County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

March 5, 2018

State Clearinghouse
Office of Planning and Research
Attn: Sheila Brown
1400 Tenth Street, Room 212
Sacramento, CA 95814

Dear Ms. Brown:

Subject: State Clearinghouse Review of Proposed Mitigated Negative Declaration for Initial Study Application No. 7325 (Patrick Maddox)

Enclosed Please find the following documents:

1. Notice of Completion/Reviewing Agencies Checklist
2. Notice of Intent to Adopt a Mitigated Negative Declaration
3. Fifteen (15) hard copies of Draft Initial Study, Mitigation Monitoring and Reporting Program, Draft Mitigated Negative Declaration (MND), and Project Routing
4. One (1) electronic copy of the Draft Initial Study, Mitigation Monitoring and Reporting Program, Draft Mitigated Negative Declaration (MND), and Project Routing

We request that you distribute the documents to appropriate state agencies for review as provided for in Section 15073 of the CEQA Guidelines, and that the review be completed within the normal 30-day review period. Please transmit any document to my attention at the below listed address or to eahmad@co.fresno.ca.us

Sincerely,

Ejaz Ahmad, planner
Development Services and Capital Projects Division

EA:
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Enclosures

Print Form

Appendix C

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: IS Application No. 7325 (Patrick Maddox)

Lead Agency: Fresno County, Department of Public Works and Planning | Contact Person: Ejaz Ahmad

Mailing Address: 2220 Tulare Street, 6th Floor | Phone: 559-600-4204

City: Fresno | Zip: 93720 | County: Fresno

Project Location: County: Fresno | City/Nearest Community: Burrel

Cross Streets: Southwest corner of W. Davis and S. Chateau-Fresno Avenues | Zip Code:

Longitude/Latitude (degrees, minutes and seconds): ____° ____′ ____″ N / ____° ____′ ____″ W | Total Acres: 346.79

Assessor's Parcel No.: APN 053-050-52S | Section: 8 | Twp.: 17S | Range: 19E | Base: MDBM

Within 2 Miles: State Hwy #: | Waterways:

Airports: | Railways: | Schools:

Document Type:

CEQA: ☐ NOP ☐ Early Cons ☐ Neg Dec ☒ Mit Neg Dec ☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ☐ Other:

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI

Other: ☐ Joint Document ☐ Final Document ☐ Other:

Local Action Type:

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☐ Rezone ☐ Prezone ☒ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☐ Other:

Development Type:

☐ Residential: Units ____ Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☒ Commercial: Sq.ft. ____ Acres 346.79 Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational:
☐ Recreational:
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type
☐ Mining: Mineral
☐ Power: Type ____ MW
☐ Waste Treatment: Type ____ MGD
☐ Hazardous Waste: Type
☐ Other:

Project Issues Discussed in Document:

☒ Aesthetic/Visual
☒ Agricultural Land
☒ Air Quality
☒ Archeological/Historical
☒ Biological Resources
☐ Coastal Zone
☒ Drainage/Absorption
☐ Economic/Jobs
☐ Fiscal
☒ Flood Plain/Flooding
☒ Forest Land/Fire Hazard
☒ Geologic/Seismic
☒ Minerals
☒ Noise
☒ Population/Housing Balance
☒ Public Services/Facilities
☒ Recreation/Parks
☒ Schools/Universities
☒ Septic Systems
☒ Sewer Capacity
☒ Soil Erosion/Compaction/Grading
☒ Solid Waste
☒ Toxic/Hazardous
☒ Traffic/Circulation
☐ Vegetation
☒ Water Quality
☒ Water Supply/Groundwater
☒ Wetland/Riparian
☐ Growth Inducement
☒ Land Use
☒ Cumulative Effects
☐ Other:

Present Land Use/Zoning/General Plan Designation:

Diary/AE-20 (Exclusive Agricultural; 20-acre minimum parcel size)/Agriculture

Project Description: *(please use a separate page if necessary)*

Allow the expansion of an existing dairy to include an increase in animal units, new structural improvements and a new anaerobic digester with related power generation facilities on an approximately 84.3-acre portion of a 346.79-acre parcel in the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) Zone District. The project site is located on southeast corner of W. Davis and S. Chateau-Fresno Avenues approximately 2.6 miles southeast of the unincorporated community of Burrel (7285 W. Davis Ave., Riverdale CA) (SUP. DIST. 4) (APN 053-050-52S).

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "X".
If you have already sent your document to the agency please denote that with an "S".

X	Air Resources Board		Office of Historic Preservation
	Boating & Waterways, Department of		Office of Public School Construction
	California Emergency Management Agency		Parks & Recreation, Department of
	California Highway Patrol		Pesticide Regulation, Department of
X	Caltrans District #6		Public Utilities Commission
	Caltrans Division of Aeronautics	X	Regional WQCB #Fresno
	Caltrans Planning		Resources Agency
	Central Valley Flood Protection Board		Resources Recycling and Recovery, Department of
	Coachella Valley Mtns. Conservancy		S.F. Bay Conservation & Development Comm.
	Coastal Commission		San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
	Colorado River Board		San Joaquin River Conservancy
X	Conservation, Department of		Santa Monica Mtns. Conservancy
	Corrections, Department of		State Lands Commission
	Delta Protection Commission		SWRCB: Clean Water Grants
	Education, Department of	X	SWRCB: Water Quality
	Energy Commission		SWRCB: Water Rights
X	Fish & Game Region #		Tahoe Regional Planning Agency
X	Food & Agriculture, Department of		Toxic Substances Control, Department of
X	Forestry and Fire Protection, Department of	X	Water Resources, Department of
	General Services, Department of		
X	Health Services, Department of	X	Other: U. S. Fish & Wildlife Service
	Housing & Community Development	X	Other: S.J.Valley Air Pollution Control District
	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date March 9, 2018 Ending Date April 9, 2018

Lead Agency (Complete if applicable):

Consulting Firm: County of Fresno
Address: 2220 Tulare Street, 6th Floor
City/State/Zip: Fresno, CA 93721
Contact: Ejaz Ahmad, Planner
Phone: (559) 600-4204

Applicant: Patrick Maddox
Address: 3899 W. Davis Avenue
City/State/Zip: Riverdale, CA 93656
Phone: (559) 867-4457 or (559)802-3052

Signature of Lead Agency Representative: _____ **Date:** 03-05-2018

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

REVIEWING AGENCIES CHECKLIST

KEY
S = Document sent by lead agency
X = Document sent by SCH
✓ = Suggested distribution

_____ **Resources Agency**
_____ Boating & Waterways
_____ Coastal Commission
_____ Coastal Conservancy
_____ Colorado River Board
_x_ Conservation
_x_ Fish & Game
_x_ Forestry
_____ Office of Historic Preservation
_____ Parks & Recreation
_____ Reclamation
_____ S.F. Bay Conservation & Development Commission
_x_ Water Resources (DWR)

Business, Transportation & Housing

_____ Aeronautics
_x_ California Highway Patrol
_____ CALTRANS District # 6
_____ Department of Transportation Planning (headquarters)
_____ Housing & Community Development
_x_ Food & Agriculture

Health & Welfare

_x_ Health Services, Fresno County

State & Consumer Services

_____ General Services
_____ OLA (Schools)

Environmental Protection Agency

_x_ Air Resources Board
_x_ APCD/AQMD
_____ California Waste Management Board
_____ SWRCB: Clean Water Grants
_____ SWRCB: Delta Unit
_x_ SWRCB: Water Quality
_____ SWRCB: Water Rights
_x_ Regional WQCB #_____ (Fresno County)

Youth & Adult Corrections

_____ Corrections

Independent Commissions & Offices

_____ Energy Commission
_____ Native American Heritage Commission
_____ Public Utilities Commission
_____ Santa Monica Mountains Conservancy
_____ Pesticide regulation, Dept. of
_x_ U.S. Fish & Wildlife Service

_____ Toxic Substances Control, Dept. of

Public Review Period (to be filled in by lead agency)

Starting Date: March 9, 2018 Ending Date: April 9, 2018

Signature _____ Date 03-05-2018

Lead Agency: Fresno County
Address: 2220 Tulare Street, 6th Floor
City/State/Zip: Fresno, CA 93721
Contact: Ejaz Ahmad, Planner
Phone: (559) 600-4204

