.40E-04	1.23E+00	0.00E+00	0.00E+00	1.08E-05	9.54E-02	1.08E-05	1.00E-01	3.49E-05	3.12E-01
Butyraldehyde	**123728**	1.14E-04	3.37E-05	2.94E-01	2.85E-06	2.57E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E-05	1.18E-01	0.00E+00	0.00E+00	3.33E-05	2.92E-01	5.51E-05	4.84E-01	0.00E+00	0.00E+00	4.28E-06	3.76E-02	4.28E-06	3.94E-02	1.38E-05	1.23E-01
Carbon Disulfide	**75150**	2.49E-03	7.37E-04	6.43E+00	6.23E-05	5.60E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.91E-04	2.57E+00	0.00E+00	0.00E+00	7.26E-04	6.38E+00	1.20E-03	1.06E+01	0.00E+00	0.00E+00	9.34E-05	8.22E-01	9.34E-05	8.62E-01	3.01E-04	2.68E+00
Carbon tetrachloride	**56235**	5.87E-05	1.74E-05	1.52E-01	1.47E-06	1.32E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.85E-06	6.05E-02	0.00E+00	0.00E+00	1.71E-05	1.51E-01	2.84E-05	2.49E-01	0.00E+00	0.00E+00	2.20E-06	1.94E-02	2.20E-06	2.03E-02	7.09E-06	6.33E-02
Chlorobenzene	**108907**	2.72E-04	8.05E-05	7.02E-01	6.80E-06	6.12E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.17E-05	2.80E-01	0.00E+00	0.00E+00	7.93E-05	6.97E-01	1.31E-04	1.15E+00	0.00E+00	0.00E+00	1.02E-05	8.98E-02	1.02E-05	9.41E-02	3.29E-05	2.93E-01
Chloroform	**67663**	1.31E-04	3.88E-05	3.38E-01	3.28E-06	2.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-05	1.35E-01	0.00E+00	0.00E+00	3.82E-05	3.36E-01	6.33E-05	5.56E-01	0.00E+00	0.00E+00	4.91E-06	4.32E-02	4.91E-06	4.53E-02	1.58E-05	1.41E-01
Chloromethane	**74873**	7.93E-04	2.35E-04	2.05E+00	1.98E-05	1.78E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.25E-05	8.18E-01	0.00E+00	0.00E+00	2.31E-04	2.03E+00	3.83E-04	3.36E+00	0.00E+00	0.00E+00	2.97E-05	2.62E-01	2.97E-05	2.74E-01	9.58E-05	8.55E-01
Crotonaldehyde	**4170303**	1.41E-04	4.17E-05	3.64E-01	3.53E-06	3.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-05	1.45E-01	0.00E+00	0.00E+00	4.11E-05	3.62E-01	6.82E-05	5.98E-01	0.00E+00	0.00E+00	5.29E-06	4.65E-02	5.29E-06	4.88E-02	1.70E-05	1.52E-01
Cyclohexane	**110827**	6.83E-03	2.02E-03	1.76E+01	1.71E-04	1.54E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.97E-04	7.04E+00	0.00E+00	0.00E+00	1.99E-03	1.75E+01	3.30E-03	2.90E+01	0.00E+00	0.00E+00	2.56E-04	2.25E+00	2.56E-04	2.36E+00	8.25E-04	7.36E+00
Ethyl Chloride	**75003**	2.39E-04	7.07E-05	6.17E-01	5.98E-06	5.38E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.79E-05	2.46E-01	0.00E+00	0.00E+00	6.97E-05	6.13E-01	1.16E-04	1.01E+00	0.00E+00	0.00E+00	8.96E-06	7.89E-02	8.96E-06	8.27E-02	2.89E-05	2.58E-01
Ethylbenzene	**100414**	3.47E-04	1.03E-04	8.96E-01	8.68E-06	7.81E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.05E-05	3.58E-01	0.00E+00	0.00E+00	1.01E-04	8.90E-01	1.68E-04	1.47E+00	0.00E+00	0.00E+00	1.30E-05	1.15E-01	1.30E-05	1.20E-01	4.19E-05	3.74E-01
Ethylene Dibromide (EDB)	**106934**	3.06E-04	9.05E-05	7.90E-01	7.65E-06	6.89E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.57E-05	3.15E-01	0.00E+00	0.00E+00	8.93E-05	7.85E-01	1.48E-04	1.30E+00	0.00E+00	0.00E+00	1.15E-05	1.01E-01	1.15E-05	1.06E-01	3.70E-05	3.30E-01
Ethylene Dichloride (EDC)	**107062**	5.89E-05	1.74E-05	1.52E-01	1.47E-06	1.33E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.87E-06	6.07E-02	0.00E+00	0.00E+00	1.72E-05	1.51E-01	2.85E-05	2.50E-01	0.00E+00	0.00E+00	2.21E-06	1.94E-02	2.21E-06	2.04E-02	7.12E-06	6.35E-02
Formaldehyde	**50000**	3.98E-04	1.18E-04	1.03E+00	9.95E-06	8.96E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.64E-05	4.10E-01	0.00E+00	0.00E+00	1.16E-04	1.02E+00	1.92E-04	1.69E+00	0.00E+00	0.00E+00	1.49E-05	1.31E-01	1.49E-05	1.38E-01	4.81E-05	4.29E-01
Hexane	**110543**	8.12E-04	2.40E-04	2.10E+00	2.03E-05	1.83E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.47E-05	8.37E-01	0.00E+00	0.00E+00	2.37E-04	2.08E+00	3.92E-04	3.45E+00	0.00E+00	0.00E+00	3.05E-05	2.68E-01	3.05E-05	2.81E-01	9.81E-05	8.75E-01
Isopropyl Alchol	**67630**	1.62E-03	4.79E-04	4.18E+00	4.05E-05	3.65E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-04	1.67E+00	0.00E+00	0.00E+00	4.73E-04	4.15E+00	7.83E-04	6.87E+00	0.00E+00	0.00E+00	6.08E-05	5.35E-01	6.08E-05	5.61E-01	1.96E-04	1.75E+00
Isopropylbenzene (Cumene)	**98828**	5.61E-05	1.66E-05	1.45E-01	1.40E-06	1.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.55E-06	5.78E-02	0.00E+00	0.00E+00	1.64E-05	1.44E-01	2.71E-05	2.38E-01	0.00E+00	0.00E+00	2.10E-06	1.85E-02	2.10E-06	1.94E-02	6.78E-06	6.05E-02
Methyl Ethyl Ketone (2-butanone)	**78933**	1.46E-02	4.32E-03	3.77E+01	3.65E-04	3.29E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-03	1.51E+01	0.00E+00	0.00E+00	4.26E-03	3.74E+01	7.06E-03	6.19E+01	0.00E+00	0.00E+00	5.48E-04	4.82E+00	5.48E-04	5.05E+00	1.76E-03	1.57E+01
Methyl Isobutyl Ketone	**108101**	7.09E-04	2.10E-04	1.83E+00	1.77E-05	1.60E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.27E-05	7.31E-01	0.00E+00	0.00E+00	2.07E-04	1.82E+00	3.43E-04	3.01E+00	0.00E+00	0.00E+00	2.66E-05	2.34E-01	2.66E-05	2.45E-01	8.57E-05	7.64E-01
Napthalene	**91203**	1.16E-03	3.43E-04	2.99E+00	2.90E-05	2.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-04	1.20E+00	0.00E+00	0.00E+00	3.38E-04	2.97E+00	5.61E-04	4.92E+00	0.00E+00	0.00E+00	4.35E-05	3.83E-01	4.35E-05	4.01E-01	1.40E-04	1.25E+00
Perchloroethylene	**127184**	6.51E-04	1.93E-04	1.68E+00	1.63E-05	1.46E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.60E-05	6.71E-01	0.00E+00	0.00E+00	1.90E-04	1.67E+00	3.15E-04	2.76E+00	0.00E+00	0.00E+00	2.44E-05	2.15E-01	2.44E-05	2.25E-01	7.87E-05	7.02E-01
Styrene	**100425**	3.59E-04	1.06E-04	9.27E-01	8.98E-06	8.08E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.19E-05	3.70E-01	0.00E+00	0.00E+00	1.05E-04	9.20E-01	1.74E-04	1.52E+00	0.00E+00	0.00E+00	1.35E-05	1.18E-01	1.35E-05	1.24E-01	4.34E-05	3.87E-01
t-1,4-Dichloro-2-butene	**764410**	8.92E-04	2.64E-04	2.30E+00	2.23E-05	2.01E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-04	9.20E-01	0.00E+00	0.00E+00	2.60E-04	2.29E+00	4.31E-04	3.78E+00	0.00E+00	0.00E+00	3.35E-05	2.94E-01	3.35E-05	3.09E-01	1.08E-04	9.62E-01
Toluene	**108883**	1.07E-03	3.17E-04	2.76E+00	2.68E-05	2.41E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-04	1.10E+00	0.00E+00	0.00E+00	3.12E-04	2.74E+00	5.17E-04	4.54E+00	0.00E+00	0.00E+00	4.01E-05	3.53E-01	4.01E-05	3.70E-01	1.29E-04	1.15E+00
Trichlorofluoromethane*	**75694**	1.08E-07	3.20E-08	2.79E-04	2.70E-09	2.43E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-08	1.11E-04	0.00E+00	0.00E+00	3.15E-08	2.77E-04	5.22E-08	4.58E-04	0.00E+00	0.00E+00	4.05E-09	3.56E-05	4.05E-09	3.74E-05	1.31E-08	1.16E-04
Vinyl acetate	**108054**	1.97E-03	5.83E-04	5.08E+00	4.93E-05	4.43E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.30E-04	2.03E+00	0.00E+00	0.00E+00	5.75E-04	5.05E+00	9.52E-04	8.36E+00	0.00E+00	0.00E+00	7.39E-05	6.50E-01	7.39E-05	6.82E-01	2.38E-04	2.12E+00
Xylenes	**1330207**	1.80E-03	5.33E-04	4.65E+00	4.50E-05	4.05E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.10E-04	1.86E+00	0.00E+00	0.00E+00	5.25E-04	4.62E+00	8.70E-04	7.64E+00	0.00E+00	0.00E+00	6.75E-05	5.94E-01	6.75E-05	6.23E-01	2.18E-04	1.94E+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:	Silvas Dairy					
ID#:	0					
Project #:	0					
More than one Milk Parlor?	Y		**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	390	93				
Milk Parlor 2	0	0	lb/hr	lb/yr	lb/hr	lb/yr
VOC Emission Rates			**4.46E-02**	**3.90E+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	3.89E-07	3.41E-03	0.00E+00	0.00E+00
1,1,2-Trichloroethane	**79005**	2.26E-04	1.01E-05	8.82E-02	0.00E+00	0.00E+00
1,2,3-Trichloropropane	**96184**	2.76E-04	1.23E-05	1.08E-01	0.00E+00	0.00E+00
1,2,4-Trichlorobenzene	**120821**	7.79E-04	3.47E-05	3.04E-01	0.00E+00	0.00E+00
1,2-Dibromo-3-chloropropane	**96128**	4.94E-05	2.20E-06	1.93E-02	0.00E+00	0.00E+00
1,2-Dichlorobenzene	**95501**	5.48E-04	2.44E-05	2.14E-01	0.00E+00	0.00E+00
1,3-Dichlorobenzene	**541731**	4.90E-04	2.18E-05	1.91E-01	0.00E+00	0.00E+00
1,4 Dioxane	**123911**	1.41E-03	6.28E-05	5.50E-01	0.00E+00	0.00E+00
1,4-Dichlorobenzene	**106467**	5.19E-04	2.31E-05	2.03E-01	0.00E+00	0.00E+00
Acetaldehyde	**75070**	2.41E-03	1.07E-04	9.41E-01	0.00E+00	0.00E+00
Acrylonitrile	**107131**	2.43E-04	1.08E-05	9.49E-02	0.00E+00	0.00E+00
Benzene	**71432**	3.19E-04	1.42E-05	1.25E-01	0.00E+00	0.00E+00
Benzyl chloride	**100447**	2.89E-04	1.29E-05	1.13E-01	0.00E+00	0.00E+00
Butyraldehyde	**123728**	1.14E-04	5.08E-06	4.45E-02	0.00E+00	0.00E+00
Carbon Disulfide	**75150**	2.49E-03	1.11E-04	9.72E-01	0.00E+00	0.00E+00
Carbon tetrachloride	**56235**	5.87E-05	2.62E-06	2.29E-02	0.00E+00	0.00E+00
Chlorobenzene	**108907**	2.72E-04	1.21E-05	1.06E-01	0.00E+00	0.00E+00
Chloroform	**67663**	1.31E-04	5.84E-06	5.11E-02	0.00E+00	0.00E+00
Chloromethane	**74873**	7.93E-04	3.53E-05	3.10E-01	0.00E+00	0.00E+00
Crotonaldehyde	**4170303**	1.41E-04	6.28E-06	5.50E-02	0.00E+00	0.00E+00
Cyclohexane	**110827**	6.83E-03	3.04E-04	2.67E+00	0.00E+00	0.00E+00
Ethyl Chloride	**75003**	2.39E-04	1.07E-05	9.33E-02	0.00E+00	0.00E+00
Ethylbenzene	**100414**	3.47E-04	1.55E-05	1.35E-01	0.00E+00	0.00E+00
Ethylene Dibromide (EDB)	**106934**	3.06E-04	1.36E-05	1.19E-01	0.00E+00	0.00E+00
Ethylene Dichloride (EDC)	**107062**	5.89E-05	2.62E-06	2.30E-02	0.00E+00	0.00E+00
Formaldehyde	**50000**	3.98E-04	1.77E-05	1.55E-01	0.00E+00	0.00E+00
Hexane	**110543**	8.12E-04	3.62E-05	3.17E-01	0.00E+00	0.00E+00
Isopropyl Alchol	**67630**	1.62E-03	7.22E-05	6.32E-01	0.00E+00	0.00E+00
Isopropylbenzene (Cumene)	**98828**	5.61E-05	2.50E-06	2.19E-02	0.00E+00	0.00E+00
Methyl Ethyl Ketone (2-butanone)	**78933**	1.46E-02	6.51E-04	5.70E+00	0.00E+00	0.00E+00
Methyl Isobutyl Ketone	**108101**	7.09E-04	3.16E-05	2.77E-01	0.00E+00	0.00E+00
Napthalene	**91203**	1.16E-03	5.17E-05	4.53E-01	0.00E+00	0.00E+00
Perchloroethylene	**127184**	6.51E-04	2.90E-05	2.54E-01	0.00E+00	0.00E+00
Styrene	**100425**	3.59E-04	1.60E-05	1.40E-01	0.00E+00	0.00E+00
t-1,4-Dichloro-2-butene	**764410**	8.92E-04	3.98E-05	3.48E-01	0.00E+00	0.00E+00
Toluene	**108883**	1.07E-03	4.77E-05	4.18E-01	0.00E+00	0.00E+00
Trichlorofluoromethane*	**75694**	1.08E-07	4.81E-09	4.22E-05	0.00E+00	0.00E+00
Vinyl acetate	**108054**	1.97E-03	8.78E-05	7.69E-01	0.00E+00	0.00E+00
Xylenes	**1330207**	1.80E-03	8.02E-05	7.03E-01	0.00E+00	0.00E+00
Ammonia	**7664417**		1.06E-02	9.27E+01	0.00E+00	0.0

Name	Agricultural Lagoon Emissions from Dairy Operations
Applicability	Use this spreadsheet when the emissions are from a Dairy Lagoon sources and the VOC rates are known. The VOC rates are linked to the RMR worksheet cells VOC rates in 'Lagoon/Storage Pond row'. Enter values into the Lagoon area calculator on the right to determine area fraction(s). Total ammonia value is linked to the RMR worksheet cells, 'Lagoon/Storage Pond'. Individual Lagoon values are calculated by multiplying the total lagoon ammonia by their area fraction. Entries required in yellow areas, output in gray areas.

Author or updater	Matthew Cegielski	*Last Update*	September 12, 2018	
Facility:	Silvas Dairy			
ID#:	0			
Project #:	0			

Inputs	lb/hr	lb/yr	**Formula**
VOC Rate	0	1,351	Emissions are calculated by the multiplication of the VOC rates, area fracton, and emission factors.

			Lagoon Area Fraction		**0.14**		**0.67**		**0.19**	
Substances	**CAS#**	**Emissions Factors lb/VOC***	**LB/HR**	**LB/YR**	**Lagoon LB/HR**	**Lagoon LB/YR**	**Lagoon 2 LB/HR**	**Lagoon 2 LB/YR**	**Lagoon 3 LB/HR**	**Lagoon 3 LB/YR**
1,1,2,2-Tetrachloroethane	**79345**	3.44E-02	5.30E-03	4.64E+01	7.27E-04	6.37E+00	3.57E-03	3.12E+01	1.01E-03	8.83E+00
1,1,2-Trichloroethane	**79005**	7.94E-03	1.22E-03	1.07E+01	1.68E-04	1.47E+00	8.23E-04	7.21E+00	2.33E-04	2.04E+00
1,2,4-Trimethylbenzene	**95636**	2.94E-02	4.53E-03	3.97E+01	6.21E-04	5.44E+00	3.05E-03	2.67E+01	8.61E-04	7.54E+00
1,2-Dichlorobenzene	**95501**	6.25E-02	9.64E-03	8.44E+01	1.32E-03	1.16E+01	6.48E-03	5.68E+01	1.83E-03	1.60E+01
1,3-Dichlorobenzene	**541731**	4.94E-02	7.61E-03	6.67E+01	1.04E-03	9.15E+00	5.12E-03	4.49E+01	1.45E-03	1.27E+01
1,3-Dichloropropene	**542756**	7.44E-03	1.15E-03	1.00E+01	1.57E-04	1.38E+00	7.71E-04	6.76E+00	2.18E-04	1.91E+00
1,4 Dioxane	**123911**	2.50E-02	3.85E-03	3.38E+01	5.29E-04	4.63E+00	2.59E-03	2.27E+01	7.33E-04	6.42E+00
1,4-Dichloro-2-butene	**764410**	6.88E-02	1.06E-02	9.28E+01	1.45E-03	1.27E+01	7.13E-03	6.25E+01	2.01E-03	1.77E+01
1,4-Dichlorobenzene	**106467**	5.19E-02	8.00E-03	7.01E+01	1.10E-03	9.61E+00	5.38E-03	4.71E+01	1.52E-03	1.33E+01
Acetaldehyde	**75070**	1.56E-02	2.41E-03	2.11E+01	3.30E-04	2.89E+00	1.62E-03	1.42E+01	4.58E-04	4.01E+00
Acrylonitrile	**107131**	7.31E-03	1.13E-03	9.88E+00	1.55E-04	1.35E+00	7.58E-04	6.64E+00	2.14E-04	1.88E+00
Benzene	**71432**	2.88E-03	4.43E-04	3.88E+00	6.08E-05	5.33E-01	2.98E-04	2.61E+00	8.43E-05	7.38E-01
Benzyl chloride	**100447**	3.13E-02	4.82E-03	4.22E+01	6.61E-04	5.79E+00	3.24E-03	2.84E+01	9.16E-04	8.02E+00
Carbon disulfide	**75150**	3.94E-02	6.07E-03	5.32E+01	8.33E-04	7.29E+00	4.08E-03	3.58E+01	1.15E-03	1.01E+01
Chlorobenzene	**108907**	1.31E-02	2.02E-03	1.77E+01	2.78E-04	2.43E+00	1.36E-03	1.19E+01	3.85E-04	3.37E+00
Cumene	**98828**	1.94E-02	2.99E-03	2.62E+01	4.10E-04	3.59E+00	2.01E-03	1.76E+01	5.68E-04	4.97E+00
Cyclohexane	**110827**	8.19E-03	1.26E-03	1.11E+01	1.73E-04	1.52E+00	8.49E-04	7.44E+00	2.40E-04	2.10E+00
Ethyl Chloride	**75003**	4.63E-03	7.13E-04	6.25E+00	9.78E-05	8.57E-01	4.80E-04	4.20E+00	1.36E-04	1.19E+00
Ethylbenzene	**100414**	1.00E-02	1.54E-03	1.35E+01	2.11E-04	1.85E+00	1.04E-03	9.09E+00	2.93E-04	2.57E+00
Ethylene Dibromide (EDB)	**106934**	1.44E-02	2.22E-03	1.94E+01	3.04E-04	2.66E+00	1.49E-03	1.31E+01	4.21E-04	3.69E+00
Ethylene Dichloride (EDC)	**107062**	4.06E-03	6.26E-04	5.49E+00	8.59E-05	7.53E-01	4.21E-04	3.69E+00	1.19E-04	1.04E+00
Formaldehyde	**50000**	8.13E-03	1.25E-03	1.10E+01	1.72E-04	1.51E+00	8.43E-04	7.38E+00	2.38E-04	2.09E+00
Hexane	**110543**	4.31E-03	6.65E-04	5.82E+00	9.12E-05	7.99E-01	4.47E-04	3.92E+00	1.26E-04	1.11E+00
Isopropyl Alchol	**67630**	7.50E-03	1.16E-03	1.01E+01	1.59E-04	1.39E+00	7.78E-04	6.81E+00	2.20E-04	1.93E+00
Methyl Ethyl Ketone	**78933**	1.38E-02	2.12E-03	1.86E+01	2.91E-04	2.55E+00	1.43E-03	1.25E+01	4.03E-04	3.53E+00
Methyl Isobutyl Ketone	**108101**	1.13E-02	1.74E-03	1.53E+01	2.39E-04	2.10E+00	1.17E-03	1.03E+01	3.32E-04	2.90E+00
Napthalene	**91203**	1.88E-01	2.89E-02	2.53E+02	3.96E-03	3.47E+01	1.94E-02	1.70E+02	5.50E-03	4.81E+01
Perchloroethylene	**127184**	1.75E-01	2.70E-02	2.36E+02	3.70E-03	3.24E+01	1.81E-02	1.59E+02	5.13E-03	4.49E+01
Styrene	**100425**	1.63E-02	2.51E-03	2.19E+01	3.44E-04	3.01E+00	1.69E-03	1.48E+01	4.76E-04	4.17E+00
Toluene	**108883**	1.25E-02	1.93E-03	1.69E+01	2.64E-04	2.32E+00	1.30E-03	1.14E+01	3.66E-04	3.21E+00
Trichloroethylene	**79016**	1.12E-02	1.72E-03	1.51E+01	2.37E-04	2.07E+00	1.16E-03	1.02E+01	3.28E-04	2.87E+00
Xylenes	**1330207**	1.88E-02	2.89E-03	2.53E+01	3.96E-04	3.47E+00	1.94E-03	1.70E+01	5.50E-04	4.81E+00
Ammonia	**7664417**				1.114E-01	9.763E+02	5.466E-01	4.788E+03	1.545E-01	1.353E+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	0.16	0.02	1095	9.59E-03	2.63E-05
Commodity Delivery	CTT	0.21	0.02	365	4.09E-03	1.12E-05
Manure Transport	SMTT	0.57	0.02	150	4.59E-03	1.26E-05

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) 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	0.002	15	1095	1.25E-03	3.43E-06
Commodity Delivery	CTI	0.002	15	365	4.17E-04	1.14E-06
Manure Transport	SMTI	0.002	15	150	1.71E-04	4.69E-07

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) 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 (lb/day)
Feed Loading	FLT	120	0.37	730	1.49E-02	1.07E+00	1.46E-03
Bedding Delivery		160	0.37	0	1.49E-02	0.00E+00	0.00E+00
Manure Scraping		160	0.37	0	1.49E-02	0.00E+00	0.00E+00
Manure Loading	MLT	120	0.37	10	1.49E-02	1.46E-02	1.46E-03
Feed Delivery	FDT1-2	160	0.37	730	1.49E-02	1.42E+00	1.95E-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 hr)
Milk Tankers	MTT	0.16	7.18	1095	2.83E+00	2.59E-03
Commodity Delivery	CTT	0.21	7.18	365	1.21E+00	3.31E-03
Manure Transport	SMTT	0.57	7.18	150	1.35E+00	9.03E-03

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) with an Aggregate Fleet Mix Traveling 10 MF
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 hr)
Milk Tankers	MTI	1.06	15	1095	6.41E-01	5.86E-04
Commodity Delivery	CTI	1.06	15	365	2.14E-01	5.86E-04
Manure Transport	SMTI	1.06	15	150	8.78E-02	5.86E-04

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) 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	Days/Year	Emission Factor (g/hp-hr)	Emissions (lb/yr)	Emissions (lb/Max hr)
Feed Loading	FLT	120	0.37	2	365	2.98E-01	2.131E+01	0.00E+00
Bedding Delivery	0	160	0.37	0	0	2.98E-01	0.00E+00	0.00E+00
Manure Scraping	0	160	0.37	0	0	2.98E-01	0.00E+00	0.00E+00
Manure Loading	MLT	120	0.37	0	1	2.98E-01	2.92E-01	0.00E+00
Feed Delivery	FDT1-2	160	0.37	2	365	2.98E-01	2.84E+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 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	0.16	0.03	1095	1.16E-02	3.18E-05	1.06E-05	1.06E-05
Commodity Delivery	CTT	0.21	0.03	365	4.94E-03	1.35E-05	1.35E-05	1.35E-05
Manure Transport	SMTT	0.57	0.03	150	5.55E-03	3.70E-05	3.70E-05	3.70E-05

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) with an Aggregate Fleet Mix Traveling 10
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	1095	1.12E-03	3.07E-06	1.02E-06	1.02E-06
Commodity Delivery	CTI	0.002	15	365	3.74E-04	1.02E-06	1.02E-06	1.02E-06
Manure Transport	SMTI	0.002	15	150	1.54E-04	1.02E-06	1.02E-06	1.02E-06

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) 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	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	120	0.37	2	365	5.00E-03	3.57E-01	9.79E-04	0.00E+00	0.00E+00
Bedding Delivery	0	160	0.37	0	0	5.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manure Scraping	0	160	0.37	0	0	5.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manure Loading	MLT	120	0.37	0	1	5.00E-03	4.89E-03	0.00E+00	0.00E+00	0.00E+00
Feed Delivery	FDT1-2	160	0.37	2	365	5.00E-03	4.76E-01	1.31E-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 8-yr)	Emissions (lb/Max hr)
Milk Tankers	MTT	0.16	1.25	1095	4.51E-04	4.51E-04
Commodity Delivery	CTT	0.21	1.25	365	5.77E-04	5.77E-04
Manure Transport	SMTT	0.57	1.25	150	1.57E-03	1.57E-03

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) with an Aggregate Fleet Mix Trav
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 8-hr)	Emissions (lb/Max hr)
Milk Tankers	MTI	0.98	15	1095	5.43E-04	5.43E-04
Commodity Delivery	CTI	0.98	15	365	5.43E-04	5.43E-04
Manure Transport	SMTI	0.98	15	150	5.97E-03	5.43E-04

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) with an Aggregate Fleet Mix Idlin
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	Days/Year	Emission Factor (g/hp-hr)	Emissions (lb/yr)	Emissions (lb/Max 8-hr)	Emissions (lb/Max hr)
Feed Loading	FLT	120	0.37	2	365	2.61E+00	1.86E+02	5.11E-01	0.00E+00
Bedding Delivery	0	160	0.37	0.00	0.00	3.73E+00	0.00E+00	0.00E+00	0.00E+00
Manure Scraping	0	160	0.37	0.00	0.00	3.73E+00	0.00E+00	0.00E+00	0.00E+00
Manure Loading	MLT	120	0.37	0.00	1.00	3.73E+00	3.65E+00	0.00E+00	0.00E+00
Feed Delivery	FDT1-2	160	0.37	2	365	2.61E+00	2.49E+02	6.81E-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*

Silvas Dairy Phase 1 - Stanislaus County, Annual

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

Silvas Dairy Phase 1

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	62.30	1000sqft	1.43	62,300.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2023
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 6-month period

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.

Solid Waste - Operational emissions not calculated.

Fleet Mix -

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

Grading -

Trips and VMT -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	114.00
tblConstructionPhase	NumDays	4.00	10.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	PhaseEndDate	11/14/2022	6/30/2022
tblConstructionPhase	PhaseEndDate	2/7/2022	1/21/2022
tblConstructionPhase	PhaseEndDate	2/1/2022	1/7/2022
tblConstructionPhase	PhaseStartDate	2/8/2022	1/22/2022
tblConstructionPhase	PhaseStartDate	2/2/2022	1/8/2022
tblConstructionPhase	PhaseStartDate	1/29/2022	1/1/2022
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	77.25	0.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	SU_TR	5.09	0.00

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

tblVehicleTrips	WD_TR	3.93	0.00
tblWater	IndoorWaterUseRate	14,406,875.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1134	0.8685	0.8620	1.6800e-003	0.0738	0.0393	0.1130	0.0307	0.0377	0.0684	0.0000	142.5892	142.5892	0.0227	2.0200e-003	143.7584
Maximum	**0.1134**	**0.8685**	**0.8620**	**1.6800e-003**	**0.0738**	**0.0393**	**0.1130**	**0.0307**	**0.0377**	**0.0684**	**0.0000**	**142.5892**	**142.5892**	**0.0227**	**2.0200e-003**	**143.7584**

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					
2022	0.1134	0.8685	0.8620	1.6800e-003	0.0426	0.0393	0.0819	0.0157	0.0377	0.0534	0.0000	142.5891	142.5891	0.0227	2.0200e-003	143.7583
Maximum	**0.1134**	**0.8685**	**0.8620**	**1.6800e-003**	**0.0426**	**0.0393**	**0.0819**	**0.0157**	**0.0377**	**0.0534**	**0.0000**	**142.5891**	**142.5891**	**0.0227**	**2.0200e-003**	**143.7583**

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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**	**42.24**	**0.00**	**27.56**	**48.86**	**0.00**	**21.96**	**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	**1-1-2022**	**3-31-2022**	0.5007	0.5007
2	**4-1-2022**	**6-30-2022**	0.4835	0.4835
		Highest	0.5007	0.5007

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	1/1/2022	1/7/2022	5	5	
2	Grading	Grading	1/8/2022	1/21/2022	5	10	
3	Building Construction	Building Construction	1/22/2022	6/30/2022	5	114	

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): 4.69

Acres of Grading (Grading Phase): 10

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	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	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	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	26.00	10.00	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 - 2022

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					0.0157	0.0000	0.0157	7.5100e-003	0.0000	7.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2800e-003	0.0366	0.0177	4.0000e-005		1.5600e-003	1.5600e-003		1.4300e-003	1.4300e-003	0.0000	3.7788	3.7788	1.2200e-003	0.0000	3.8094
Total	**3.2800e-003**	**0.0366**	**0.0177**	**4.0000e-005**	**0.0157**	**1.5600e-003**	**0.0172**	**7.5100e-003**	**1.4300e-003**	**8.9400e-003**	**0.0000**	**3.7788**	**3.7788**	**1.2200e-003**	**0.0000**	**3.8094**

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

3.2 Site Preparation - 2022

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	9.0000e-005	7.0000e-005	8.3000e-004	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2047	0.2047	1.0000e-005	1.0000e-005	0.2066
Total	**9.0000e-005**	**7.0000e-005**	**8.3000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**2.5000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2047**	**0.2047**	**1.0000e-005**	**1.0000e-005**	**0.2066**

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					6.1100e-003	0.0000	6.1100e-003	2.9300e-003	0.0000	2.9300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2800e-003	0.0366	0.0177	4.0000e-005		1.5600e-003	1.5600e-003		1.4300e-003	1.4300e-003	0.0000	3.7788	3.7788	1.2200e-003	0.0000	3.8094
Total	**3.2800e-003**	**0.0366**	**0.0177**	**4.0000e-005**	**6.1100e-003**	**1.5600e-003**	**7.6700e-003**	**2.9300e-003**	**1.4300e-003**	**4.3600e-003**	**0.0000**	**3.7788**	**3.7788**	**1.2200e-003**	**0.0000**	**3.8094**