Applicant: Patrick Maddox
Address: 3899 W. Davis Avenue
City/State/Zip Riverdale, CA 93720
Phone: (559) 867-4457 or (559)802-3052

For SCH Use Only:
Date Received at SCH: _____
Date Review Starts: _____
Date to Agencies: _____
Date to SCH: _____
Clearance Date: _____
Notes:

E201810000066

County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

FILED
MAR 06 2018 TIME 10:10
By FRESNO COUNTY CLERK DEPUTY
For County Clerk's Stamp

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

Notice is hereby given that the County of Fresno has prepared Initial Study Application (IS) No. 7325 pursuant to the requirements of the California Environmental Quality Act for the following proposed project:

> **INITIAL STUDY APPLICATION NO. 7325** and **CLASSIFIED CONDITIONAL USE PERMIT APPLICATION NO. 3582** filed by **PATRICK MADDOX**, proposing to allow the expansion of an existing dairy to include an increase in animal units, new structural improvements and a new anaerobic digester with related power generation facilities on an approximately 84.3-acre portion of a 346.79-acre parcel in the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) Zone District. The project site is located on southeast corner of W. Davis and S. Chateau-Fresno Avenues approximately 2.6 miles southeast of the unincorporated community of Burrel (7285 W. Davis Ave., Riverdale CA) (SUP. DIST. 4) (APN 053-050-52S). Adopt the Mitigated Negative Declaration prepared for Initial Study Application No. 7325, and take action on Classified Conditional Use Permit Application No. 3582 with Findings and Conditions.
>
> (hereafter, the "Proposed Project")

The County of Fresno has determined that it is appropriate to adopt a Mitigated Negative Declaration for the Proposed Project. The purpose of this Notice is to (1) provide notice of the availability of IS Application No. 7325 and the draft Mitigated Negative Declaration, and request written comments thereon; and (2) provide notice of the public hearing regarding the Proposed Project.

Public Comment Period

The County of Fresno will receive written comments on the Proposed Project and Mitigated Negative Declaration from March 9, 2018 through April 9, 2018.

Email written comments to eahmad@co.fresno.ca.us, or mail comments to:

Fresno County Department of Public Works and Planning
Development Services Division
Attn: Ejaz Ahmad
2220 Tulare Street, Suite A
Fresno, CA 93721

IS Application No. 7325 and the draft Mitigated Negative Declaration may be viewed at the above address Monday through Thursday, 9:00 a.m. to 5:00 p.m., and Friday, 8:30 a.m. to 12:30 p.m. (except holidays). An electronic copy of the draft Mitigated Negative Declaration for the Proposed Project may be obtained from Ejaz Ahmad at the addresses above.

Public Hearing

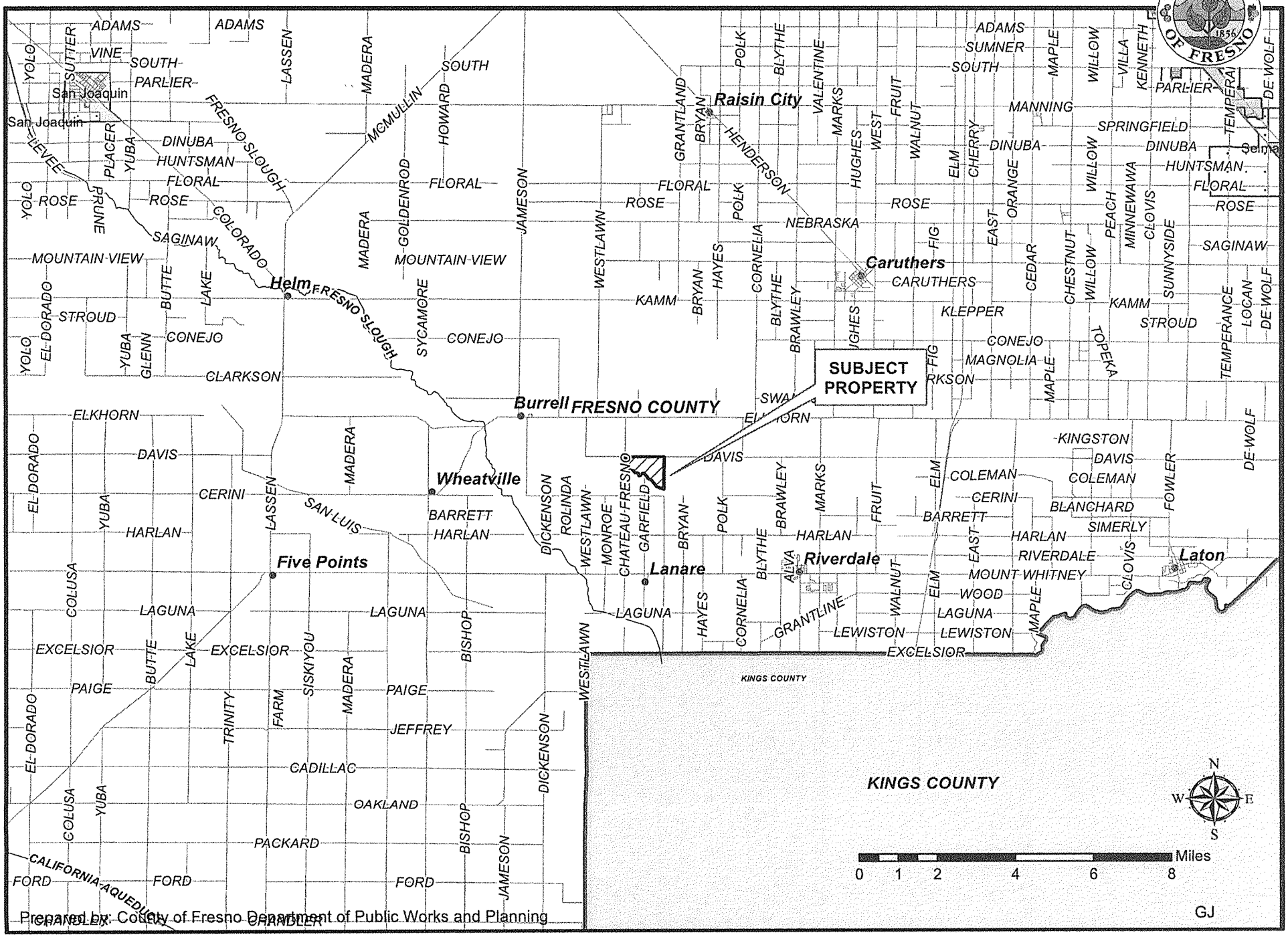
The Planning Commission will hold a public hearing to consider approving the Proposed Project and the Mitigated Negative Declaration on April 12, 2018, at 8:45 a.m., or as soon thereafter as possible, in Room 301, Hall of Records, 2281 Tulare Street, Fresno, California 93721. Interested persons are invited to appear at the hearing and comment on the Proposed Project and draft Mitigated Negative Declaration.

For questions, please call Ejaz Ahmad at (559) 600-4204.

Published: March 9, 2018

CUP 3582

LOCATION MAP



Prepared by: County of Fresno Department of Public Works and Planning

County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

INITIAL STUDY
ENVIRONMENTAL CHECKLIST FORM

1. **Project title:**
   Initial Study Application No. 7325 and Classified Conditional Use Permit Application No. 3582

2. **Lead agency name and address:**
   Fresno County Department of Public Works and Planning
   Development Services and Capital Projects Division
   2220 Tulare Street, 6th Floor
   Fresno, CA 93721-2104

3. **Contact person and phone number:**
   Ejaz Ahmad, Planner, (559) 600-4204

4. **Project location:**
   The project site is located on the southeast corner of W. Davis and S. Chateau-Fresno Avenues approximately 2.6 miles southeast of the unincorporated community of Burrel (7285 W. Davis Ave., Riverdale CA) (SUP. DIST. 4) (APN 053-050-52S).