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

3.2 Site Preparation - 2022

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	9.0000e-005	7.0000e-005	8.3000e-004	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2047	0.2047	1.0000e-005	1.0000e-005	0.2066
Total	**9.0000e-005**	**7.0000e-005**	**8.3000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**2.5000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2047**	**0.2047**	**1.0000e-005**	**1.0000e-005**	**0.2066**

3.3 Grading - 2022

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					0.0354	0.0000	0.0354	0.0171	0.0000	0.0171	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7000e-003	0.0849	0.0461	1.0000e-004		3.7100e-003	3.7100e-003		3.4100e-003	3.4100e-003	0.0000	9.0514	9.0514	2.9300e-003	0.0000	9.1245
Total	**7.7000e-003**	**0.0849**	**0.0461**	**1.0000e-004**	**0.0354**	**3.7100e-003**	**0.0391**	**0.0171**	**3.4100e-003**	**0.0205**	**0.0000**	**9.0514**	**9.0514**	**2.9300e-003**	**0.0000**	**9.1245**

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

3.3 Grading - 2022

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	2.3000e-004	1.7000e-004	2.0800e-003	1.0000e-005	6.2000e-004	0.0000	6.2000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5118	0.5118	1.0000e-005	1.0000e-005	0.5165
Total	**2.3000e-004**	**1.7000e-004**	**2.0800e-003**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**6.2000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5118**	**0.5118**	**1.0000e-005**	**1.0000e-005**	**0.5165**

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					0.0138	0.0000	0.0138	6.6800e-003	0.0000	6.6800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7000e-003	0.0849	0.0461	1.0000e-004		3.7100e-003	3.7100e-003		3.4100e-003	3.4100e-003	0.0000	9.0514	9.0514	2.9300e-003	0.0000	9.1245
Total	**7.7000e-003**	**0.0849**	**0.0461**	**1.0000e-004**	**0.0138**	**3.7100e-003**	**0.0175**	**6.6800e-003**	**3.4100e-003**	**0.0101**	**0.0000**	**9.0514**	**9.0514**	**2.9300e-003**	**0.0000**	**9.1245**

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

3.3 Grading - 2022

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	2.3000e-004	1.7000e-004	2.0800e-003	1.0000e-005	6.2000e-004	0.0000	6.2000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5118	0.5118	1.0000e-005	1.0000e-005	0.5165
Total	**2.3000e-004**	**1.7000e-004**	**2.0800e-003**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**6.2000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5118**	**0.5118**	**1.0000e-005**	**1.0000e-005**	**0.5165**

3.4 Building Construction - 2022

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	0.0940	0.7127	0.7254	1.2600e-003		0.0336	0.0336		0.0324	0.0324	0.0000	103.4988	103.4988	0.0180	0.0000	103.9495
Total	**0.0940**	**0.7127**	**0.7254**	**1.2600e-003**		**0.0336**	**0.0336**		**0.0324**	**0.0324**	**0.0000**	**103.4988**	**103.4988**	**0.0180**	**0.0000**	**103.9495**

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

3.4 Building Construction - 2022

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	1.1200e-003	0.0290	8.2500e-003	1.1000e-004	3.4100e-003	3.1000e-004	3.7200e-003	9.9000e-004	3.0000e-004	1.2800e-003	0.0000	10.3729	10.3729	7.0000e-005	1.5700e-003	10.8422
Worker	6.9700e-003	5.1500e-003	0.0616	1.7000e-004	0.0184	1.1000e-004	0.0185	4.8900e-003	1.0000e-004	4.9900e-003	0.0000	15.1708	15.1708	4.3000e-004	4.3000e-004	15.3097
Total	**8.0900e-003**	**0.0341**	**0.0698**	**2.8000e-004**	**0.0218**	**4.2000e-004**	**0.0222**	**5.8800e-003**	**4.0000e-004**	**6.2700e-003**	**0.0000**	**25.5436**	**25.5436**	**5.0000e-004**	**2.0000e-003**	**26.1519**

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	0.0940	0.7127	0.7254	1.2600e-003		0.0336	0.0336		0.0324	0.0324	0.0000	103.4987	103.4987	0.0180	0.0000	103.9494
Total	**0.0940**	**0.7127**	**0.7254**	**1.2600e-003**		**0.0336**	**0.0336**		**0.0324**	**0.0324**	**0.0000**	**103.4987**	**103.4987**	**0.0180**	**0.0000**	**103.9494**

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

3.4 Building Construction - 2022

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	1.1200e-003	0.0290	8.2500e-003	1.1000e-004	3.4100e-003	3.1000e-004	3.7200e-003	9.9000e-004	3.0000e-004	1.2800e-003	0.0000	10.3729	10.3729	7.0000e-005	1.5700e-003	10.8422
Worker	6.9700e-003	5.1500e-003	0.0616	1.7000e-004	0.0184	1.1000e-004	0.0185	4.8900e-003	1.0000e-004	4.9900e-003	0.0000	15.1708	15.1708	4.3000e-004	4.3000e-004	15.3097
Total	**8.0900e-003**	**0.0341**	**0.0698**	**2.8000e-004**	**0.0218**	**4.2000e-004**	**0.0222**	**5.8800e-003**	**4.0000e-004**	**6.2700e-003**	**0.0000**	**25.5436**	**25.5436**	**5.0000e-004**	**2.0000e-003**	**26.1519**

Silva Dairy Phase 2 - Stanislaus County, Annual

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

Silva Dairy Phase 2

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	13.48	1000sqft	0.31	13,475.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2023
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 takes place over 2 month period.

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.

Solid Waste - Operational emissions not calculated.

Grading -

Demolition -

Silva Dairy Phase 2 - Stanislaus County, Annual

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

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	33.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	2.00	4.00
tblConstructionPhase	NumDays	1.00	2.00
tblConstructionPhase	PhaseEndDate	12/6/2022	8/31/2022
tblConstructionPhase	PhaseEndDate	7/14/2022	7/7/2022
tblConstructionPhase	PhaseEndDate	7/19/2022	7/15/2022
tblConstructionPhase	PhaseEndDate	7/15/2022	7/11/2022
tblConstructionPhase	PhaseStartDate	7/20/2022	7/16/2022
tblConstructionPhase	PhaseStartDate	7/16/2022	7/12/2022
tblConstructionPhase	PhaseStartDate	7/15/2022	7/8/2022
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	16.70	0.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00

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

tblVehicleTrips	WD_TR	4.96	0.00
tblWater	IndoorWaterUseRate	3,114,937.50	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0167	0.1676	0.1595	2.9000e-004	0.0171	8.3300e-003	0.0254	6.3600e-003	7.6900e-003	0.0141	0.0000	25.5173	25.5173	6.9500e-003	2.9000e-004	25.7764
Maximum	**0.0167**	**0.1676**	**0.1595**	**2.9000e-004**	**0.0171**	**8.3300e-003**	**0.0254**	**6.3600e-003**	**7.6900e-003**	**0.0141**	**0.0000**	**25.5173**	**25.5173**	**6.9500e-003**	**2.9000e-004**	**25.7764**

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					
2022	0.0167	0.1676	0.1595	2.9000e-004	8.0400e-003	8.3300e-003	0.0164	2.8500e-003	7.6900e-003	0.0105	0.0000	25.5173	25.5173	6.9500e-003	2.9000e-004	25.7764
Maximum	**0.0167**	**0.1676**	**0.1595**	**2.9000e-004**	**8.0400e-003**	**8.3300e-003**	**0.0164**	**2.8500e-003**	**7.6900e-003**	**0.0105**	**0.0000**	**25.5173**	**25.5173**	**6.9500e-003**	**2.9000e-004**	**25.7764**

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**	**52.87**	**0.00**	**35.50**	**55.19**	**0.00**	**24.98**	**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	**7-1-2022**	**9-30-2022**	0.1821	0.1821
		Highest	0.1821	0.1821

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	Demolition	Demolition	7/1/2022	7/7/2022	5	5	
2	Site Preparation	Site Preparation	7/8/2022	7/11/2022	5	2	
3	Grading	Grading	7/12/2022	7/15/2022	5	4	

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

4	Building Construction	Building Construction	7/16/2022	8/31/2022	5	33	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 3

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
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37

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
Demolition	4	10.00	0.00	33.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	6.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

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

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022

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					3.6200e-003	0.0000	3.6200e-003	5.5000e-004	0.0000	5.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7700e-003	0.0160	0.0187	3.0000e-005		8.4000e-004	8.4000e-004		8.1000e-004	8.1000e-004	0.0000	2.6034	2.6034	4.8000e-004	0.0000	2.6154
Total	**1.7700e-003**	**0.0160**	**0.0187**	**3.0000e-005**	**3.6200e-003**	**8.4000e-004**	**4.4600e-003**	**5.5000e-004**	**8.1000e-004**	**1.3600e-003**	**0.0000**	**2.6034**	**2.6034**	**4.8000e-004**	**0.0000**	**2.6154**

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

3.2 Demolition - 2022

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	6.0000e-005	2.5200e-003	4.8000e-004	1.0000e-005	2.8000e-004	3.0000e-005	3.1000e-004	8.0000e-005	2.0000e-005	1.0000e-004	0.0000	0.9734	0.9734	1.0000e-005	1.5000e-004	1.0192
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	1.2000e-004	9.0000e-005	1.0400e-003	0.0000	3.1000e-004	0.0000	3.1000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2559	0.2559	1.0000e-005	1.0000e-005	0.2583
Total	**1.8000e-004**	**2.6100e-003**	**1.5200e-003**	**1.0000e-005**	**5.9000e-004**	**3.0000e-005**	**6.2000e-004**	**1.6000e-004**	**2.0000e-005**	**1.8000e-004**	**0.0000**	**1.2293**	**1.2293**	**2.0000e-005**	**1.6000e-004**	**1.2774**

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					1.4100e-003	0.0000	1.4100e-003	2.1000e-004	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7700e-003	0.0160	0.0187	3.0000e-005		8.4000e-004	8.4000e-004		8.1000e-004	8.1000e-004	0.0000	2.6034	2.6034	4.8000e-004	0.0000	2.6154
Total	**1.7700e-003**	**0.0160**	**0.0187**	**3.0000e-005**	**1.4100e-003**	**8.4000e-004**	**2.2500e-003**	**2.1000e-004**	**8.1000e-004**	**1.0200e-003**	**0.0000**	**2.6034**	**2.6034**	**4.8000e-004**	**0.0000**	**2.6154**

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

3.2 Demolition - 2022

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	6.0000e-005	2.5200e-003	4.8000e-004	1.0000e-005	2.8000e-004	3.0000e-005	3.1000e-004	8.0000e-005	2.0000e-005	1.0000e-004	0.0000	0.9734	0.9734	1.0000e-005	1.5000e-004	1.0192
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	1.2000e-004	9.0000e-005	1.0400e-003	0.0000	3.1000e-004	0.0000	3.1000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2559	0.2559	1.0000e-005	1.0000e-005	0.2583
Total	**1.8000e-004**	**2.6100e-003**	**1.5200e-003**	**1.0000e-005**	**5.9000e-004**	**3.0000e-005**	**6.2000e-004**	**1.6000e-004**	**2.0000e-005**	**1.8000e-004**	**0.0000**	**1.2293**	**1.2293**	**2.0000e-005**	**1.6000e-004**	**1.2774**

3.3 Site Preparation - 2022

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					5.3000e-004	0.0000	5.3000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.8000e-004	6.9300e-003	3.9600e-003	1.0000e-005		2.6000e-004	2.6000e-004		2.4000e-004	2.4000e-004	0.0000	0.8550	0.8550	2.8000e-004	0.0000	0.8620
Total	**5.8000e-004**	**6.9300e-003**	**3.9600e-003**	**1.0000e-005**	**5.3000e-004**	**2.6000e-004**	**7.9000e-004**	**6.0000e-005**	**2.4000e-004**	**3.0000e-004**	**0.0000**	**0.8550**	**0.8550**	**2.8000e-004**	**0.0000**	**0.8620**

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

3.3 Site Preparation - 2022

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	2.0000e-005	2.0000e-005	2.1000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0512	0.0512	0.0000	0.0000	0.0517
Total	**2.0000e-005**	**2.0000e-005**	**2.1000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0512**	**0.0512**	**0.0000**	**0.0000**	**0.0517**

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					2.1000e-004	0.0000	2.1000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.8000e-004	6.9300e-003	3.9600e-003	1.0000e-005		2.6000e-004	2.6000e-004		2.4000e-004	2.4000e-004	0.0000	0.8550	0.8550	2.8000e-004	0.0000	0.8620
Total	**5.8000e-004**	**6.9300e-003**	**3.9600e-003**	**1.0000e-005**	**2.1000e-004**	**2.6000e-004**	**4.7000e-004**	**2.0000e-005**	**2.4000e-004**	**2.6000e-004**	**0.0000**	**0.8550**	**0.8550**	**2.8000e-004**	**0.0000**	**0.8620**

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

3.3 Site Preparation - 2022

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	2.0000e-005	2.0000e-005	2.1000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0512	0.0512	0.0000	0.0000	0.0517
Total	**2.0000e-005**	**2.0000e-005**	**2.1000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0512**	**0.0512**	**0.0000**	**0.0000**	**0.0517**

3.4 Grading - 2022

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					0.0106	0.0000	0.0106	5.1400e-003	0.0000	5.1400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1700e-003	0.0240	0.0119	3.0000e-005		1.0300e-003	1.0300e-003		9.5000e-004	9.5000e-004	0.0000	2.4763	2.4763	8.0000e-004	0.0000	2.4963
Total	**2.1700e-003**	**0.0240**	**0.0119**	**3.0000e-005**	**0.0106**	**1.0300e-003**	**0.0117**	**5.1400e-003**	**9.5000e-004**	**6.0900e-003**	**0.0000**	**2.4763**	**2.4763**	**8.0000e-004**	**0.0000**	**2.4963**

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

3.4 Grading - 2022

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	8.0000e-005	6.0000e-005	6.6000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1638	0.1638	0.0000	0.0000	0.1653
Total	**8.0000e-005**	**6.0000e-005**	**6.6000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1638**	**0.1638**	**0.0000**	**0.0000**	**0.1653**

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					4.1400e-003	0.0000	4.1400e-003	2.0000e-003	0.0000	2.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1700e-003	0.0240	0.0119	3.0000e-005		1.0300e-003	1.0300e-003		9.5000e-004	9.5000e-004	0.0000	2.4763	2.4763	8.0000e-004	0.0000	2.4963
Total	**2.1700e-003**	**0.0240**	**0.0119**	**3.0000e-005**	**4.1400e-003**	**1.0300e-003**	**5.1700e-003**	**2.0000e-003**	**9.5000e-004**	**2.9500e-003**	**0.0000**	**2.4763**	**2.4763**	**8.0000e-004**	**0.0000**	**2.4963**

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

3.4 Grading - 2022

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	8.0000e-005	6.0000e-005	6.6000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1638	0.1638	0.0000	0.0000	0.1653
Total	**8.0000e-005**	**6.0000e-005**	**6.6000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1638**	**0.1638**	**0.0000**	**0.0000**	**0.1653**

3.5 Building Construction - 2022

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	0.0113	0.1159	0.1180	1.9000e-004		6.1400e-003	6.1400e-003		5.6500e-003	5.6500e-003	0.0000	16.5244	16.5244	5.3400e-003	0.0000	16.6580
Total	**0.0113**	**0.1159**	**0.1180**	**1.9000e-004**		**6.1400e-003**	**6.1400e-003**		**5.6500e-003**	**5.6500e-003**	**0.0000**	**16.5244**	**16.5244**	**5.3400e-003**	**0.0000**	**16.6580**

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

3.5 Building Construction - 2022

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	6.0000e-005	1.6800e-003	4.8000e-004	1.0000e-005	2.0000e-004	2.0000e-005	2.2000e-004	6.0000e-005	2.0000e-005	7.0000e-005	0.0000	0.6005	0.6005	0.0000	9.0000e-005	0.6277
Worker	4.7000e-004	3.4000e-004	4.1100e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.3000e-004	0.0000	1.0134	1.0134	3.0000e-005	3.0000e-005	1.0227
Total	**5.3000e-004**	**2.0200e-003**	**4.5900e-003**	**2.0000e-005**	**1.4300e-003**	**3.0000e-005**	**1.4600e-003**	**3.9000e-004**	**3.0000e-005**	**4.0000e-004**	**0.0000**	**1.6140**	**1.6140**	**3.0000e-005**	**1.2000e-004**	**1.6504**

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	0.0113	0.1159	0.1180	1.9000e-004		6.1400e-003	6.1400e-003		5.6500e-003	5.6500e-003	0.0000	16.5244	16.5244	5.3400e-003	0.0000	16.6580
Total	**0.0113**	**0.1159**	**0.1180**	**1.9000e-004**		**6.1400e-003**	**6.1400e-003**		**5.6500e-003**	**5.6500e-003**	**0.0000**	**16.5244**	**16.5244**	**5.3400e-003**	**0.0000**	**16.6580**

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

3.5 Building Construction - 2022

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	6.0000e-005	1.6800e-003	4.8000e-004	1.0000e-005	2.0000e-004	2.0000e-005	2.2000e-004	6.0000e-005	2.0000e-005	7.0000e-005	0.0000	0.6005	0.6005	0.0000	9.0000e-005	0.6277
Worker	4.7000e-004	3.4000e-004	4.1100e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.3000e-004	0.0000	1.0134	1.0134	3.0000e-005	3.0000e-005	1.0227
Total	**5.3000e-004**	**2.0200e-003**	**4.5900e-003**	**2.0000e-005**	**1.4300e-003**	**3.0000e-005**	**1.4600e-003**	**3.9000e-004**	**3.0000e-005**	**4.0000e-004**	**0.0000**	**1.6140**	**1.6140**	**3.0000e-005**	**1.2000e-004**	**1.6504**

Silva Dairy Phase 3 - Stanislaus County, Annual

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

Silva Dairy Phase 3

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	70.88	1000sqft	1.63	70,875.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2023
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 takes place over 6-month period.