5. **Project Applicant's name and address:**
   Patrick Maddox
   3899 W. Davis Avenue
   Riverdale, CA 93656

6. **General Plan designation:**
   Agriculture

7. **Zoning:**
   AE-20 (Exclusive Agricultural, 20-acre minimum parcel size)

8. **Description of project: (Describe the whole action involved, including, but not limited to, later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)**
   Allow the expansion of an existing dairy to include an increase in animal units, new structural improvements and a new anaerobic digester with related power generation facilities on an approximately 84.3-acre portion of a 346.79-acre parcel in the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) Zone District.

9. **Surrounding land uses and setting: Briefly describe the project's surroundings:**
   The subject property is located in an agricultural area and is currently developed with various buildings and structures related to an existing dairy. Surrounding land uses include vineyards and field crops with sparse single-family residences. The unincorporated community of Burrel is located approximately 2.6 miles northwest of the site.

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

DETERMINATION OF REQUIRED ENVIRONMENTAL DOCUMENT:

On the basis of this initial evaluation:

☐ I find that the proposed project **COULD NOT** have a significant effect on the environment. **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 the Mitigation Measures described on the attached sheet have been added to the project. **A MITIGATED NEGATIVE DECLARATION WILL BE PREPARED.**

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

☐ I find that as a result of the proposed project, no new effects could occur, or new Mitigation Measures would be required that have not been addressed within the scope of a previous Environmental Impact Report.

PERFORMED BY:

Ejaz Ahmad, Planner

Date: 03-05-2018

REVIEWED BY:

Marianne Mollring, Senior Planner

Date: 3-5-18

EA:ksn
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INITIAL STUDY
ENVIRONMENTAL CHECKLIST FORM
(Initial Study Application No. 7325 and Classified conditional Use Permit Application No. 3582)

The following checklist is used to determine if the proposed project could potentially have a significant effect on the environment. Explanations and information regarding each question follow the checklist.

1 = No Impact

2 = Less Than Significant Impact

3 = Less Than Significant Impact with Mitigation Incorporated

4 = Potentially Significant Impact

I. AESTHETICS

Would the project:

1 a) Have a substantial adverse effect on a scenic vista?

1 b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

2 c) Substantially degrade the existing visual character or quality of the site and its surroundings?

3 d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

II. AGRICULTURAL AND FORESTRY RESOURCES

Would the project:

1 a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

1 b) Conflict with existing zoning for agricultural use, or a Williamson Act Contract?

1 c) Conflict with existing zoning for forest land, timberland or timberland zoned Timberland Production?

1 d) Result in the loss of forest land or conversion of forest land to non-forest use?

1 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?

III. AIR QUALITY

Would the project:

2 a) Conflict with or obstruct implementation of the applicable Air Quality Plan?

2 b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

2 c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under applicable Federal or State ambient air quality standards (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

2 d) Expose sensitive receptors to substantial pollutant concentrations?

2 e) Create objectionable odors affecting a substantial number of people?

IV. BIOLOGICAL RESOURCES

Would the project:

1 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 Wildlife or U.S. Fish and Wildlife Service?

1 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 Wildlife or U.S. Fish and Wildlife Service?

1 c) Have a substantial adverse effect on federally-protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

1 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?

1 e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

1 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?

V. CULTURAL RESOURCES

Would the project:

3 a) Cause a substantial adverse change in the significance of a historical resource as defined in Public Resources Code Section 15064.5?

3 b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Public Resources Code Section 15064.5?

3 c) Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature?

3 d) Disturb any human remains, including those interred outside of formal cemeteries?

2 e) Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074?

VI. GEOLOGY AND SOILS

Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

1 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?

2 ii) Strong seismic ground shaking?

2 iii) Seismic-related ground failure, including liquefaction?

1 iv) Landslides?

2 b) Result in substantial soil erosion or loss of topsoil?

2 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?

2 d) Be located on expansive soil as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

1 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?

VII. GREENHOUSE GAS EMISSIONS

Would the project:

2 a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

2 b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

VIII. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

2 a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

2 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?

2 c) Create hazardous emissions or utilize hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

1 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?

1 e) Result in a safety hazard for people residing or working in the project area 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?

1 f) Result in a safety hazard for people residing or working in the project area for a project within the vicinity of a private airstrip?

1 g) Impair implementation of or physically interfere with an adopted Emergency Response Plan or Emergency Evacuation Plan?

1 h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

IX. HYDROLOGY AND WATER QUALITY

Would the project:

2 a) Violate any water quality standards or waste discharge requirements?

2 b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (*e.g.*, the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

1 c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site?

1 d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?

2 e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

2 f) Otherwise substantially degrade water quality?

1 g) Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

1 h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

1 i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

1 j) Cause inundation by seiche, tsunami, or mudflow?

X. LAND USE AND PLANNING

Would the project:

1 a) Physically divide an established community?

2 b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the General Plan, Specific Plan, local coastal program, or Zoning Ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

1 c) Conflict with any applicable Habitat Conservation Plan or Natural Community Conservation Plan?

XI. MINERAL RESOURCES

Would the project:

1 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?

1 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?

XII. NOISE

Would the project:

1 a) Expose persons to or generate noise levels in excess of standards established in the local General Plan or Noise Ordinance, or applicable standards of other agencies?

1 b) Expose persons to or generate excessive ground-borne vibration or ground-borne noise levels?

1 c) Create a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

1 d) Create a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

1 e) Expose people residing or working in the project area to excessive noise levels, 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?

1 f) Expose people residing or working in the project area to excessive noise levels, for a project within the vicinity of a private airstrip?

XIII. POPULATION AND HOUSING

Would the project:

1 a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

1 b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

1 c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

XIV. PUBLIC SERVICES

Would the project:

Result in substantial adverse physical impacts associated with the provision of new or physically-altered governmental facilities, or the 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:

2 a) Fire protection?

1 b) Police protection?

1 c) Schools?

1 d) Parks?

1 e) Other public facilities?

XV. RECREATION

Would the project:

1 a) 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?

1 b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

XVI. TRANSPORTATION / TRAFFIC

Would the project:

2 a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

2 b) Conflict with an applicable Congestion Management Program including, but not limited to, level of service standards and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways?

1 c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, which results in substantial safety risks?

1 d) Substantially increase hazards due to a design feature (*e.g.*, sharp curves or dangerous intersections) or incompatible uses (*e.g.*, farm equipment)?

1 e) Result in inadequate emergency access?

1 f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

XVII. UTILITIES AND SERVICE SYSTEMS

Would the project:

1 a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

2 b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

2 c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

2 d) Have sufficient water supplies available to service the project from existing entitlements and resources, or are new or expanded entitlements needed?

1 e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

2 f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

1 g) Comply with federal, state, and local statutes and regulations related to solid waste?

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:

2 a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

2 b) 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.)

1 c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Documents Referenced:

This Initial Study is referenced by the documents listed below. These documents are available for public review at the County of Fresno, Department of Public Works and Planning, Development Services and Capital Projects Division, 2220 Tulare Street, Suite A, Fresno, California (corner of M & Tulare Streets).

Fresno County General Plan, Policy Document and Final EIR
Fresno County Zoning Ordinance
Important Farmland 2010 Map, State Department of Conservation
4Creeks' response dated Feb. 16, 2018 to the Air District

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County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

EVALUATION OF ENVIRONMENTAL IMPACTS

APPLICANT: Patrick Maddox

APPLICATION NOS.: Initial Study Application No. 7325 and Classified Conditional Use Permit Application No. 3582

DESCRIPTION: Allow the expansion of an existing dairy to include an increase in animal units, new structural improvements and a new anaerobic digester with related power generation facilities on an approximately 84.3-acre portion of a 346.79-acre parcel in the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) Zone District.

LOCATION: The project site is located on southeast corner of W. Davis and S. Chateau-Fresno Avenues approximately 2.6 miles southeast of the unincorporated community of Burrel (7285 W. Davis Ave., Riverdale CA) (SUP. DIST. 4) (APN 053-050-52S).

I. AESTHETICS

A. Would the project have a substantial adverse effect on a scenic vista; or

B. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

FINDING: NO IMPACT:

The subject property is located in an agricultural area and is currently developed with various buildings and structures related to an existing dairy. Surrounding land uses include vineyard and field crops with sparse single-family residences. The property fronts Davis and Fresno-Chateau Avenues, which are not designated as scenic drives in the County General Plan. No scenic vistas or scenic resources were identified on or near the property to be impacted by the subject proposal.

C. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The subject property (dairy site) contains 1,294 milk cows, 270 dry cows and 1,745 support stock (heifers and calves). The existing improvements include open lot corrals, hay barns, freestall barn, wastewater retention pond, silage storage pit/area, water well and single-family residences.

The subject proposal will increase milk cows from 1,294 to 1,600 (net increase 306 cows), dry cows from 270 to 400 (net increase 130 cows), support stock from 1,745 to 2,000 (net increase 255 support stock). The proposed improvements include a shade over the existing milk barn, a new milk barn, two (2) freestall barns, two (2) corral shades, two (2) wastewater retention ponds, an anaerobic digester and a digester building.

The proposed improvements are limited in number and match in height, design and construction with the existing improvements on the property. As such, the project will not bring any significant changes to the existing visual character or quality of the site and its surroundings.

D. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

FINDING: LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED:

Exterior lighting will be installed on the proposed buildings/structures. To minimize any light and glare impacts resulting from a new source of light, a mitigation measure would require that all lighting shall be hooded and directed as to not shine toward adjacent property and public streets.

* ***Mitigation Measure***

1. *All outdoor lighting shall be hooded and directed downward so as to not shine toward adjacent properties and public streets.*

II. AGRICULTURAL AND FORESTRY RESOURCES

A. Would the project convert prime or unique farmlands or farmland of state-wide importance to non-agricultural use; or

B. Would the project conflict with existing agricultural zoning or Williamson Act Contracts; or

C. Would the project conflict with existing zoning for or cause rezoning of forest land, timberland, or timberland zoned Timberland Production; or

D. Would the project result in the loss of forest land or conversion of forest land to non-forest use; or

E. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural uses or conversion of forest land to non-forest use?

FINDING: NO IMPACT:

The project site is not an active farmland, forestland, or timberland. The project is not in conflict with Agriculture zoning on the property and is allowed as 'Special Agricultural Use' on land designated for agriculture with discretionary approval and adherence to the applicable General Plan Policies. The project site is classified as Confined Animal Agriculture and Unique Farmland on the 2014 Fresno County Important Farmland Map, is enrolled in the Williamson Act Program (Farmland Security Zone Contract No. FSZ04-00042), and is improved with buildings/structures and related facilities for an existing dairy.

According to the Policy Planning Section of the Fresno County Department of Public Works and Planning review of the proposal, the electrical power generation facilities that sell the generated electricity to the grid for profit are not permitted on land enrolled in the Williamson Act Program. Policy Planning required that the Applicant shall file a Notice of Nonrenewal for an approximately 0.38-acre portion of the property that will accommodate the digester and power generation facilities to remove it from the Williamson Act Program through a Notice of Nonrenewal. The Applicant has filed a Notice of Nonrenewal with Policy Planning and it is currently in process.

The Fresno County Agricultural Commissioner's Office reviewed the proposal and expressed no concerns with the project.

III. AIR QUALITY

A. Would the project conflict with or obstruct implementation of the applicable Air Quality Plan; or

B. Would the project violate any air quality standard or contribute to an existing or projected air quality violation; or

C. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under a Federal or State ambient air quality standard; or

D. Would the project expose sensitive receptors to substantial pollutant concentrations?

FINDING: LESS THAN SIGNIFICANT IMPACT:

According to the San Joaquin Valley Air Pollution Control District comments on the project, dated July 10, 2017, the project will have a significant impact on air quality, and required assessment for construction emissions, operational emissions, and nuisance odors. The Air District also required evaluation of the project-related health impacts to determine if emissions of toxic air contaminants (TAC) will pose a significant health risk

to nearby sensitive receptors. The Applicant addressed the Air District comments (point-by-point) in a letter dated February 16, 2018. The District reviewed the letter and indicated that based on their understanding of the additional information presented in the letter, the District finds the methodology adequately characterized the criteria pollutant emissions. With that, the District offered no additional comments on the project.

The project may be subject to the following District rules: District Regulation VIII (Fugitive PM10 Prohibitions), Rule 4601 (Architectural Coatings), Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt Paving and Maintenance Operations) and Rule 4002 (National Emission Standards for Hazardous Air Pollutants) in the event an existing building will be renovated, partially demolished or removed.

The project may also be subject to the following rules specific to animal operations: Rule 4102 (Nuisance) applies to any source operation that emits or may emit air contaminants or other materials; Rule 4550 (Conservation Management Practices) limits fugitive dust emissions from agricultural operation sites; and Rule 4570 (Confined Animal Facilities) applies to dairies with greater than or equal to 500 milk cows and requires filing of an application with the Air District. These requirements will be included as Project Notes.

E. Would the project create objectionable odors affecting a substantial number of people?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The project will be subject to Rule 4102 (Nuisance) as discussed above.

IV. BIOLOGICAL RESOURCES

A. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any candidate, sensitive, or special-status species; or

B. Would the project 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 Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS); or

C. Would the project have a substantial adverse effect on federally-protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption or other means?

FINDING: NO IMPACT:

The project site is located in an agricultural area and has been disturbed by improvements related to an existing dairy. The site and the neighboring parcels have also been pre-disturbed with farming operations and as such do not provide habitat for state or federally-listed species. Additionally, the site does not contain any riparian features, wetlands, or waters under the jurisdiction of the United States.

The project was routed to the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) for review and comments. No concerns were expressed by either agency.

D. Would the project 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?

FINDING: NO IMPACT:

Being a developed site, no wildlife or fish movement features (*e.g.*, waterways, arroyos, ridgelines) or any wildlife nursery sites are present on the property. The project will not impact these resources.

E. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

FINDING: NO IMPACT:

The project is not subject to the County tree preservation policy or ordinance.

F. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

FINDING: NO IMPACT:

The project site is not within the boundaries of a Habitat Conservation Plan or Natural Community Conservation Plan. The project will not conflict with the provisions of such a Plan.

V. CULTURAL RESOURCES

A. Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5; or

B. Would the project cause a substantial adverse change in the significance of an archeological resource pursuant to Section 15064.5; or

C. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or

D. Would the project disturb any human remains, including those interred outside of formal cemeteries?

FINDING: LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED:

The project site is within an area moderately sensitive to historical, archeological or paleontological resources. As such, a mitigation measure would require that in case archeological resources are uncovered, all work must be stopped until a qualified archeologist evaluates the findings, and if human remains are discovered, the Fresno County Sheriff-Coroner shall be notified. Further, if the remains are of Native Americans, the Sheriff-Coroner shall also notify to the Native American Commission (NAHC) within 24 hours of discovery in accordance with California Health and Safety Code 7050.5 and Public Resource Code 5097.98.

* ***Mitigation Measure***

1. *In the event that cultural resources are unearthed during ground-disturbing activities, all work shall be halted in the area of the find. An Archeologist should be called to evaluate the findings and make any necessary mitigation recommendations. If human remains are unearthed during ground-disturbing activities, no further disturbance is to occur until the Fresno County Sheriff-Coroner has made the necessary findings as to origin and disposition. All normal evidence procedures should be followed by photos, reports, video, etc. If such remains are determined to be Native American, the Sheriff-Coroner must notify the Native American Commission within 24 hours.*

E. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074?

FINDING: LESS THAN SIGNIFICANT IMPACT:

With the implementation of the aforementioned mitigation measure, the project will have a less than significant impact on tribal cultural resources as defined in Public Resources Code Section 21074. The project was routed to the Picayune Rancheria of the Chukchansi Indians, Santa Rosa Rancheria Tachi Yokut Tribe, and Dumna Wo Wah Tribal Government in compliance with Assembly Bill (AB) 52.

VI. GEOLOGY AND SOILS

A. Would the project expose people or structures to potential substantial adverse effects, including risk of loss, injury or death involving:

1. Rupture of a known earthquake?

FINDING: NO IMPACT:

The project site does not contain any active earthquake faults, nor is it located within a designated Alquist-Priolo Earthquake Fault Zone.