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.

Solid Waste - Operational emissions not calculated.

Grading -

Construction Off-road Equipment Mitigation -

Silva Dairy Phase 3 - Stanislaus County, Annual

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

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	114.00
tblConstructionPhase	NumDays	4.00	10.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	PhaseEndDate	7/13/2023	2/28/2023
tblConstructionPhase	PhaseEndDate	10/6/2022	9/21/2022
tblConstructionPhase	PhaseEndDate	9/30/2022	9/7/2022
tblConstructionPhase	PhaseStartDate	10/7/2022	9/22/2022
tblConstructionPhase	PhaseStartDate	10/1/2022	9/8/2022
tblConstructionPhase	PhaseStartDate	9/29/2022	9/1/2022
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	87.89	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	16,391,000.00	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					
2022	0.0766	0.5975	0.5760	1.1500e-003	0.0680	0.0268	0.0947	0.0292	0.0256	0.0548	0.0000	97.8316	97.8316	0.0159	1.5200e-003	98.6834
2023	0.0350	0.2582	0.2917	5.8000e-004	9.3400e-003	0.0109	0.0203	2.5200e-003	0.0105	0.0131	0.0000	48.7864	48.7864	6.6600e-003	8.3000e-004	49.2011
Maximum	**0.0766**	**0.5975**	**0.5760**	**1.1500e-003**	**0.0680**	**0.0268**	**0.0947**	**0.0292**	**0.0256**	**0.0548**	**0.0000**	**97.8316**	**97.8316**	**0.0159**	**1.5200e-003**	**98.6834**

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					
2022	0.0766	0.5975	0.5760	1.1500e-003	0.0368	0.0268	0.0636	0.0142	0.0256	0.0398	0.0000	97.8315	97.8315	0.0159	1.5200e-003	98.6834
2023	0.0350	0.2582	0.2917	5.8000e-004	9.3400e-003	0.0109	0.0203	2.5200e-003	0.0105	0.0131	0.0000	48.7864	48.7864	6.6600e-003	8.3000e-004	49.2010
Maximum	**0.0766**	**0.5975**	**0.5760**	**1.1500e-003**	**0.0368**	**0.0268**	**0.0636**	**0.0142**	**0.0256**	**0.0398**	**0.0000**	**97.8315**	**97.8315**	**0.0159**	**1.5200e-003**	**98.6834**

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**	**40.32**	**0.00**	**27.09**	**47.41**	**0.00**	**22.14**	**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	**9-1-2022**	**11-30-2022**	0.5094	0.5094
2	**12-1-2022**	**2-28-2023**	0.4615	0.4615
		Highest	0.5094	0.5094

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	9/1/2022	9/7/2022	5	5	
2	Grading	Grading	9/8/2022	9/21/2022	5	10	
3	Building Construction	Building Construction	9/22/2022	2/28/2023	5	114	

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): 4.69

Acres of Grading (Grading Phase): 10

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	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	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	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	30.00	12.00	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 - 2022

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					0.0157	0.0000	0.0157	7.5100e-003	0.0000	7.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2800e-003	0.0366	0.0177	4.0000e-005		1.5600e-003	1.5600e-003		1.4300e-003	1.4300e-003	0.0000	3.7788	3.7788	1.2200e-003	0.0000	3.8094
Total	**3.2800e-003**	**0.0366**	**0.0177**	**4.0000e-005**	**0.0157**	**1.5600e-003**	**0.0172**	**7.5100e-003**	**1.4300e-003**	**8.9400e-003**	**0.0000**	**3.7788**	**3.7788**	**1.2200e-003**	**0.0000**	**3.8094**

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

3.2 Site Preparation - 2022

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	9.0000e-005	7.0000e-005	8.3000e-004	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2047	0.2047	1.0000e-005	1.0000e-005	0.2066
Total	**9.0000e-005**	**7.0000e-005**	**8.3000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**2.5000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2047**	**0.2047**	**1.0000e-005**	**1.0000e-005**	**0.2066**

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					6.1100e-003	0.0000	6.1100e-003	2.9300e-003	0.0000	2.9300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2800e-003	0.0366	0.0177	4.0000e-005		1.5600e-003	1.5600e-003		1.4300e-003	1.4300e-003	0.0000	3.7788	3.7788	1.2200e-003	0.0000	3.8094
Total	**3.2800e-003**	**0.0366**	**0.0177**	**4.0000e-005**	**6.1100e-003**	**1.5600e-003**	**7.6700e-003**	**2.9300e-003**	**1.4300e-003**	**4.3600e-003**	**0.0000**	**3.7788**	**3.7788**	**1.2200e-003**	**0.0000**	**3.8094**

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

3.2 Site Preparation - 2022

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	9.0000e-005	7.0000e-005	8.3000e-004	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2047	0.2047	1.0000e-005	1.0000e-005	0.2066
Total	**9.0000e-005**	**7.0000e-005**	**8.3000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**2.5000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2047**	**0.2047**	**1.0000e-005**	**1.0000e-005**	**0.2066**

3.3 Grading - 2022

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					0.0354	0.0000	0.0354	0.0171	0.0000	0.0171	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7000e-003	0.0849	0.0461	1.0000e-004		3.7100e-003	3.7100e-003		3.4100e-003	3.4100e-003	0.0000	9.0514	9.0514	2.9300e-003	0.0000	9.1245
Total	**7.7000e-003**	**0.0849**	**0.0461**	**1.0000e-004**	**0.0354**	**3.7100e-003**	**0.0391**	**0.0171**	**3.4100e-003**	**0.0205**	**0.0000**	**9.0514**	**9.0514**	**2.9300e-003**	**0.0000**	**9.1245**

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

3.3 Grading - 2022

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	2.3000e-004	1.7000e-004	2.0800e-003	1.0000e-005	6.2000e-004	0.0000	6.2000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5118	0.5118	1.0000e-005	1.0000e-005	0.5165
Total	**2.3000e-004**	**1.7000e-004**	**2.0800e-003**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**6.2000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5118**	**0.5118**	**1.0000e-005**	**1.0000e-005**	**0.5165**

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					0.0138	0.0000	0.0138	6.6800e-003	0.0000	6.6800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7000e-003	0.0849	0.0461	1.0000e-004		3.7100e-003	3.7100e-003		3.4100e-003	3.4100e-003	0.0000	9.0514	9.0514	2.9300e-003	0.0000	9.1245
Total	**7.7000e-003**	**0.0849**	**0.0461**	**1.0000e-004**	**0.0138**	**3.7100e-003**	**0.0175**	**6.6800e-003**	**3.4100e-003**	**0.0101**	**0.0000**	**9.0514**	**9.0514**	**2.9300e-003**	**0.0000**	**9.1245**

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

3.3 Grading - 2022

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	2.3000e-004	1.7000e-004	2.0800e-003	1.0000e-005	6.2000e-004	0.0000	6.2000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5118	0.5118	1.0000e-005	1.0000e-005	0.5165
Total	**2.3000e-004**	**1.7000e-004**	**2.0800e-003**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**6.2000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5118**	**0.5118**	**1.0000e-005**	**1.0000e-005**	**0.5165**

3.4 Building Construction - 2022

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	0.0594	0.4501	0.4582	7.9000e-004		0.0212	0.0212		0.0205	0.0205	0.0000	65.3677	65.3677	0.0114	0.0000	65.6523
Total	**0.0594**	**0.4501**	**0.4582**	**7.9000e-004**		**0.0212**	**0.0212**		**0.0205**	**0.0205**	**0.0000**	**65.3677**	**65.3677**	**0.0114**	**0.0000**	**65.6523**

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

3.4 Building Construction - 2022

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	8.5000e-004	0.0220	6.2500e-003	8.0000e-005	2.5900e-003	2.3000e-004	2.8200e-003	7.5000e-004	2.2000e-004	9.7000e-004	0.0000	7.8616	7.8616	5.0000e-005	1.1900e-003	8.2172
Worker	5.0800e-003	3.7500e-003	0.0449	1.2000e-004	0.0134	8.0000e-005	0.0135	3.5700e-003	7.0000e-005	3.6400e-003	0.0000	11.0556	11.0556	3.1000e-004	3.1000e-004	11.1569
Total	**5.9300e-003**	**0.0257**	**0.0511**	**2.0000e-004**	**0.0160**	**3.1000e-004**	**0.0163**	**4.3200e-003**	**2.9000e-004**	**4.6100e-003**	**0.0000**	**18.9172**	**18.9172**	**3.6000e-004**	**1.5000e-003**	**19.3741**

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	0.0594	0.4501	0.4582	7.9000e-004		0.0212	0.0212		0.0205	0.0205	0.0000	65.3676	65.3676	0.0114	0.0000	65.6522
Total	**0.0594**	**0.4501**	**0.4582**	**7.9000e-004**		**0.0212**	**0.0212**		**0.0205**	**0.0205**	**0.0000**	**65.3676**	**65.3676**	**0.0114**	**0.0000**	**65.6522**

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

3.4 Building Construction - 2022

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	8.5000e-004	0.0220	6.2500e-003	8.0000e-005	2.5900e-003	2.3000e-004	2.8200e-003	7.5000e-004	2.2000e-004	9.7000e-004	0.0000	7.8616	7.8616	5.0000e-005	1.1900e-003	8.2172
Worker	5.0800e-003	3.7500e-003	0.0449	1.2000e-004	0.0134	8.0000e-005	0.0135	3.5700e-003	7.0000e-005	3.6400e-003	0.0000	11.0556	11.0556	3.1000e-004	3.1000e-004	11.1569
Total	**5.9300e-003**	**0.0257**	**0.0511**	**2.0000e-004**	**0.0160**	**3.1000e-004**	**0.0163**	**4.3200e-003**	**2.9000e-004**	**4.6100e-003**	**0.0000**	**18.9172**	**18.9172**	**3.6000e-004**	**1.5000e-003**	**19.3741**

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	0.0320	0.2459	0.2648	4.6000e-004		0.0108	0.0108		0.0104	0.0104	0.0000	38.1358	38.1358	6.4800e-003	0.0000	38.2977
Total	**0.0320**	**0.2459**	**0.2648**	**4.6000e-004**		**0.0108**	**0.0108**		**0.0104**	**0.0104**	**0.0000**	**38.1358**	**38.1358**	**6.4800e-003**	**0.0000**	**38.2977**

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	2.6000e-004	0.0103	3.1500e-003	5.0000e-005	1.5100e-003	6.0000e-005	1.5700e-003	4.4000e-004	6.0000e-005	5.0000e-004	0.0000	4.4100	4.4100	2.0000e-005	6.7000e-004	4.6090
Worker	2.7200e-003	1.9000e-003	0.0237	7.0000e-005	7.8300e-003	4.0000e-005	7.8700e-003	2.0800e-003	4.0000e-005	2.1200e-003	0.0000	6.2406	6.2406	1.6000e-004	1.7000e-004	6.2943
Total	**2.9800e-003**	**0.0122**	**0.0269**	**1.2000e-004**	**9.3400e-003**	**1.0000e-004**	**9.4400e-003**	**2.5200e-003**	**1.0000e-004**	**2.6200e-003**	**0.0000**	**10.6506**	**10.6506**	**1.8000e-004**	**8.4000e-004**	**10.9034**

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	0.0320	0.2459	0.2648	4.6000e-004		0.0108	0.0108		0.0104	0.0104	0.0000	38.1358	38.1358	6.4800e-003	0.0000	38.2977
Total	**0.0320**	**0.2459**	**0.2648**	**4.6000e-004**		**0.0108**	**0.0108**		**0.0104**	**0.0104**	**0.0000**	**38.1358**	**38.1358**	**6.4800e-003**	**0.0000**	**38.2977**

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	2.6000e-004	0.0103	3.1500e-003	5.0000e-005	1.5100e-003	6.0000e-005	1.5700e-003	4.4000e-004	6.0000e-005	5.0000e-004	0.0000	4.4100	4.4100	2.0000e-005	6.7000e-004	4.6090
Worker	2.7200e-003	1.9000e-003	0.0237	7.0000e-005	7.8300e-003	4.0000e-005	7.8700e-003	2.0800e-003	4.0000e-005	2.1200e-003	0.0000	6.2406	6.2406	1.6000e-004	1.7000e-004	6.2943
Total	**2.9800e-003**	**0.0122**	**0.0269**	**1.2000e-004**	**9.3400e-003**	**1.0000e-004**	**9.4400e-003**	**2.5200e-003**	**1.0000e-004**	**2.6200e-003**	**0.0000**	**10.6506**	**10.6506**	**1.8000e-004**	**8.4000e-004**	**10.9034**

APPENDIX B: AERMOD AND HARP2 ELECTRONIC FILES

Ambient Air Quality Analysis

Silva's Holsteins Dairy Facility

6706 Elaine Road
Turlock, CA 95380
Stanislaus County

Prepared By:

Matt Daniel – Senior Consultant

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May 2022

Project 210505.0199

ATTACHMENT IV

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LIST OF FIGURES

LIST OF TABLES

1. EXECUTIVE SUMMARY

This document contains the ambient air quality analysis (AAQA) performed on behalf of Sousa Engineering for the Silva's Holsteins Dairy facility operation in Stanislaus County, California. The intent of the AAQA is to determine if the proposed dairy expansion has the potential to impact ambient air quality through a violation of the Ambient Air Quality standards (AAQS) or a substantial contribution to existing or projected air quality standards.

Under the provisions of the Federal Clean Air Act, the San Joaquin Valley Air Basin, including Stanislaus County, has been designated as attainment/unclassified for the National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2); and attainment for particulate matter between 2.5 and 10 micrometers in diameter (PM_{10}). The San Joaquin Valley Air Basin has been designated as non-attainment/extreme for the ozone (O_3) eight-hour average standard and non-attainment for the particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$) standard. The San Joaquin Valley Air Basin have been designated as non-attainment/severe with the State one-hour standard for O_3; non-attainment for the PM_{10}, $PM_{2.5}$ and eight-hour O_3 standards; unclassified for hydrogen sulfide (H_2S) and visibility reducing particles; attainment/unclassified for CO; and attainment for all other compounds for which a California Ambient Air Quality Standards (CAAQS) exists. In order to determine whether a project will cause or contribute significantly to an AAQS violation, the maximum impacts attributable to the project are added to the existing background concentrations and are compared to the applicable AAQS. If an AAQS is not exceeded, the project is judged to not cause or contribute significantly to an AAQS violation for the applicable pollutant. If an ambient air quality standard is exceeded, it must be determined whether the project will cause a Prevention of Significant Deterioration (PSD) increment violation, which is achieved by comparing the maximum predicted concentration from the project to the established significant impact level (SIL) for the applicable pollutant. The San Joaquin Valley Air Pollution Control District (SJVAPCD) has developed alternative SILs for fugitive emissions of PM_{10} and $PM_{2.5}$. If a source's maximum impacts are below the applicable SIL, the project is judged to not cause or contribute significantly to an AAQS violation or cause an increment violation.

For the Silva's Holsteins Dairy Facility expansion project, maximum predicted concentrations of NO_2, SO_2, CO, PM_{10}, $PM_{2.5}$ and H_2S were predicted based on an analysis of the project-related emissions and air dispersion modeling. Emissions were calculated using generally accepted emission factors. Ambient air concentrations were predicted for the 1-hour, 3-hour, 8-hour, 24-hour and annual averaging periods using the most recent version of EPA's AMS/EPA Regulatory Model - AERMOD (recompiled for the Lakes ISC-AERMOD View interface).

Proposed emissions for the project will not cause or contribute to a violation of any NAAQS or CAAQS for any of the averaging periods for NO_2, SO_2, CO, or H_2S, or cause an increment violation of the SJVAPCD SILs for the annual and 24-hour averaging periods for PM_{10} and $PM_{2.5}$.

In accordance with the SJVAPCD's *Guide for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015), the potential impact to air quality attributable to the proposed project is determined to be less than significant.

2. INTRODUCTION

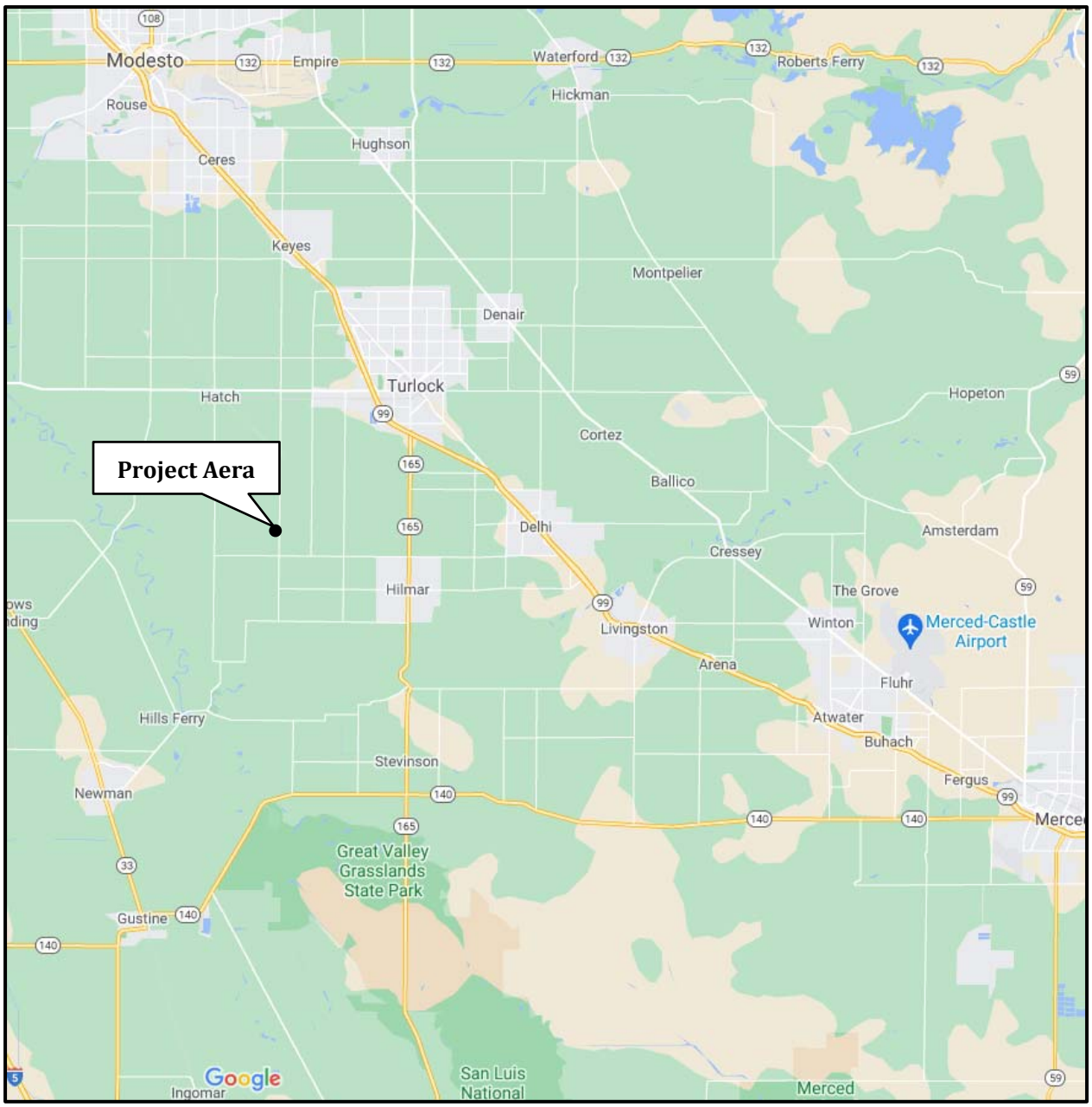
This Ambient Air Quality Analysis (AAQA) is provided as a service of Trinity Consultants performed on behalf of Sousa Engineering for an expansion of the existing Silva's Holsteins Dairy operation in Stanislaus County, California (**Figure 2-1**). This AAQA was prepared pursuant to the San Joaquin Valley Air Pollution Control District's (SJVAPCD) *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI), (SJVAPCD 2015a) and the California Environmental Quality Act (CEQA).

A potentially significant impact to air quality, as defined by the CEQA Appendix G Environmental Checklist Form (not included herein), would occur if the project caused one or more of the following to occur:

- Conflict with or obstruct implementation of the applicable air quality plan;
- 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;
- Expose sensitive receptors to substantial pollutant concentrations; and/or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The intent of the AAQA is to determine if the project has the potential to impact ambient air quality through a violation of any air quality standard or a substantial contribution to an existing or projected air quality standard. Impacts to ambient air quality are evaluated based on the project-related emission of criteria pollutants. This analysis is limited to the potential impacts resulting from project-related emissions of nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter between 2.5 and 10 micrometers in diameter (PM_{10}), particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$), and hydrogen sulfide (H_2S). Project-related emissions are based on the proposed increase in the number of cattle and the additional on-site mobile sources required for the expansion.

Figure 2-1. Location Map



2.1. PROJECT DESCRIPTION

The existing dairy is located at 6706 Elaine Road 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 within three phases. Construction would include the construction of four new animal housing structures totaling 146,650 square feet. Construction of Phases 1, 2 and 3 were estimated to take approximately six, two and six months, respectively, beginning within two years of issuance of a Conditional Use Permit (CUP) and completing during the first six years.

After modification, the dairy will house approximately 4,100 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	880	1,900	1,020
Dry Cows	215	300	85
Bred Heifers 15-24 mos.	500	600	100
Heifers 7-14 mos.	193	600	407
Heifers 4-6 mos.	192	350	158
Calves 0-3 mos.	0	350	350
Bulls	0	0	0
TOTAL	**1,980**	**4,100**	**2,120**

3. BACKGROUND OF AIR QUALITY STANDARDS

Protection of the public health is maintained through the attainment and maintenance of standards for ambient concentrations of various compounds in the atmosphere and the enforcement of emission limits for individual stationary sources. The Federal Clean Air Act requires that the U.S. Environmental Protection Agency (EPA) establish National Ambient Air Quality Standards (NAAQS) to protect the health, safety, and welfare of the public. NAAQS have been established for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$) and lead (Pb). California has also adopted ambient air quality standards (CAAQS) for these "criteria" air pollutants that are more stringent than the corresponding NAAQS along with standards for hydrogen sulfide (H_2S), vinyl chloride (chloroethene) and visibility reducing particles. In 2010, the U.S. Environmental Protection Agency (EPA) promulgated a new 1-hour NO_2 and SO_2 primary NAAQS, which are considerably less than the current CAAQS. Compliance with the new standards must be determined for all new and modified sources that are subject to the ambient air quality standard analysis requirement in SJVAPCD Rule 2201, Section 4.14. Current Federal and State ambient air quality standards are presented in **Table 3-1.**

Responsibility for regulation of air quality in California rests with the California Air Resources Board (CARB), the multi-county Air Quality Management Districts and Unified Air Pollution Control Districts, and single-county Air Pollution Control Districts, with oversight responsibility held by the EPA. CARB is responsible for regulation of mobile source emissions, establishment of State ambient air quality standards, research and development, and oversight and coordination of the activities of the regional and local air quality agencies. The regional and local air quality agencies are primarily responsible for regulating stationary source emissions and for monitoring ambient pollutant concentrations.

The Clean Air Act Amendments of 1977 required states to identify areas that were not in attainment with the NAAQS and to develop State Implementation Plans containing strategies to bring these non-attainment areas into compliance. The project location has been designated as attainment /unclassified for the NAAQS for CO, NO_2, and SO_2; and attainment for PM_{10}. The project location has been designated as non-attainment/extreme for the O_3 eight-hour average standard and non-attainment for the $PM_{2.5}$ standard. A Federal designation for lead has not been made and NAAQS do not exist for O_3 (1-hour average), hydrogen sulfide (H_2S), sulfates, vinyl chloride or visibility reducing particles. The project location has been designated as non-attainment/severe with the State one-hour standard for O_3, non-attainment for the PM_{10}, $PM_{2.5}$, and eight-hour O_3 standards; unclassified for H_2S and visibility reducing particles; attainment /unclassified for CO; and attainment for all other compounds for which a State standard exists. **Table 3-2** provides the San Joaquin Valley Air Basin's designation and classification based on the various criteria pollutants under both State and Federal standards.

Table 3-1. Federal & California Ambient Air Quality Standards

		NAAQS	CAAQS
Pollutant	Averaging Time	Concentration	
O_3	8-Hour	0.070 ppm (137 µg/m³) [c]	0.070 ppm (137 µg/m³)
	1-Hour	[a]	0.09 ppm (180 µg/m³)
CO	8-Hour	9 ppm (10 mg/m³)	9 ppm (10 mg/m³)
	1-Hour	35 ppm (40 mg/m³)	20 ppm (23 mg/m³)
NO_2	Annual Average	53 ppb (100 µg/m³)	0.030 ppm (56 µg/m³)
	1-Hour	100 ppb (188.68 µg/m³)	0.18 ppm (338 µg/m³)
SO_2	3-Hour	0.5 ppm (1,300 µg/m³)	
	24 Hour	0.14 ppm (365 µg/m³)	0.04 ppm (105 µg/m³)
	1-Hour	75 ppb (196 µg/m³)	0.25 ppm (655 µg/m³)
Particulate Matter (PM10)	Annual Arithmetic Mean	[b]	20 µg/m³
	24-Hour	150 µg/m³	50 µg/m³
Fine Particulate Matter (PM2.5)	Annual Arithmetic Mean	12 µg/m³	12 µg/m³
	24-Hour	35 µg/m³	
Sulfates	24-Hour		25 µg/m³
Pb [d]	Rolling Three-Month Average	0.15 µg/m³	
	30 Day Average		1.5 µg/m³
H_2S	1-Hour		0.03 ppm (42 µg/m³)
Vinyl Chloride (chloroethene)	24-Hour		0.010 ppm (26 µg/m³)
Visibility Reducing particles	8 Hour (1000 to 1800 PST)		[e]

ppm = parts per million
ppb = parts per billion
mg/m3 = milligrams per cubic meter
µg/m ³= micrograms per cubic meter

[a] 1-Hour O_3 standard revoked effective June 15, 2005.

[b] Annual PM 10 standard revoked effective December 18, 2006.

[c] EPA finalized the revised (2008) 8-hour O_3 standard of 0.075 ppm on March 27, 2008. The 1997 8-hour O_3 standard of 0.08 ppm has not been revoked. In the January 19, 2010 Federal Register, EPA proposed to revise the 2008 O_3 NAAQS of 0.075 ppm to a NAAQS in the range of 0.060 to 0.070 ppm. EPA expects to finalize the revised NAAQS, which will replace the 0.075 ppm NAAQS, by July 29, 2011.

[d] On October 15, 2008, EPA strengthened the Pb standard.

[e] Statewide Visibility Reducing Particle Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range. (SJVAPCD 2022a and CARB 2022a)

Table 3-2. San Joaquin Valley Air Basin Attainment Status

Pollutant	NAAQS[a]	CAAQS[b]
O_3, 1-hour	No Federal Standard[f]	Nonattainment/Severe
O_3, 8-hour	Nonattainment/Extreme[e]	Nonattainment
PM_{10}	Attainment[c]	Nonattainment
$PM_{2.5}$	Nonattainment[d]	Nonattainment
CO	Attainment/Unclassified	Attainment/Unclassified
NO_2	Attainment/Unclassified	Attainment
SO_2	Attainment/Unclassified	Attainment
Pb (Particulate)	No Designation/Classification	Attainment
H_2S	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing particulates	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

[a] See 40 CFR Part 81

[b] See CCR Title 17 Sections 60200-60210

[c] On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM10 National Ambient Air Quality Standard (NAAQS) and approved the PM10 Maintenance Plan.

[d] The Valley is designated nonattainment for the 1997 PM2.5 NAAQS. EPA designated the Valley as nonattainment for the 2006 PM2.5 NAAQS on November 13, 2009 (effective December 14, 2009).

[e] Though the Valley was initially classified as serious nonattainment for the 1997 8-hour O_3 standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

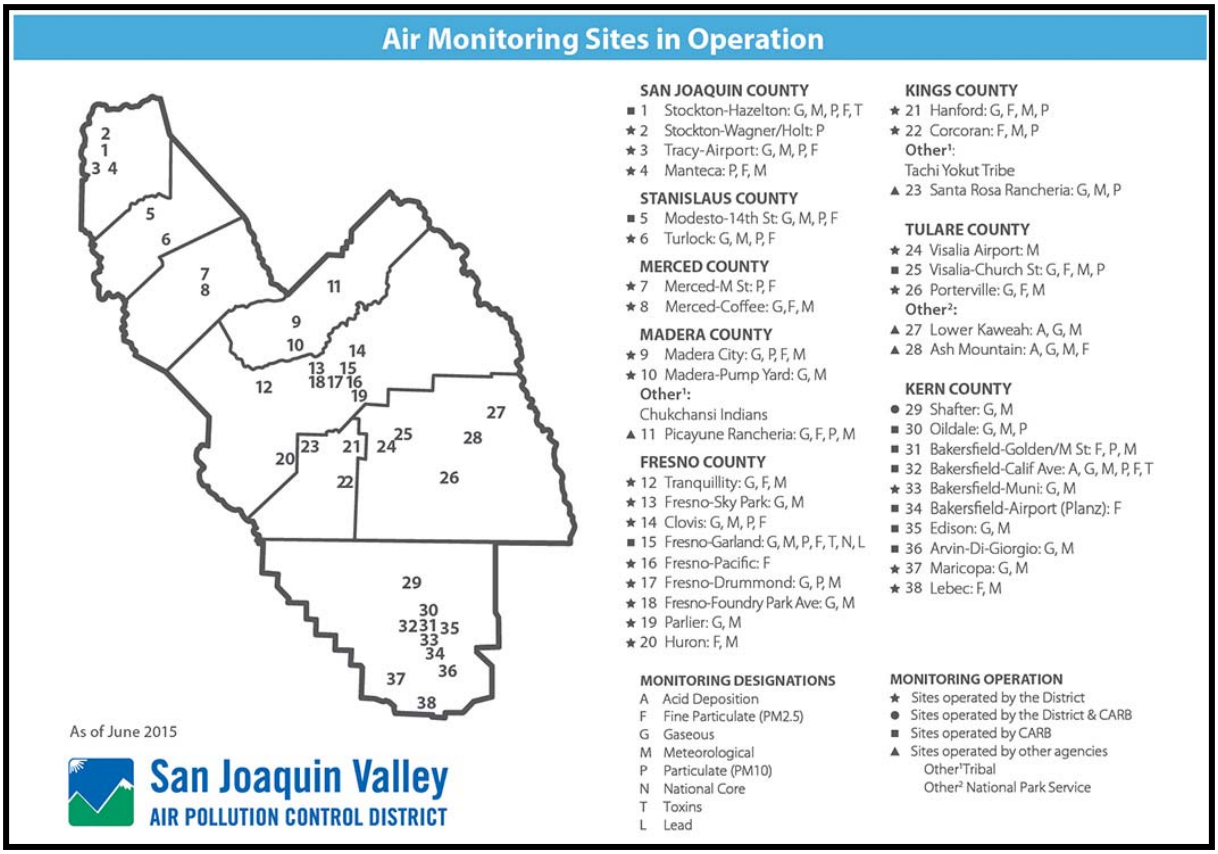
[f] Effective June 15, 2005, the EPA revoked the federal 1-hour O_3 standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour O_3 nonattainment areas continue to apply to the SJVAB. (SJVAPCD 2022a)

The SJVAPCD along with the CARB operates an air quality monitoring network that provides information on average concentrations of those pollutants for which State or Federal agencies have established ambient air quality standards. Information from the various monitoring stations is available from the agency web sites. A map of the various monitoring stations in the San Joaquin Valley is provided in **Figure 3-1**.