2. Strong seismic ground shaking; or

3. Seismic-related ground failure, including liquefaction?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The project site is in an area of low probability for exposure to strong ground shaking. The potential for seismic-related ground failure (liquefaction, lateral spreading, and lurching) occurring on the project site is minimal due to the absence of high groundwater levels and saturated loose granular soil on the property. In addition, the intensity of ground shaking from a large, distant earthquake is expected to be relatively low on the project site and, therefore, would not be severe enough to induce liquefaction on site.

No agency expressed concerns or complaints related to ground shaking, ground failure, liquefaction or landslides.

4. Landslides?

FINDING: NO IMPACT:

The project site contains naturally flat relief which precludes the possibility of landslides on site.

B. Would the project result in substantial erosion or loss of topsoil?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The Development Engineering Section of the Development Services and Capital Projects Division reviewed the proposal and requires: 1) an Engineered Grading and Drainage Plan when moving more than 1,000 cubic yards of material; and 2) a Grading Permit or Voucher for any grading proposed with this application. These requirements will be included as Project Notes and addressed through Site Plan Review recommended as a Condition of Approval.

C. Would the project result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse; or

D. Would the project be located on expansive soils, creating substantial risks to life or property?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The development of the project would implement all applicable requirements of the most recent California Building Standards Code and as such would not expose persons to hazards associated with seismic design of buildings/structures and shrinking and swelling of expansive soils.

E. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative disposal systems where sewers are not available for wastewater disposal?

FINDING: NO IMPACT:

No wastewater disposal impacts were identified in the project analysis. The project will not install an individual sewage disposal system on the property.

The Fresno County Department of Public Health, Environmental Health Division reviewed the proposal and expressed no concerns related to wastewater disposal.

VII. GREENHOUSE GAS EMISSIONS

A. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

B. Would the project conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

FINDING: LESS THAN SIGNIFICANT IMPACT:

Comments received from the Air District expressed no specific project-related concerns, supporting the determination that the project will not generate greenhouse gas emissions that may have a significant impact on the environment. The project will adhere to the Air District requirements as noted in Section III. A.B.C.D. Air Quality.

VIII. HAZARDS AND HAZARDOUS MATERIALS

A. Would the project create a significant public hazard through routine transport, use or disposal of hazardous materials; or

B. Would the project create a significant public hazard involving accidental release of hazardous materials into the environment; or

C. Would the project create hazardous emissions or utilize hazardous materials, substances or waste within one quarter-mile of a school?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The Fresno County Department of Public Health, Environmental Health Division reviewed the project and requires that prior to the production of compost from operations of the digester, the facility shall apply for and obtain a permit to operate a Solid Waste Facility from the County of Fresno, Environmental Health Division acting as the Local Enforcement Agency (LEA). Further, all hazardous waste shall be handled in accordance with requirements set forth in the California Code of Regulations (CCR), Title 22, Division 4.5. These requirements will be included as Project Notes.

The project is not located within one quarter-mile of a school. The nearest school, Burrel Elementary School, is approximately 3.1 miles northwest of the project site.

D. Would the project be located on a hazardous materials site?

FINDING: NO IMPACT:

The project is not located on a hazardous materials site. No concerns were expressed by the Fresno County Department of Public Health, Environmental Health Division.

E. Would a project located within an airport land use plan or, absent such a plan, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area; or

F. Would a project located within the vicinity of a private airstrip result in a safety hazard for people residing or working in the project area?

FINDING: NO IMPACT:

The project site is not located within an airport land use plan area, within two miles of a public use airport, or in the vicinity of a private airstrip. The nearest airport, Central Valley Aviation Incorporated Airport near the City of Selma, is approximately 14.4 miles east of the site.

G. Would the project impair implementation of or physically interfere with an adopted Emergency Response Plan or Emergency Evacuation Plan?

FINDING: NO IMPACT:

The project site is located in an area where existing emergency response times for fire protection, emergency medical services, and sheriff protection meet adopted standards. The project does not include any characteristics (*e.g.*, permanent road closures) that would physically impair or otherwise interfere with emergency response or evacuation in the project vicinity.

H. Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

FINDING: NO IMPACT:

The project site is not within or adjacent to a wildland fire area. The project will not expose persons or structures to wildland fire hazards.

IX. HYDROLOGY AND WATER QUALITY

A. Would the project violate any water quality standards or waste discharge requirements or otherwise degrade water quality?

FINDING: LESS THAN SIGNIFICANT IMPACT:

See discussion in Section VI.E. Geology and Soils regarding wastewater disposal.

The Central Valley Regional Water Quality Control Board (RWQCB) reviewed the project for impact on groundwater quality. According to the RWCQB, increase in the herd size from the existing 1,564 mature cows allowed by the current Waste Discharge Order (R5-2007-0035) to 2,000 mature cows and 2,000 immature support stock constitute an expansion of the existing dairy facility. As such, a Report of Waste Discharge (ROWD) would be required prior to starting discharge associated with the dairy expansion. Provision G.4 of the Reissued General Order (R5-2013-0122) for existing milk-cow dairies requires that "the Discharger shall submit a complete ROWD in accordance with the Water Code Section 13260 at least 140 days prior to any material change or proposed change in the character, location, or volume of the discharge, including any expansion of the facility or development of any treatment technology, or construction of an anaerobic digester. In compliance of G.4 of the order, the Applicant has provided a Report of Waste Discharge (ROWD), a Waste Management Plan and a Nutrient Management Plan to the RWQCB.

The State Water Resources Control Board (SWRCB), Division of Drinking Water (DDW) also reviewed the subject proposal for water quality standards and stated that the subject dairy does not meet the definition of a public water supply system. No concerns were expressed.

B. Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge so that there would be a net deficit in aquifer volume or a lowering of the local groundwater table?b

FINDING: LESS THAN SIGNIFICANT IMPACT:

An existing on-site private well provides water to the current dairy. The current water use at the dairy facility is estimated to be 51,760 gallons per day. The water usage by the existing diary after the proposed expansion is estimated to be 64,000 gallons of water per day.

The project site is not within a designated low-water area of Fresno County. The Fresno County Water and Natural Resources Division of the Department of Public Works and Planning reviewed the proposal and expressed no concerns related to water supply to the project. The project will have a less than significant impact on groundwater supply.

C. Would the project substantially alter existing drainage patterns, including alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site; or

D. Would the project substantially alter existing drainage patterns, including alteration of the course of a stream or river, in a manner which would result in flooding on or off site?

FINDING: NO IMPACT:

The project will not impact any existing on-site drainage patterns or change the course of Murphy slough that runs along the westerly boundary of the property and lies approximately 2,300 feet south of the nearest improvement on the property.

E. Would the project create or contribute run-off which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted run-off?

FINDING: LESS THAN SIGNIFICANT IMPACT:

As noted above in Section VI. B. Geology and Soils, any changes to the existing drainage pattern resulting from this proposal will be subject to review and approval of an Engineered Grading and Drainage Plan and a Grading Permit or Voucher from the Development Engineering Section of the Development Services and Capital Projects Division.

F. Would the project otherwise substantially degrade water quality?

FINDING: LESS THAN SIGNIFICANT IMPACT:

See discussion in IX. A. above.

G. Would the project place housing within a 100-year floodplain?

FINDING: NO IMPACT:

No housing is proposed with this application.

H. Would the project place structures within a 100-year flood hazard area that would impede or redirect flood flows?

FINDING: NO IMPACT:

According to the Federal Emergency Management Agency (FEMA) FIRM Panel 2875J, the subject property is located in Zone X and is not subject to foolding from the 100-year storm.

I. Would the project expose persons or structures to levee or dam failure; or

J. Would the project cause inundation by seiche, tsunami or mudflow?

FINDING: NO IMPACT:

The subject site is not prone to a seiche, tsunami or mudflow, nor is the project likely to expose persons or structures to potential levee or dam failure.

X. LAND USE AND PLANNING

A. Will the project physically divide an established community?

FINDING: NO IMPACT:

The project will not physically divide an established community. The unincorporated community of Burrel is approximately 2.6 miles northwest of the project site.