For the purposes of establishing background concentrations of applicable criteria pollutants, this AAQA relied on EPA's AirData and CARB monitoring values, the raw data for which were collected during 2020[1] at CARB/SJVAPCD monitoring stations. Background values were selected from various monitoring stations based on closest proximity to the project site. **Table 3-3** provides the background concentrations applicable to the project area. No recent data is available for hydrogen sulfide, vinyl chloride or lead in Stanislaus County or adjacent Counties.

[1] The exception is the one-hour NO_2 background value, which EPA requires to be based on a 3-year average. The SJVAPCD's statistical analysis was based on the period 2014 to 2016.

Figure 3-1. San Joaquin Valley APCD Monitoring Network



(SJVAPCD 2022b)

Table 3-3. Background Concentrations for the Project Vicinity

Pollutant	Averaging Period	Background Concentration µg/m³	Reference
NO_2	1-hour	89.3	SJVACPD FTP Server, Stanislaus Co. (SJVAPCD 2022c)
	Annual	16.9	Stanislaus County, 2020 (CARB 2022)
SO_2	1-hour	42.4	Fresno Co., 2020 (USEPA 2022)
	3-hour	38.2	Scaled from SO_2 1-hour concentration[2]
	24-hour	5.8	Fresno Co., 2020 (USEPA 2022)
CO	1-hour	3320	Stanislaus County, 2020 (USEPA 2022)
	8-hour	2175	Stanislaus County, 2020 (USEPA 2022)
$PM_{2.5}$	24-hour	118.5	Stanislaus County, 2020 (CARB 2022)
	Annual	15.6	Stanislaus County, 2020 (CARB 2022)
PM_{10}	24-hour	217.5	Stanislaus County, 2020 (CARB 2022)
	Annual	39.2	Stanislaus County, 2020 (CARB 2022)

1 The District processed the NO_2 monitoring data using the guidance provided in Appendix S of Part 50.
2 The SO_2 3-hour Concentration was scaled from the SO_2 1-hour Concentration using the recommended 0.9 factor (OEHHA 2015).

Stanislaus County, where the project area is located, is included among the eight counties that comprise the SJVAPCD. The SJVAPCD acts as the regulatory agency for air pollution control in the Basin and is the local agency empowered to regulate air pollutant emissions for the air basin. In order to demonstrate that a proposed project will not cause further air quality degradation, projects must demonstrate consistency with the SJVAPCD's adopted Air Quality Attainment Plans.

Air pollution sources associated with stationary sources are regulated through the permitting authority of the SJVAPCD under the New and Modified Stationary Source Review Rule (Rule 2201). Owners of any new or modified equipment that emits, reduces or controls air contaminants, except those specifically exempted by the SJVAPCD, are required to apply for an Authority to Construct and Permit to Operate (Rule 2010). Additionally, best available control technology (BACT) is required on specific types of equipment. Stationary sources are required to offset stationary source emission increases along with increases in cargo carrier emissions if the specified threshold levels are exceeded (Rule 2201, 4.7.1). The SJVAPCD uses this mechanism to ensure that all stationary sources within the project area are subject to the standards of the SJVAPCD to ensure that new or modified sources will not realize a net increase of criteria air pollutants.

Stationary sources subject to SJVAPCD New and Modified Stationary Source Review Rule must also comply with Rule 2201, Section 4.14, Ambient Air Quality Standards, which requires that "emissions from a new or modified Stationary Source shall not cause or make worse the violation of an Ambient Air Quality Standard…the APCO shall take into account the increases in minor and secondary sources emissions as well as the mitigation of emissions through offsets…." The Air Pollution Control Officer (APCO) also has discretion to exempt new or modified sources that are exempt from public notification requirements[2] from this section of Rule 2201. Public notification and publication is required for projects meeting any of the following criteria:

- New Major Sources and Major Modifications;
- Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one affected pollutant;
- Modifications that increase the Stationary Source Potential to Emit (SSPE1) from a level below the emissions offset threshold level to a level exceeding the emissions offset threshold level for one or more pollutants;
- New Stationary Sources with post-project Stationary Source Potential to Emit (SSPE2) exceeding the emissions offset threshold level for one or more pollutants; or

Any permitting action resulting in a Stationary Source Project Increase in Permitted Emissions (SSIPE) exceeding 20,000 pounds per year for any one pollutant

[2] *Public Notification and Publication Requirements*, San Joaquin Valley Air Pollution Control District Rule 2201 Section 5.4, amended April 21, 2011.

4. AIR QUALITY MODELING

This section describes the methodology used to predict the potential impact to ambient air quality attributable to the dispersion of emissions of NO_2, SO_2, CO, PM_{10}, $PM_{2.5}$ and H_2S from the proposed dairy operation expansion.

4.1. PROJECT EMISSIONS

The basis for evaluating the potential impact to ambient air quality is the identification of air pollution sources. Emissions based on the current configuration of the dairy are considered to be existing emissions.[3] Based on this fact, the facility's existing emissions are not included in the emissions proposed by the subject project. Therefore, emissions from the dairy modifications will be restricted to the increase in emissions for the proposed increase in the number of cattle (**Table 2-1**) and the additional on-site mobile sources required for the expansion. The potential emission sources with increased emissions addressed in the AAQA are listed in **Table 4-1**.

Table 4-1. Sources of Potential Emissions

Source ID	Description
MTI	Milk Truck Idling
MTT	Milk Truck Travel
SMTI	Solid Manure Truck Idling
SMTT	Solid Manure Truck Travel
CTI1-2	Commodity Truck Idling
CTT1-2	Commodity Truck Travel
FLT	Feed Loading Tractor
MLT	Manure Loading Tractor
FDT1-2	Feed and Bedding Delivery Tractor
SB2,10,11,18,19	Shade Barns
FS3,4,6,7,12,16,17	Free Stall Barns
MILK1	Milk Parlor
MS1	Solid Manure Storage

Emissions attributable to animal movement were estimated by the SJVAPCD using spreadsheets developed by the SJVAPCD to calculate dairy emissions, which are provided in **Appendix A**. The incremental increases in emissions attributable to animal movement were calculated by comparing the pre- and post-project emissions from each animal housing source. SJVAPCD-approved control efficiencies were applied to PM_{10} emission factors. To generate $PM_{2.5}$ emissions, the PM_{10} emission results for these emission sources were multiplied by the $PM_{2.5}$ fraction of 11.4% from the livestock fugitive dust profile in the California Emission Inventory Data and Reporting System (CEIDARS) developed by CARB (SCAQMD 2006). Housing sources that had an increase in PM_{10} and $PM_{2.5}$ emissions for 24-hour and annual periods are summarized in **Table 4-2**.

[3] Personal Communication with Leland Villalvazo, SJVAPCD, June 15, 2007.

Table 4-2. Modeled Sources of Emissions Attributable to Animal Movement

Source ID	PM_{10} Emissions		$PM_{2.5}$ Emissions	
	Lbs/yr	Lbs/24-hr	Lbs/yr	Lbs/24-hr
SB10	100	0.3	11.4	0.03
SB11	89	0.3	10.1	0.03
SB18	242	0.7	27.6	0.08
FS3	9	0.0	1.0	0.00
FS16	56	0.2	6.4	0.02
FS17	508	1.4	57.9	0.16

On-site mobile sources for this facility include a diesel-fueled feed loading tractor, a manure loading tractor, manure scraping tractor, a feed delivery tractor, a bedding delivery tractor, milk tankers, solids removal trucks and commodity delivery trucks. The increased herd size will require additional usage and trips for all trucks, the feed load tractor, the manure load tractor and the feed delivery tractor.

Emissions for tractors were calculated using the EPA's *Nonroad Compression-Ignition Engines - Exhaust Emission Standards* for the appropriate engine horsepower (HP) and year and load factors for the appropriate engine horsepower from California Emissions Estimator Model (CalEEMod) Appendix D, Tables 3.3 and 3.4 (CAPCOA 2013). Diesel truck running emissions are based on 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. Diesel truck combustion emissions of $PM_{2.5}$ were set equal to PM_{10} emissions. There will be no increases in 1-hour emissions from tractors because additional tractor usage will not occur in the same 1-hour period as the existing equipment. In order to have a possible increase in the worst case one-hour emissions from the Project, one of the three following scenarios would need to occur and be evaluated:

- New equipment must operate at the facility as a result of the project;
- An on-site piece of equipment must operate less than one hour during the worst-case 1-hour period pre-project and then must increase the operational time during the worst-case 1-hour period post-project;
- The project must increase the number trucks entering and exiting the facility over the number of pre-project trucks entering and exiting the facility during the worst-case 1-hour period; or
- A piece of equipment operates in a new area on-site.

The Project does not propose any new pieces of equipment and the existing equipment currently operates the full hour during the worst-case hour. Based on these findings the worst-case 1-hour period post-project emissions will be equal to or less than the worst-case 1-hour period pre-project for all tractor sources. Therefore, the incremental increase in regard to 1-hour periods for all tractors is zero. Based on the same philosophy outlined above for 1-hour emissions there will not be an increase in max 3-hour emissions increases for those same pieces of equipment. The project does propose an increase over the current worst-case 1-hour period of trucks entering or exiting the facility.

Calculation worksheets for emissions from the on-site mobile sources are provided in **Appendix B** and are summarized in **Table 4-3**.

Table 4-3. On-Site Mobile Source Combustion Emissions

Source ID	NO_2 Emissions		SO_2 Emissions		CO Emissions		$PM_{10}/PM_{2.5}$ Emissions	
	Lbs/hr	Lbs/yr	Lbs/hr	Lbs/day	Lbs/hr	Lbs/8-hr	Lbs/24-hr	Lbs/yr
MTT	2.59E-03	2.83E+00	1.06E-05	1.16E-02	4.51E-04	4.51E-04	2.63E-05	9.59E-03
CTT	3.31E-03	1.21E+00	1.35E-05	4.94E-03	5.77E-04	5.77E-04	1.12E-05	4.09E-03
SMTT	9.03E-03	1.35E+00	3.70E-05	3.70E-05	1.57E-03	1.57E-03	1.26E-05	4.59E-03
MTI	5.86E-04	6.41E-01	1.02E-06	3.07E-06	5.43E-04	5.43E-04	3.43E-06	1.25E-03
CTI	5.86E-04	2.14E-01	1.02E-06	1.02E-06	5.43E-04	5.43E-04	1.14E-06	4.17E-04
SMTI	5.86E-04	8.78E-02	1.02E-06	1.02E-06	5.43E-04	5.43E-04	4.69E-07	1.71E-04
FLT	0.00E+00	2.13E+01	0.00E+00	9.79E-04	0.00E+00	5.11E-01	2.92E-03	1.07E+00
FDT1	0.00E+00	1.27E+01	0.00E+00	5.83E-04	0.00E+00	3.05E-01	1.74E-03	6.35E-01
FDT2	0.00E+00	1.57E+01	0.00E+00	7.22E-04	0.00E+00	3.77E-01	2.15E-03	7.86E-01
MLT	0.00E+00	2.92E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-03	1.46E-02

The SJVAPCD's *H2S AERMOD Hourly Emission File Generator* (SJVAPCD 2012) states that H2S emission are only generated at dairies in lagoons used to store or treat collected waste material. The generator calculates emissions based on the surface area of the lagoon. As there will be no increase in the surface area of the existing lagoons, there will be no increase in H_2S emission associated with the proposed expansion.

4.2. DISPERSION MODELING

The most recent version of EPA's AMS/EPA Regulatory Model - AERMOD (recompiled for the Lakes ISC-AERMOD View interface) was used to predict the dispersion of emissions from the proposed dairy for the 1-hour, 3-hour, 8-hour, 24-hour and annual averaging periods. All of the AERMOD regulatory default parameters were employed. Rural dispersion parameters were used because the facility and surrounding land are considered "rural" under the Auer land use classification method.

The animal housing areas emissions were modeled as area sources. Unit emission rates for the area sources of 1 g/sec divided by the area of the source were input into AERMOD. The travel route for the feed delivery tractor, milk trucks, solids removal trucks, and commodity trucks were modeled as a line sources, which represents a series of volume sources, with a unit emission rate of 1 g/sec. The feed loading tractor, manure loading tractor, milk truck idling, solids removal truck idling and commodity truck idling were modeled as point sources, with a unit emission rate of 1 g/sec.

4.2.1. Meteorological Data

The SJVAPCD provided meteorological data for Stanislaus County, California to be used for projects within Stanislaus County. SJVAPCD-approved, AERMET processed meteorological datasets for calendar years 2013 through 2017[4] was input into AERMOD. This was the most recent available dataset available at the time the modeling runs were conducted.

[4] Provided via website, San Joaquin Valley Air Pollution Control District (SJVAPCD), ftp://ftp2.valleyair.org/public/Modeling/Meteorological_Data/AERMET%20v18081_UStar/Modesto_23258/

4.2.2. Receptors

Existing land uses in the area where the dairy and proposed expansion are located are predominantly agriculture. There are scattered rural residences in the general area of the project; most of which are associated with local agricultural operations. A fenceline grid was used to define a dense receptor grid around the property boundary using Lakes ISC-AERMOD View interface. The fenceline spacing between receptors along the fenceline was set to 25 meters. Three tiers were specified, the first extending a distance of 100 meters from the fenceline with 25 meter spacing, the second extending an additional 200 meters with 50 meter tier spacing, and the third extending an additional 400 meters with 100 meter tier spacing. The spacing between receptors perpendicular to the fenceline was set to 25 meters. A total of 2,557 receptors were generated for the fenceline grid.

4.3. MODELING RESULTS

Plot files generated by AERMOD were imported to a Microsoft Access based post-processor AAQA–PSD (developed by the SJVAPCD), where unit emission rates were converted to pollutant-specific emission rates based on the emissions provided in **Tables 4-2** and **4-3**. Background concentrations from **Table 3-3** were input to AAQA–PSD. Based on this data, a report was generated which provides the maximum concentrations per emission source, background concentration and total concentration for each averaging period. For each averaging period, the total concentration is compared to the applicable AAQS and designated as a "pass" or "fail." This method yields conservative overall concentrations since it combines the max concentration per emissions source even if they are not the same receptor or the same day, therefore, if a pollutant exceeds the threshold using this methodology a refined AERMOD run is conducted where pollutant-specific emission rates are entered directly into AERMOD to calculate the actual maximum concentration for each receptor from all sources. For this Project, a refined AERMOD run was not conducted.

As shown in the AAQA–PSD report provided in Appendix C and **Table 4-4**, air dispersion modeling demonstrates that the maximum impacts attributable to the project, when considered in addition to the existing available background concentrations, are below the applicable ambient air quality standard for all of the averaging periods for NO_2, SO_2, CO and H_2S.

Compliance with the Federal NO_2 one-hour standard was based on a modeling procedure developed by the SJVAPCD (SJVAPCD 2010). The most conservative approach, referred to as Tier I option 1, requires that the maximum one-hour modeling concentration be added to the SJVAPCD's Air Quality Design Value for the nearest monitoring station (see **Table 3-3**).

Table 4-4. Predicted Ambient Air Quality Impacts

Pollutant	Averaging Period	Background ($\mu g/m^3$)	Project ($\mu g/m^3$)	Project + Background ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
NO_2	1-hour	89.3	3.27	92.57	188.68	339
	Annual	16.9	0.07	16.97	100	---
SO_2	1-hour	42.4	0.01	42.4	195	655
	3-hour	38.2	0.00	38.2	1300	---
	24-hour	5.8	0.01	5.81	---	105
CO	1-hour	3320	0.82	3321	40,000	23,000
	8-hour	2175	7.73	2183	10,000	10,000
PM_{10}	24-hour	217.5	10.11	227.61	150	50
	Annual	39.2	1.26	40.46	50	20
$PM_{2.5}$	24-hour	118.5	1.16	119.66	35	---
	Annual	15.6	0.14	15.74	12	12
H_2S	1-hour	N/A	0.00	0.00	---	42

Background 24-hour and annual concentrations of PM_{10} and $PM_{2.5}$ exceed their respective ambient air quality standards. Therefore, these averaging periods for $PM_{2.5}$ and PM_{10} are evaluated in accordance with the Prevention of Significant Deterioration (PSD) procedure in Title 40, Code of Federal Regulations (CFR), Part 52.21. It is EPA's policy to use significant impact levels (SIL) to determine whether a proposed new or modified source will cause or contribute significantly to an AAQS or PSD increment violation. The SJVAPCD has developed SILs for fugitive emissions of PM_{10} and $PM_{2.5}$.[5] As shown in **Tables 4-2** and **4-3**, 98% of the project's predicted PM_{10} concentration is attributable to fugitive PM_{10} emissions from animal movement. Therefore, SJVAPCD SILs are applicable to this project. If a source's maximum impacts are below the SIL, the source is judged to not cause or contribute significantly to an AAQS or increment violation.

A comparison of the proposed impact from the project to the SJVAPCD SILs, as shown in **Table 4-5**, demonstrates that the modeled PM_{10} and $PM_{2.5}$ impacts directly attributable to the project are below the applicable SJVAPCD significance levels for the 24-hour and annual averaging periods of PM_{10} and $PM_{2.5}$ and therefore will not cause an increment violation of any SJVAPCD SIL.

Table 4-5. Comparison of maximum Modeled Project Impact with Significance Thresholds

Pollutant	Averaging Period	Predicted Concentration ($\mu g/m^3$)	SJVAPCD SIL ($\mu g/m^3$)
PM_{10}	24-hour	10.11	10.4
	Annual	1.26	2.08
$PM_{2.5}$	24-hour	1.16	2.5
	Annual	0.14	0.63

[5] Personal Communication with Yu Vu, San Joaquin Valley Air Pollution Control District, August 15, 2012

5. CONCLUSIONS

In accordance with the San Joaquin Valley Air Pollution Control District's *Guide for Assessing and Mitigating Air Quality Impacts* air dispersion modeling demonstrates that the ambient air quality impact attributable to the proposed project is determined to be less than significant based on the following conclusions:

- Proposed emissions for the project will not cause or contribute to a violation of any NAAQS or CAAQS for any of the averaging periods for NO_2, SO_2, CO, or H2S or cause an increment violation of the SJVAPCD SILs for PM_{10} and $PM_{2.5}$.

6. REFERENCES

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APPENDIX A: FUGITIVE EMISSIONS ESTIMATION WORKSHEETS

Name	Cow Housing Summary			
Applicability	Use this spreadsheet to enter data from the Engineer's Dairy Calculator. Entries here will be linked to other worksheets. After completion, proceed to RMR worksheet for further entries.			
Author or updater	Matthew Cegielski	*Last Update*	September 24, 2018	
Facility:	Silvas Dairy		0	Not Set
ID#:				
Project #:				

*Notes:

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)
Shade Barn 19	Support Stock	880	0.2958	2,581	0.7958	6,936	-0.1083	-1,218
Free Stall Barn 3	Milk	210	0.0250	225	0.3500	3,070	0.0000	9
Free Stall Barn 4	Milk	385	-0.1750	-1,529	0.0458	384	-0.0042	-20
Free Stall Barn 6	Milk	385	-0.1750	-1,529	0.0458	384	-0.0042	-28
Free Stall Barn 7	Milk	260	0.1167	1,031	0.8500	7,458	-0.0333	-293
Free Stall Barn 12	Dry	110	-0.0208	-175	0.0250	194	0.0000	-6
Free Stall Barn 16	Milk	260	0.2917	2,564	1.1375	9,978	0.0083	56
Free Stall Barn 17	Milk/Support Stock	470	0.4833	4,243	1.8333	16,056	0.0583	508
Shade Barn 2	Support Stock	140	-0.0333	-260	0.0000	0	-0.0042	-47
Shade Barn 10	Support Stock	350	0.0375	330	0.1875	1,613	0.0125	100
Shade Barn 11	Dry/Support Stock	300	0.0375	346	0.2417	2,113	0.0125	89
Shade Barn 18	Support Stock	350	0.1208	1,078	0.3250	2,843	0.0292	242

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	-	-	0.04	390	0.01	93	-
Cow Housing	-0.07	-608	1.02	8,905	5.83	51,029	-
Liquid Manure	-	-	0.32	2,766	1.69	14,824	-
Solid Manure	-	-	0.07	618	0.43	3,769	-
Feed Handling	-	-	1.94	16,987	-	-	-
Lagoon/Storage Pond	-	-	0.15	1,351	0.81	7,118	0
Land Application (Liquid)	-	-	0.16	1,424	0.88	7,702	-
Land Application (Solid)	-	-	0.04	329	0.23	2,008	-
Solid Manure Storage	-	-	0.03	256	0.20	1,789	-

SSIPE Total Herd Summary	
Change in Milk Cows	1,020
Change in Dairy Head	2,120
Change in Dairy Head (Flushed)	1,720

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? yes
   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	880				880
Dry Cows		215			215
Support Stock (Heifers, Calves, and Bulls)	390	303		192	885
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							0

Total Herd Summary

Total Milk Cows	880
Total Mature Cows	1,095
Support Stock (Heifers, Calves, and Bulls)	885
Total Calves	0
Total Dairy Head	1,980

Pre-Project Silage Information

Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn			
Alfalfa			
Wheat			

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? yes
   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	1,900				1,900
Dry Cows		300			300
Support Stock (Heifers, Calves, and Bulls)	1,090	810			1,900
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							0

Total Herd Summary

Total Milk Cows	1,900
Total Mature Cows	2,200
Support Stock (Heifers, Calves, and Bulls)	1,900
Total Calves	0
Total Dairy Head	4,100

Post-Project Silage Information

Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn			
Alfalfa			
Wheat			

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	Corral 1	open corral	support stock	55	55	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	Corral 2	open corral	support stock	55	55	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	Corral 3	open corral	support stock	55	55	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	Corral 4	open corral	support stock	27	27	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
5	Free Stall 3	freestall	milk cows	130	130	1	☐	☐	☐	☐	☑	☐	☐	☐	☐
6	Free Stall 4	freestall	milk cows	375	375	1	☐	☐	☐	☐	☑	☐	☐	☐	☐
7	Free Stall 6	freestall	milk cows	375	375	1	☐	☐	☐	☐	☑	☐	☐	☐	☐
8	Free Stall 7	freestall	support stock	250	250	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
9	Free Stall 12	freestall	dry cows	100	100	1	☐	☐	☐	☐	☑	☐	☐	☐	☐
10	Shade Barn 2	saudi style barn	support stock	140	140	1	☐	☐	☐	☐	☐	☐	☑	☐	☐
11	Shade Barn 10	saudi style barn	support stock	190	190	1	☐	☐	☐	☐	☐	☐	☑	☐	☐
12	Shade Barn 11	saudi style barn	dry cows	115	115	1	☐	☐	☐	☐	☐	☐	☑	☐	☐
13	Shade Barn 11	saudi style barn	support stock	45	45	1	☐	☐	☐	☐	☐	☐	☑	☐	☐
14	Shade Barn 13	saudi style barn	support stock	39	39	1	☐	☐	☐	☐	☐	☐	☑	☐	☐
15	Shade Barn 14	saudi style barn	support stock	29	29	1	☐	☐	☐	☐	☐	☐	☑	☐	☐
			Pre-Project Total # of Cows	1,980											

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	Corral 1	open corral	support stock	55	55	10.550										10.55
2	Corral 2	open corral	support stock	55	55	10.550										10.55
3	Corral 3	open corral	support stock	55	55	10.550										10.55
4	Corral 4	open corral	support stock	27	27	10.550										10.55
5	Free Stall 3	freestall	milk cows	130	130	1.370					80%					0.27
6	Free Stall 4	freestall	milk cows	375	375	1.370					80%					0.27
7	Free Stall 6	freestall	milk cows	375	375	1.370					80%					0.27
8	Free Stall 7	freestall	support stock	250	250	1.370										1.37
9	Free Stall 12	freestall	dry cows	100	100	1.370					80%					0.27
10	Shade Barn 2	saudi style barn	support stock	140	140	1.370							15%			1.17
11	Shade Barn 10	saudi style barn	support stock	190	190	1.370							15%			1.17
12	Shade Barn 11	saudi style barn	dry cows	115	115	1.370							15%			1.17
13	Shade Barn 11	saudi style barn	support stock	45	45	1.370							15%			1.17
14	Shade Barn 13	saudi style barn	support stock	39	39	1.370							15%			1.17
15	Shade Barn 14	saudi style barn	support stock	29	29	1.370							15%			1.17
			Pre-Project Total # of Cows	1,980												

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 3	freestall	milk cows	210	210		☐	☑	☑	☐	☑	☐	☐	☐	☐
2	Free Stall 4	freestall	milk cows	385	385		☐	☑	☑	☐	☑	☐	☐	☐	☐
3	Free Stall 6	freestall	milk cows	385	385		☐	☑	☑	☐	☑	☐	☐	☐	☑
4	Free Stall 7	freestall	milk cows	260	260		☐	☑	☑	☐	☑	☐	☐	☐	☑
5	Free Stall 12	freestall	dry cows	110	110		☐	☑	☑	☐	☑	☐	☐	☐	☑
6	Shade Barn 2	saudi style barn	support stock	140	140		☐	☑	☑	☐	☐	☐	☑	☐	☑
7	Shade Barn 10	saudi style barn	support stock	350	350		☐	☑	☑	☐	☐	☐	☑	☐	☐
8	Shade Barn 11	saudi style barn	dry cows	190	190		☐	☑	☑	☐	☐	☐	☑	☐	☐
9	Shade Barn 11	saudi style barn	support stock	110	110		☐	☑	☑	☐	☐	☐	☑	☐	☐

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	Free Stall 16	freestall	milk cows	260	260		☐	☑	☑	☐	☑	☐	☐	☐	☐
2	Free Stall 17	freestall	milk cows	400	400		☐	☑	☑	☐	☐	☐	☐	☐	☐
3	Free Stall 17	freestall	support stock	70	70		☐	☑	☑	☐	☐	☐	☐	☐	☐
4	Shade Barn 18	saudi style barn	support stock	350	350		☐	☑	☑	☐	☐	☐	☑	☐	☐
5	Shade Barn 19	saudi style barn	support stock	880	880		☐	☑	☑	☐	☐	☐	☑	☐	☐
		Post-Project Total # of Cows		4,100	(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 3	freestall	milk cows	210	210	1.370		12.5%	10%		80%					0.22
2	Free Stall 4	freestall	milk cows	385	385	1.370		12.5%	10%		80%					0.22
3	Free Stall 6	freestall	milk cows	385	385	1.370		12.5%	10%		80%				10%	0.19
4	Free Stall 7	freestall	milk cows	260	260	1.370		12.5%	10%		80%				10%	0.19
5	Free Stall 12	freestall	dry cows	110	110	1.370		12.5%	10%		80%				10%	0.19
6	Shade Barn 2	saudi style barn	support stock	140	140	1.370		12.5%	10%				15%		10%	0.83
7	Shade Barn 10	saudi style barn	support stock	350	350	1.370		12.5%	10%				15%			0.92
8	Shade Barn 11	saudi style barn	dry cows	190	190	1.370		12.5%	10%				15%			0.92
9	Shade Barn 11	saudi style barn	support stock	110	110	1.370		12.5%	10%				15%			0.92

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	Free Stall 16	freestall	milk cows	260	260	1.370		12.5%	10%		80%					0.22
2	Free Stall 17	freestall	milk cows	400	400	1.370		12.5%	10%							1.08
3	Free Stall 17	freestall	support stock	70	70	1.370		12.5%	10%							1.08
4	Shade Barn 18	saudi style barn	support stock	350	350	1.370		12.5%	10%				15%			0.92
5	Shade Barn 19	saudi style barn	support stock	880	880	1.370		12.5%	10%				15%			0.92

Pre-Project Potential to Emit - Cow Housing

	Pre-Project Potential to Emit - Cow Housing											
	Housing Name(s) or #(s)	Type of Cow	# of Cows	Controlled VOC EF (lb/hd-yr)	Controlled NH3 EF (lb/hd-yr)	Controlled PM10 EF (lb/hd-yr)	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1	Corral 1	support stock	55	6.13	10.08	10.55	0.9	337	1.5	554	1.6	580
2	Corral 2	support stock	55	6.13	10.08	10.55	0.9	337	1.5	554	1.6	580
3	Corral 3	support stock	55	6.13	10.08	10.55	0.9	337	1.5	554	1.6	580
4	Corral 4	support stock	27	6.13	10.08	10.55	0.5	166	0.7	272	0.8	285
5	Free Stall 3	milk cows	130	14.2	38.38	0.27	5.1	1,846	13.7	4,989	0.1	36
6	Free Stall 4	milk cows	375	14.2	38.38	0.27	14.6	5,325	39.4	14,391	0.3	103
7	Free Stall 6	milk cows	375	14.2	38.38	0.27	14.6	5,325	39.4	14,391	0.3	103
8	Free Stall 7	support stock	250	6.13	10.08	1.37	4.2	1,533	6.9	2,520	0.9	343
9	Free Stall 12	dry cows	100	7.88	19.44	0.27	2.2	788	5.3	1,944	0.1	27
10	Shade Barn 2	support stock	140	6.13	10.08	1.17	2.4	858	3.9	1,411	0.4	163
11	Shade Barn 10	support stock	190	6.13	10.08	1.17	3.2	1,165	5.2	1,915	0.6	221
12	Shade Barn 11	dry cows	115	7.88	19.44	1.17	2.5	906	6.1	2,236	0.4	134
13	Shade Barn 11	support stock	45	6.13	10.08	1.17	0.8	276	1.2	454	0.1	52
14	Shade Barn 13	support stock	39	6.13	10.08	1.17	0.7	239	1.1	393	0.1	45
15	Shade Barn 14	support stock	29	6.13	10.08	1.17	0.5	178	0.8	292	0.1	34
	Pre-Project Total # of Cows		**1,980**				**54.0**	**19,616**	**128.2**	**46,870**	**9.0**	**3,286**

*Multiple emissions units (freestalls, corrals, calf hutch areas, etc.) are combined in these rows.