B. Will the project conflict with any Land Use Plan, policy or regulation of an agency with jurisdiction over the project?

FINDING LESS THAN SIGNIFICANT IMPACT:

The subject property is designated Agriculture in the Fresno County General Plan and is located outside of any city's Sphere of Influence (SOI). As such, the subject proposal will not be in conflict with any land use plan, policy, or regulation of an agency with jurisdiction (other than County) over the project.

The County General Plan allows the proposed facility in an agriculturally-zoned area as a 'Special Agricultural Use' by discretionary land use approval provided it meets applicable General Plan policies. The project meets the following General Plan policies:

Regarding Policy LU-A.3, Criteria a. b. c. d., the subject proposal is an expansion of the existing dairy that was established as a by-right use on the property; is not located on a prime farmland; will not deplete groundwater resources due to increase in water usage; and, can be provided with adequate workforce from the nearest communities of Burrel and Lanare. Regarding Policy LU-A.12, Policy LU-A.13 and Policy LU-A.14, the project is a compatible use pursuant to Policy LU-A.3 and maintains adequate distance from the adjacent farming operations. Regarding Policy PF-C.17 and Policy PF-D.6, additional water usage by this proposal will have a less than significant impact on the groundwater table and the project does not involve installation of on-site sewage disposal systems. Regarding Policies HS-B.1 and HS-F.1, the project will comply with the California Code of Regulations Title 24 – Fire Code and handle all hazardous materials in accordance with applicable hazardous materials and waste management laws and regulations.

C. Will the project conflict with any applicable Habitat Conservation Plan or Natural Community Conservation Plan?

FINDING: NO IMPACT:

The project will not conflict with any Habitat Conservation or Natural Community Conservation Plans.

XI. MINERAL RESOURCES

A. Would the project result in the loss of availability of a known mineral resource; or

B. Would the project result in the loss of availability of a locally-important mineral resource recovery site designated on a General Plan?

FINDING: NO IMPACT:

No mineral resource impacts were identified in the analysis. The site is not located in a mineral resource area as identified in Policy OS-C.2 of the General Plan.

XII. NOISE

A. Would the project result in exposure of people to severe noise levels; or

B. Would the project result in exposure of people to or generate excessive ground-borne vibration or ground-borne noise levels; or

C. Would the project cause a substantial permanent increase in ambient noise levels in the project vicinity; or

D. Would the project result in a substantial temporary or periodic increase in ambient noise levels?

FINDING: NO IMPACT:

The project operation will not expose people to severe noise levels or create substantial increases in ambient noise levels. The Fresno County Department of Public Health, Environmental Health Division expressed no concerns related to noise.

E. Would the project expose people to excessive noise levels associated with a location near an airport or a private airstrip; or

F. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

FINDING: NO IMPACT:

The project site is approximately 14.4 miles from Central Valley Aviation Incorporated Airport, near the City of Selma. At that distance, the project will not expose people at or near the project site to excessive noise levels.

XIII. POPULATION AND HOUSING

A. Would the project induce substantial population growth either directly or indirectly; or

B. Would the project displace substantial numbers of existing housing; or

C. Would the project displace substantial numbers of people, necessitating the construction of housing elsewhere?

FINDING: NO IMPACT:

The project will not result in an increase of housing, nor will it otherwise induce population growth.

XIV. PUBLIC SERVICES

A. Would the project result in substantial adverse physical impacts associated with the provision of new or physically-altered public facilities in the following areas:

1. Fire protection?

   FINDING: LESS THAN SIGNIFICANT IMPACT:

   Fresno County Fire Protection District (CalFire) reviewed the proposal and requires that the project development comply with the California Code of Regulations Title 24 – Fire Code, requires approval of County-approved site plans by the Fire District prior to issuance of building permits by the County, and requires annexation to Community Facilities District (CFD) No. 2010-01 of the Fresno County Fire Protection District. These requirements will be included as Project Notes and addressed through Site Plan Review recommended as a Condition of Approval.

2. Police protection; or

3. Schools; or

4. Parks; or

5. Other public facilities?

   FINDING: NO IMPACT:

   The project will not impact police services, schools, parks or any other public facilities.

XV. RECREATION

A. Would the project increase the use of existing neighborhood and regional parks; or

B. Would the project require the construction of or expansion of recreational facilities?

   FINDING: NO IMPACT:

   No impacts on recreational facilities were identified in the project analysis.

XVI. TRANSPORTATION/TRAFFIC

A. Would the project conflict with any applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation; or

B. Would the project conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demands measures?

   FINDING: LESS THAN SIGNIFICANT IMPACT:

According to the Applicant's Operational Statement, the subject dairy expansion will result in an increase from the existing 15 employees to up to 20 employees. Additionally, the project will generate two additional milk truckloads per day to and from the site. The total number of visitors or customers visiting the site (6 per week) will remain the same.

The Design Division of the Fresno County Department of Public Works and Planning reviewed the proposal and required no traffic Impact study (TIS). According to the Design Division, the project's traffic impact resulting from the dairy expansion is less than significant based on the amount of new vehicle trips to be generated by the proposal.

C. Would the project result in a change in air traffic patterns?

FINDING: NO IMPACT:

The project will not result in a change in air traffic patterns. No buildings/structures proposed by this application are of such height that could potentially affect air traffic.

D. Would the project substantially increase traffic hazards due to design features?

FINDING: NO IMPACT:

The project will not increase traffic hazards due to design features. There is no change to the current access to the site or on-site improvements.

The Road Maintenance and Operations Division and Development Engineering Section of the Fresno County Department of Public Works and Planning reviewed the proposal and expressed no concerns with the project.

E. Would the project result in inadequate emergency access?

FINDING: NO IMPACT:

The project would not result in on-site or off-site activities that would impair emergency vehicle movement or personnel. The current unpaved access to the site off Davis Avenue is of adequate width to accommodate emergency services response to the site.

F. Would the project conflict with adopted plans, policies or programs regarding public transit, bicycle or pedestrian facilities or otherwise decrease the performance or safety of such facilities?

FINDING: NO IMPACT:

The project will not conflict with any adopted transportation plans. As such, no impacts associated with public transit or pedestrian and bicycle hazards are expected from this proposal.

XVII. UTILITIES AND SERVICE SYSTEMS

A. Would the project exceed wastewater treatment requirements?

FINDING: NO IMPACT:

See discussion in Section VI. E. Geology and Soils.

B. Would the project require construction of or the expansion of new water or wastewater treatment facilities?

FINDING: LESS THAN SIGNIFICANT IMPACT:

See discussion in Section IX. B. Hydrology and Water Quality.

C. Would the project require or result in the construction or expansion of new storm water drainage facilities?

FINDING: LESS THAN SIGNIFICANT IMPACT:

See discussion in Section IX. E Hydrology and Water Quality.

D. Would the project have sufficient water supplies available from existing entitlements and resources, or are new or expanded entitlements needed?

FINDING: LESS THAN SIGNIFICANT IMPACT:

See discussion in Section IX. B. Hydrology and Water Quality.

E. Would the project result in a determination of inadequate wastewater treatment capacity to serve project demand?

FINDING: NO IMPACT:

See discussion in Section VI. E Geology and Soils.

F. Would the project be served by a landfill with sufficient permitted capacity?

FINDING: LESS THAN SIGNIFICANT IMPACT:

Solid waste (trash) will continue to be collected, stored on site, and disposed of at the local landfill through a local trash hauler.

G. Would the project comply with federal, state and local statutes and regulations related to solid waste?

FINDING: NO IMPACT:

Solid waste (manure) produce on site will continue to be stored and applied to farmlands in compliance with federal, state and local statutes and regulations.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

A. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California prehistory or history?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The project would not degrade the quality of the environment; 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; or reduce the number or restrict the range of an endangered, rare, or threatened species. No impacts on biological resources were identified in the project analysis. Impacts to cultural resources as identified in Section V. A. B. C. D. will be mitigated to a less than significant level.

B. Does the project have impacts that are individually limited, but cumulatively considerable?

FINDING: LESS THAN SIGNIFICANT IMPACT:

The project will adhere to the permitting requirements and rules and regulations set forth by the Fresno County Grading and Drainage Ordinance, San Joaquin Valley Air Pollution Control District, and California Code of Regulations Fire Code. No cumulatively considerable impacts were identified in the analysis other than aesthetics and cultural resources, which will be addressed with the Mitigation Measures discussed in Section I.D. and Section V. A. B. C. D.

C. Does the project have environmental impacts, which will cause substantial adverse effects on human beings, either directly or indirectly?

FINDING: NO IMPACT:

No substantial impacts on human beings, either directly or indirectly, were identified in the analysis.

CONCLUSION/SUMMARY

Based upon the Initial Study (No. 7325) prepared for Conditional Use Permit Application No. 3582, staff has concluded that the project will not have a significant effect on the environment. It has been determined that there would be no impacts to agricultural and forestry resources, biological resources, mineral resources, noise, population and housing or recreation.

Potential impacts related to air quality, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, public services, transportation/traffic and utilities and service systems have been determined to be less than significant.

Potential impacts to aesthetics and cultural resources have been determined to be less than significant with the identified Mitigation Measures.

A Mitigated Negative Declaration is recommended and is subject to approval by the decision-making body. The Initial Study is available for review at 2220 Tulare Street, Suite A, street level, located on the southwest corner of Tulare and "M" Streets, Fresno, California.

EA:
G:\4360Devs&Pln\PROJSEC\PROJDOCS\CUP\3500-3599\3582\IS-CEQA\CUP3582 IS wu.docx

File original and one copy with:	Space Below For County Clerk Only.
Fresno County Clerk **2221 Kern Street** **Fresno, California 93721**	CLK-2046.00 E04-73 R00-00

Agency File No:	**LOCAL AGENCY PROPOSED MITIGATED NEGATIVE DECLARATION**	County Clerk File No:
IS 7325		E-

Responsible Agency (Name):	Address (Street and P.O. Box):	City:	Zip Code:
Fresno County	2220 Tulare St. Sixth Floor	Fresno	93721

Agency Contact Person (Name and Title):	Area Code:	Telephone Number:	Extension:
Ejaz Ahmad, Planner	559	600-4204	N/A

Applicant (Name):	Project Title:
Patrick Maddox	Classified Conditional Use Permit Application No. 3582

Project Description:

Allow the expansion of an existing dairy to include an increase in animal units, new structural improvements and a new anaerobic digester with related power generation facilities on an approximately 84.3-acre portion of a 346.79-acre parcel in the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) Zone District. The project site is located on southeast corner of W. Davis and S. Chateau-Fresno Avenues approximately 2.6 miles southeast of the unincorporated community of Burrel (7285 W. Davis Ave., Riverdale CA) (SUP. DIST. 4) (APN 053-050-52S).

Justification for Mitigated Negative Declaration:

Based upon the Initial Study (IS 7325) prepared for Classified Conditional Use Permit Application No. 3582, staff has concluded that the project will not have a significant effect on the environment.

No impacts were identified related to agricultural and forestry resources, biological resources, mineral resources, noise, population and housing or recreation.

Potential impacts related to air quality, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, public services, transportation/traffic and utilities and service systems have been determined to be less than significant.

Potential impact related to aesthetics and cultural resources has been determined to be less than significant with the identified mitigation measure.

The Initial Study and MND is available for review at 2220 Tulare Street, Suite A, Street Level, located on the southeast corner of Tulare and "M" Street, Fresno, California.

FINDING:

The proposed project will not have a significant impact on the environment.

Newspaper and Date of Publication:	Review Date Deadline:
Fresno Business Journal – March 9 , 2018	April 9, 2018

Date:	Type or Print Name:	Submitted by (Signature):
March 5, 2018	Marianne Mollring, Senior Planner	

State 15083, 15085

County Clerk File No.:_____

LOCAL AGENCY
MITIGATED NEGATIVE DECLARATION

Mitigation Monitoring and Reporting Program
Initial Study Application No. 7325
Classified Conditional Use Permit Application No. 3582

Mitigation Measure					
Mitigation Measure No.*	**Impact**	**Mitigation Measure Language**	**Implementation Responsibility**	**Monitoring Responsibility**	**Time Span**
*1.	Aesthetics	All outdoor lighting shall be hooded and directed downward so as to not shine toward adjacent properties and public streets.	Applicant	Applicant/Fresno County Department of Public Works and Planning (PW&P)	On-going; for duration of the project
*2.	Cultural Resources	In the event that cultural resources are unearthed during ground-disturbing activities, all work shall be halted in the area of the find. An Archeologist should be called to evaluate the findings and make any necessary mitigation recommendations. If human remains are unearthed during ground-disturbing activities, no further disturbance is to occur until the Fresno County Sheriff-Coroner has made the necessary findings as to origin and disposition. All normal evidence procedures should be followed by photos, reports, video, etc. If such remains are determined to be Native American, the Sheriff-Coroner must notify the Native American Commission within 24 hours	Applicant	Applicant/PW&P	As noted

*MITIGATION MEASURE – Measure specifically applied to the project to mitigate potential adverse environmental effects identified in the environmental document.

EA:
G:\4360Devs&Pln\PROJSEC\PROJDOCS\CUP\3500-3599\3582\IS-CEQA\CUP3582 MMRP-Draft.docx

County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

DATE: June 27, 2017

TO: Department of Public Works and Planning, Attn: Steven E. White, Director
Development Services, Attn: William M. Kettler, Division Manager
Development Services, Principal Planner, Attn: Chris Motta
Development Services, Policy Planning, ALCC, Attn: Mohammad Khorsand
Development Services, Water/Geology/Natural Resources, Attn: Jennifer Parks
Development Services, Zoning & Permit Review, Attn: Tawanda Mtunga
Development Services, Site Plan Review, Attn: Hector Luna
Development Services, Building & Safety/Plan Check, Attn: Chuck Jonas
Development Engineering, Attn: Jennifer Parks, Grading/Mapping
Road Maintenance and Operations, Attn: Randy Ishii/Frank Daniele/Nadia Lopez
Design Division, Transportation Planning, Attn: Dale Siemer/Harpreet Kooner.
Department of Public Health, Environmental Health Division, Attn: Glenn Allen/Janet Gardner
Agricultural Commissioner, Attn: Les Wright
U.S. Department of Interior, Fish & Wildlife Service, Attn: Patricia Cole
CA Department of Fish and Wildlife, Attn: Steve Hulbert
CA Regional Water Quality Control Board, Attn: Centralvalleyfresno@waterboards.ca.gov
California Department of Transportation (CALTRANS), Attn: Dave Padilla
State Water Resources Control Board, Division of Drinking Water, Attn: Jose Robeldo
Table Mountain Rancheria, Attn: Robert Pennell, Cultural Resources Director
Santa Rosa Rancheria, Attn: Ruben Barrios, Tribal Chairman
San Joaquin Valley Unified Air Pollution Control District (PIC-CEQA Division)
Fresno County Fire Protection District, Attn: Chris Christopherson, Battalion Chief

FROM: Ejaz Ahmad, Planner
Development Services Division

SUBJECT: Classified Conditional Use Permit (CUP) Application No. 3582; Initial Study Application No. 7325

APPLICANT: Patrick Maddox

DUE DATE: July 11, 2017

The Department of Public Works and Planning, Development Services Division is reviewing the subject application proposing to allow the expansion of an existing diary including an increase in animal units, expansion of footprint and additional structural improvements within the proposed footprint, and construction and operation of a DVO anaerobic digester. The project is located on an approximately 346.79-acre parcel in the AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) Zone District.

The Department is also reviewing for environmental effects, as mandated by the California Environmental Quality Act (CEQA) and for conformity with plans and policies of the County.

Based upon this review, a determination will be made regarding conditions to be imposed on the project, including necessary on-site and off-site improvements.

We must have your comments by **July 11, 2017**. Any comments received after this date may not be used.

Please address any correspondence or questions related to environmental and/or policy/design issues to me, Ejaz Ahmad, Planner, Development Services Division, Fresno County Department of Public Works and Planning, 2220 Tulare Street, Sixth Floor, Fresno, CA 93721, or call (559) 600-4204 or email eahmad@co.fresno.ca.us.