Pre-Project Totals						
Total # of Cows	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1,980	54.0	19,616	128.2	46,870	9.0	3,286

Calculations:

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

Post-Project Potential to Emit - Cow Housing

	Post-Project Potential to Emit - Cow Housing											
	Housing Name(s) or #(s)	Type of Cow	# of Cows	Controlled VOC EF (lb/hd-yr)	Controlled NH3 EF (lb/hd-yr)	Controlled PM10 EF (lb/hd-yr)	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1	Free Stall 3	milk cows	210	9.86	38.38	0.22	5.7	2,071	22.1	8,059	0.1	45
2	Free Stall 4	milk cows	385	9.86	38.38	0.22	10.4	3,796	40.5	14,775	0.2	83
3	Free Stall 6	milk cows	385	9.86	38.38	0.19	10.4	3,796	40.5	14,775	0.2	75
4	Free Stall 7	milk cows	260	9.86	38.38	0.19	7.0	2,564	27.3	9,978	0.1	50
5	Free Stall 12	dry cows	110	5.57	19.44	0.19	1.7	613	5.9	2,138	0.1	21
6	Shade Barn 2	support stock	140	4.27	10.08	0.83	1.6	598	3.9	1,411	0.3	116
7	Shade Barn 10	support stock	350	4.27	10.08	0.92	4.1	1,495	9.7	3,528	0.9	321
8	Shade Barn 11	dry cows	190	5.57	19.44	0.92	2.9	1,058	10.1	3,694	0.5	174
9	Shade Barn 11	support stock	110	4.27	10.08	0.92	1.3	470	3.0	1,109	0.3	101
	Post-Project # of Cows (non-expansion)		**2,140**				**45.1**	**16,461**	**163.0**	**59,467**	**2.7**	**986**

*Multiple emissions units (freestalls, corrals, calf hutch areas, etc.) are combined in these rows.

	Post-Project Potential to Emit - Cow Housing: New Housing Units at an Expanding Dairy											
	Housing Name(s) or #(s)	Type of Cow	# of Cows	Controlled VOC EF (lb/hd-yr)	Controlled NH3 EF (lb/hd-yr)	Controlled PM10 EF (lb/hd-yr)	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1	Free Stall 16	milk cows	260	9.86	38.38	0.22	7.0	2,564	27.3	9,978	0.2	56
2	Free Stall 17	milk cows	400	9.86	38.38	1.08	10.8	3,944	42.1	15,350	1.2	432
3	Free Stall 17	support stock	70	4.27	10.08	1.08	0.8	299	1.9	706	0.2	76
4	Shade Barn 18	support stock	350	4.27	10.08	0.92	4.1	1,495	9.7	3,528	0.9	321
5	Shade Barn 19	support stock	880	4.27	10.08	0.92	10.3	3,758	24.3	8,870	2.2	807
	Total # of Cows From Expansion		**1,960**				**33.0**	**12,060**	**105.3**	**38,432**	**4.7**	**1,692**

*Multiple emissions units (freestalls, corrals, calf hutch areas, etc.) are combined in these rows.

Post-Project Totals						
Total # of Cows	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
4,100	78.1	28,521	268.3	97,899	7.4	2,678

Calculations:

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

Increase in Emissions

SSIPE (lb/yr)							
	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0	0	0	0	390	93	0
Cow Housing	0	0	-608	0	8,905	51,029	0
Liquid Manure	0	0	0	0	2,766	14,824	0
Solid Manure	0	0	0	0	618	3,769	0
Feed Handling	0	0	0	0	16,987	0	0
Total	**0**	**0**	**-608**	**0**	**29,666**	**69,715**	**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	1.1	0.2	0.0
Cow Housing	0.0	0.0	-1.6	0.0	24.1	140.1	0.0
Liquid Manure	0.0	0.0	0.0	0.0	7.5	40.6	0.0
Solid Manure	0.0	0.0	0.0	0.0	1.6	10.4	0.0
Feed Handling	0.0	0.0	0.0	0.0	46.5	0.0	0.0
Total	**0.0**	**0.0**	**-1.6**	**0.0**	**80.8**	**191.3**	**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	1,329	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**	**1,329**	**0**	**0**

APPENDIX B: ON-SITE MOBILE SOURCE COMBUSTION EMISSION WORKSHEET

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	0.16	0.02	1095	9.59E-03	2.63E-05
Commodity Delivery	CTT	0.21	0.02	365	4.09E-03	1.12E-05
Manure Transport	SMTT	0.57	0.02	150	4.59E-03	1.26E-05

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) 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	0.002	15	1095	1.25E-03	3.43E-06
Commodity Delivery	CTI	0.002	15	365	4.17E-04	1.14E-06
Manure Transport	SMTI	0.002	15	150	1.71E-04	4.69E-07

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) 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 (lb/day)
Feed Loading	FLT	120	0.37	730	1.49E-02	1.07E+00	2.92E-03
Bedding Delivery		160	0.37	0	1.49E-02	0.00E+00	0.00E+00
Manure Scraping		160	0.37	0	1.49E-02	0.00E+00	0.00E+00
Manure Loading	MLT	120	0.37	10	1.49E-02	1.46E-02	1.46E-03
Feed Delivery	FDT1-2	160	0.37	730	1.49E-02	1.42E+00	3.89E-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 hr)
Milk Tankers	MTT	0.16	7.18	1095	2.83E+00	2.59E-03
Commodity Delivery	CTT	0.21	7.18	365	1.21E+00	3.31E-03
Manure Transport	SMTT	0.57	7.18	150	1.35E+00	9.03E-03

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) with an Aggregate Fleet Mix Traveling 10 MF
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 hr)
Milk Tankers	MTI	1.06	15	1095	6.41E-01	5.86E-04
Commodity Delivery	CTI	1.06	15	365	2.14E-01	5.86E-04
Manure Transport	SMTI	1.06	15	150	8.78E-02	5.86E-04

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) 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	Days/Year	Emission Factor (g/hp-hr)	Emissions (lb/yr)	Emissions (lb/Max hr)
Feed Loading	FLT	120	0.37	2	365	2.98E-01	2.131E+01	0.00E+00
Bedding Delivery	0	160	0.37	0	0	2.98E-01	0.00E+00	0.00E+00
Manure Scraping	0	160	0.37	0	0	2.98E-01	0.00E+00	0.00E+00
Manure Loading	MLT	120	0.37	0	1	2.98E-01	2.92E-01	0.00E+00
Feed Delivery	FDT1-2	160	0.37	2	365	2.98E-01	2.84E+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 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	0.16	0.03	1095	1.16E-02	3.18E-05	1.06E-05	1.06E-05
Commodity Delivery	CTT	0.21	0.03	365	4.94E-03	1.35E-05	1.35E-05	1.35E-05
Manure Transport	SMTT	0.57	0.03	150	5.55E-03	3.70E-05	3.70E-05	3.70E-05

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) with an Aggregate Fleet Mix Traveling 10
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	1095	1.12E-03	3.07E-06	1.02E-06	1.02E-06
Commodity Delivery	CTI	0.002	15	365	3.74E-04	1.02E-06	1.02E-06	1.02E-06
Manure Transport	SMTI	0.002	15	150	1.54E-04	1.02E-06	1.02E-06	1.02E-06

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) 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	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	120	0.37	2	365	5.00E-03	3.57E-01	9.79E-04	0.00E+00	0.00E+00
Bedding Delivery	0	160	0.37	0	0	5.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manure Scraping	0	160	0.37	0	0	5.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manure Loading	MLT	120	0.37	0	1	5.00E-03	4.89E-03	0.00E+00	0.00E+00	0.00E+00
Feed Delivery	FDT1-2	160	0.37	2	365	5.00E-03	4.76E-01	1.31E-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 8-yr)	Emissions (lb/Max hr)
Milk Tankers	MTT	0.16	1.25	1095	4.51E-04	4.51E-04
Commodity Delivery	CTT	0.21	1.25	365	5.77E-04	5.77E-04
Manure Transport	SMTT	0.57	1.25	150	1.57E-03	1.57E-03

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) with an Aggregate Fleet Mix Trav
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 8-hr)	Emissions (lb/Max hr)
Milk Tankers	MTI	0.98	15	1095	5.43E-04	5.43E-04
Commodity Delivery	CTI	0.98	15	365	5.43E-04	5.43E-04
Manure Transport	SMTI	0.98	15	150	5.43E-04	5.43E-04

Note 1: Running emission factors for vehicle category "T7 Single Other Class 8" were obtained from the EMFAC2021 Web Database for Stanislaus County (2021) with an Aggregate Fleet Mix Idlin
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	Days/Year	Emission Factor (g/hp-hr)	Emissions (lb/yr)	Emissions (lb/Max 8-hr)	Emissions (lb/Max hr)
Feed Loading	FLT	120	0.37	2	365	2.61E+00	1.86E+02	5.11E-01	0.00E+00
Bedding Delivery	0	160	0.37	0.00	0.00	3.73E+00	0.00E+00	0.00E+00	0.00E+00
Manure Scraping	0	160	0.37	0.00	0.00	3.73E+00	0.00E+00	0.00E+00	0.00E+00
Manure Loading	MLT	120	0.37	0.00	1.00	3.73E+00	3.65E+00	0.00E+00	0.00E+00
Feed Delivery	FDT1-2	160	0.37	2	365	2.61E+00	2.49E+02	6.81E-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*

APPENDIX C: AAQA-PSD REPORT FOR NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$ AND H_2S

AAQA for Silva Expansion
All Values are in ug/m^3

	NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	PM10 24 Hour	PM10 Annual	PM2.5 24 Hour	PM2.5 Annual	H2S 1 Hour
CTI1	7.24E-02	1.14E-04	3.97E-02	7.57E-04	1.26E-04	3.39E-05	2.26E-06	2.19E-07	2.37E-08	2.19E-07	2.37E-08	0.00E+00
CTI2	2.33E-02	1.45E-05	1.31E-02	1.25E-03	4.04E-05	1.03E-05	3.67E-07	9.34E-07	8.21E-08	9.34E-07	8.21E-08	0.00E+00
CTT1	6.12E-01	2.49E-03	7.40E-02	5.45E-04	2.49E-03	7.32E-04	4.26E-05	1.83E-06	1.94E-07	1.83E-06	1.94E-07	0.00E+00
CTT2	1.99E-01	8.13E-05	1.67E-02	1.56E-03	8.09E-04	1.69E-04	6.59E-06	1.44E-05	1.15E-06	1.44E-05	1.15E-06	0.00E+00
FDT1	0.00E+00	7.40E-03	0.00E+00	4.09E-01	0.00E+00	0.00E+00	1.30E-03	4.15E-04	4.54E-05	4.15E-04	4.54E-05	0.00E+00
FDT2	0.00E+00	8.58E-04	0.00E+00	7.26E+00	0.00E+00	0.00E+00	1.15E-04	3.46E-03	6.95E-04	3.46E-03	6.95E-04	0.00E+00
FLT	0.00E+00	4.56E-02	0.00E+00	5.52E-02	0.00E+00	0.00E+00	4.51E-03	6.91E-04	1.46E-04	6.91E-04	1.46E-04	0.00E+00
FS16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.90E-02	4.72E-03	1.13E-02	5.38E-04	0.00E+00
FS17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.30E-01	2.70E-02	6.04E-02	3.08E-03	0.00E+00
FS3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.61E-04	0.00E+00	7.54E-05	0.00E+00
MLT	0.00E+00	2.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-04	5.99E-07	2.63E-04	5.99E-07	0.00E+00
MTI	1.28E-01	2.57E-04	3.43E-01	1.03E-03	2.22E-04	4.76E-05	4.69E-06	9.49E-07	9.38E-08	9.49E-07	9.38E-08	0.00E+00
MTT	8.91E-01	1.09E-02	1.44E-01	8.38E-04	3.64E-03	1.06E-03	1.84E-04	8.42E-06	8.90E-07	8.42E-06	8.90E-07	0.00E+00
SB10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.29E+00	4.41E-01	3.75E-01	5.02E-02	0.00E+00
SB11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E+00	1.91E-01	1.81E-01	2.17E-02	0.00E+00
SB18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.59E+00	6.00E-01	5.23E-01	6.84E-02	0.00E+00
SMTI	2.88E-02	6.42E-06	3.78E-02	4.20E-04	5.01E-05	1.30E-05	2.78E-07	6.82E-08	5.87E-09	6.82E-08	5.87E-09	0.00E+00
SMTT	1.32E+00	1.59E-03	1.48E-01	1.69E-03	5.41E-03	1.59E-03	6.80E-05	2.03E-06	2.59E-07	2.03E-06	2.59E-07	0.00E+00
Background	8.93E+01	1.69E+01	3.32E+03	2.18E+03	4.24E+01	3.82E+01	5.80E+00	2.18E+02	3.92E+01	1.19E+02	1.56E+01	0.00E+00
Facility Totals	9.26E+01	1.70E+01	3.32E+03	2.18E+03	4.24E+01	3.82E+01	5.81E+00	2.28E+02	4.05E+01	1.20E+02	1.57E+01	0.00E+00
AAQS	188.68	100	23000	10000	195	1300	105	50	20	35	12	42
	Pass	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Fail**	**Fail**	**Fail**	**Fail**	**Pass**

District and EPA's Significance Level (ug/m^3)

	NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	PM10 24 Hour	PM10 Annual	PM2.5 24 Hour	PM2.5 Annual
Totals w/o Background								**10.11**	**1.26**	**1.16**	**0.14**
SIL	**0**	**1**	**2000**	**500**	**0**	**25**	**5**	**10.4**	**2.08**	**2.5**	**0.63**
								Pass	**Pass**	**Pass**	**Pass**

AAQA Emission (g/sec)

Device	NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	PM10 24 Hour	PM10 Annual	PM2.5 24 Hour	PM2.5 Annual
CTI1	3.69E-05	1.54E-06	3.42E-05	4.28E-06	6.40E-08	2.15E-08	2.69E-09	3.00E-09	3.00E-09	3.00E-09	3.00E-09
CTI2	3.69E-05	1.54E-06	3.42E-05	4.28E-06	6.40E-08	2.15E-08	2.69E-09	3.00E-09	3.00E-09	3.00E-09	3.00E-09
CTT1	2.09E-04	8.70E-06	3.64E-05	4.54E-06	8.50E-07	2.84E-07	3.56E-08	2.94E-08	2.94E-08	2.94E-08	2.94E-08
CTT2	2.09E-04	8.70E-06	3.64E-05	4.54E-06	8.50E-07	2.84E-07	3.56E-08	2.94E-08	2.94E-08	2.94E-08	2.94E-08
FDT1	0.00E+00	1.83E-04	0.00E+00	4.80E-03	0.00E+00	0.00E+00	3.06E-06	9.13E-06	9.13E-06	9.13E-06	9.13E-06
FDT2	0.00E+00	2.26E-04	0.00E+00	5.93E-03	0.00E+00	0.00E+00	3.79E-06	1.13E-05	1.13E-05	1.13E-05	1.13E-05
FLT	0.00E+00	3.06E-04	0.00E+00	3.06E-04	0.00E+00	0.00E+00	5.14E-06	7.66E-06	1.54E-05	7.66E-06	1.54E-05
FS16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.05E-04	8.05E-04	9.18E-05	9.18E-05
FS17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.31E-03	7.31E-03	8.33E-04	8.33E-04
FS3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-04	0.00E+00	1.47E-05
MLT	0.00E+00	4.20E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.66E-06	2.10E-07	7.66E-06	2.10E-07
MTI	7.38E-05	9.22E-06	6.84E-05	8.55E-06	1.28E-07	4.30E-08	1.61E-08	1.80E-08	1.80E-08	1.80E-08	1.80E-08
MTT	3.26E-04	4.07E-05	5.68E-05	7.10E-06	1.33E-06	4.45E-07	1.66E-07	1.37E-07	1.37E-07	1.37E-07	1.37E-07
SB10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-03	1.44E-03	1.64E-04	1.64E-04
SB11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-03	1.28E-03	1.46E-04	1.46E-04
SB18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.48E-03	3.48E-03	3.97E-04	3.97E-04
SMTI	7.38E-05	1.26E-06	6.84E-05	8.55E-06	1.28E-07	4.30E-08	5.38E-09	2.47E-09	2.47E-09	2.47E-09	2.47E-09
SMTT	1.14E-03	1.94E-05	1.98E-04	2.48E-05	4.66E-06	1.55E-06	1.94E-07	6.60E-08	6.60E-08	6.60E-08	6.60E-08

APPENDIX D: AERMOD ELECTRONIC FILES