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Activity Code (Internal Review):2381

Enclosures

Date Received: 06/07/17

CUP3582 (Application No.)

Fresno County Department of Public Works and Planning

MAILING ADDRESS:
Department of Public Works and Planning
Development Services Division
2220 Tulare St., 6th Floor
Fresno, Ca. 93721

LOCATION:
Southwest corner of Tulare & "M" Streets, Suite A
Street Level
Fresno Phone: (559) 600-4497
Toll Free: 1-800-742-1011 Ext. 0-4497

APPLICATION FOR:

- ☐ Pre-Application (Type) _____
- ☐ Amendment Application
- ☐ Amendment to Text
- ☒ Conditional Use Permit
- ☐ Variance (Class)/Minor Variance
- ☐ Site Plan Review/Occupancy Permit
- ☐ No Shoot/Dog Leash Law Boundary
- ☐ Director Review and Approval for 2nd Residence
- ☐ Determination of Merger
- ☐ Agreements
- ☐ ALCC/RLCC
- ☐ Other _____
- ☐ General Plan Amendment/Specific Plan/SP Amendment)
- ☐ Time Extension for _____

DESCRIPTION OF PROPOSED USE OR REQUEST:

TO EXPAND THE EXISTING DAIRY FACILITY. RUANN DAIRY. THE PROPOSED EXPANSION INCLUDES INCREASED ANIMAL UNITS, EXPANSION OF EXISTING FACILITY FOOTPRINT AND STRUCTURAL IMPROVEMENTS, INCLUDING A DVO DIGESTER.

CEQA DOCUMENTATION: ☒ *Initial Study* ☐ *PER* ☐ *N/A*

PLEASE USE FILL-IN FORM OR PRINT IN BLACK INK. Answer all questions completely. Attach required site plans, forms, statements, and deeds as specified on the Pre-Application Review. **Attach Copy of Deed, including Legal Description.**

LOCATION OF PROPERTY: SOUTH side of DAVIS AVENUE
between CHATEAU FRESNO AVENUE and POLK AVENUE
Street address: 7285 W. DAVIS AVENUE, RIVERDALE, CA 93656

APN: 053-050-052S Parcel size: 346.79 AC. Section(s)-Twp/Rg: S 8 - T 17 S/R 19 E

ADDITIONAL APN(s): 053-180-07S, 240 AC., S9 - T17S/R19E

I, Patrick Maddox (*signature*), declare that I am the owner, or authorized representative of the owner, of the above described property and that the application and attached documents are in all respects true and correct to the best of my knowledge. The foregoing declaration is made under penalty of perjury.

Owner (Print or Type)	Address	City	Zip	Phone
PATRICK MADDOX	3899 W. DAVIS AVENUE	RIVERDALE	93656	559-867-4457
Applicant (Print or Type)	Address	City	Zip	Phone
SAME AS OWNER				
Representative (Print or Type)	Address	City	Zip	Phone
KYLE PARREIRA	324 S. SANTA FE SUITE A	VISALIA	93292	559-802-3052

CONTACT EMAIL: KYLE.PARREIRA@4-CREEKS.com

OFFICE USE ONLY (*PRINT FORM ON GREEN PAPER*)

Application Type / No.:	CUP 3582	Fee: $ 4,569.00
Application Type / No.:	Pre-app fee Credit	Fee: $ -247.00
Application Type / No.:		Fee: $
Application Type / No.:		Fee: $
PER/Initial Study No.:	IS7325	Fee: $ 3,901.00
Ag Department Review:		Fee: $ 93.00
Health Department Review:		Fee: $ 992.00
Received By:	Invoice No.:	TOTAL: $ 9,308.00

UTILITIES AVAILABLE:

WATER: Yes ☐ / No ☒
Agency: _____

SEWER: Yes ☐ / No ☒
Agency: _____

STAFF DETERMINATION: This permit is sought under Ordinance Section: _____

Related Application(s): None

Zone District: AE-20

Parcel Size: _____

Sect-Twp/Rg: ____ - T____ S/R____ E

APN # ___ - ___ - ___

APN # ___ - ___ - ___

APN # ___ - ___ - ___

APN # ___ - ___ - ___

Development Services Division

KYLE PARREIRA
4 CREEKS
324 S. SANTA FE ST., STE A
VISALIA, CA 93292

Pre-Application Review

Department of Public Works and Planning

NUMBER: 38791
APPLICANT: KYLE PARREIRA
PHONE: (559) 802-3052

PROPERTY LOCATION: 7285 DAVIS
APN: 053 - 050 - 525 ALCC: No ___ Yes # FSZ0440½ VIOLATION NO. NONE
CNEL: No X Yes ___ (level) LOW WATER: No X Yes ___ WITHIN ½ MILE OF CITY: No X Yes ___
ZONE DISTRICT: AE-20 ; SRA: No X Yes ___ HOMESITE DECLARATION REQ'D.: No X Yes ___
LOT STATUS:
Zoning: (X) Conforms; ( ) Legal Non-Conforming lot; ( ) Deed Review Req'd (see Form #236)
Merger: May be subject to merger: No X Yes ___ ZM# ___ Initiated ___ In process ___
Map Act: ( ) Lot of Rec. Map; (X) On '72 rolls; ( ) Other ZM 1430; ( ) Deeds Req'd (see Form #236)
SCHOOL FEES: No ___ Yes X DISTRICT: RIVERDALE JOINT UNIFIED PERMIT JACKET: No ___ Yes ___
FMFCD FEE AREA: (X) Outside ( ) District No.: ___ FLOOD PRONE: No ___ Yes X-A
PROPOSAL CUP TO ALLOW THE EXPANSION OF AN EXISTING DAIRY WITH WASTE WATER STORAGE.

COMMENTS: ___
ORD. SECTION(S): 816 / 816.3.DD BY: TOM N. DATE: 11/17/2015

GENERAL PLAN POLICIES:
LAND USE DESIGNATION: AGRICULTURE
COMMUNITY PLAN: —
REGIONAL PLAN: —
SPECIFIC PLAN: —
SPECIAL POLICIES: Zoning Ord. Section 869
SPHERE OF INFLUENCE: —
ANNEX REFERRAL (LU-G17/MOU): —

COMMENTS: ___

PROCEDURES AND FEES:

( )GPA:		( )MINOR VA:	
( )AA:		(✓)HD:	$ 992.00
(✓)CUP:	$ 4,569.00	(✓)AG COMM:	$ 93.00
( )DRA:		( )ALCC:	
( )VA:		(✓)IS/PER*:	$ 3,901.00
( )AT:		( )Viol. (35%):	
( )TT:		( )Other:	

Filing Fee: $ 9,555.00
Pre-Application Fee: -$247.00
Total County Filing Fee: $ 9,308.00

FILING REQUIREMENTS:

(✓) Land Use Applications and Fees
(✓) This Pre-Application Review form
(✓) Copy of Deed / Legal Description
(✓) Photographs
( ) Letter Verifying Deed Review
(✓) IS Application and Fees* * Upon review of project materials, an Initial Study (IS) with fees may be required.
(✓) Site Plans - 4 copies (folded to 8.5"X11") + 1 - 8.5"x11" reduction
(✓) Floor Plan & Elevations - 8 copies (folded to 8.5"X11") + 1 - 8.5"x11" reduction
(✓) Project Description / Operational Statement (Typed)
( ) Statement of Variance Findings
( ) Statement of Intended Use (ALCC)
( ) Dependency Relationship Statement
( ) Resolution/Letter of Release from City of ___
Referral Letter # ___

OTHER FILING FEES:

( ) Archaeological Inventory Fee: $75 at time of filing
(Separate check to Southern San Joaquin Valley Info. Center)
(✓) CA Dept. of Fish & Wildlife (DFW): ($50) ($50+$2,792.25; $50+$2,010.25)
(Separate check to Fresno County Clerk for pass-thru to DFW.
Must be paid prior to IS closure and prior to setting hearing date.)

PLU # 113 Fee: $247.00
Note: This fee will apply to the application fee if the application is submitted within six (6) months of the date on this receipt.

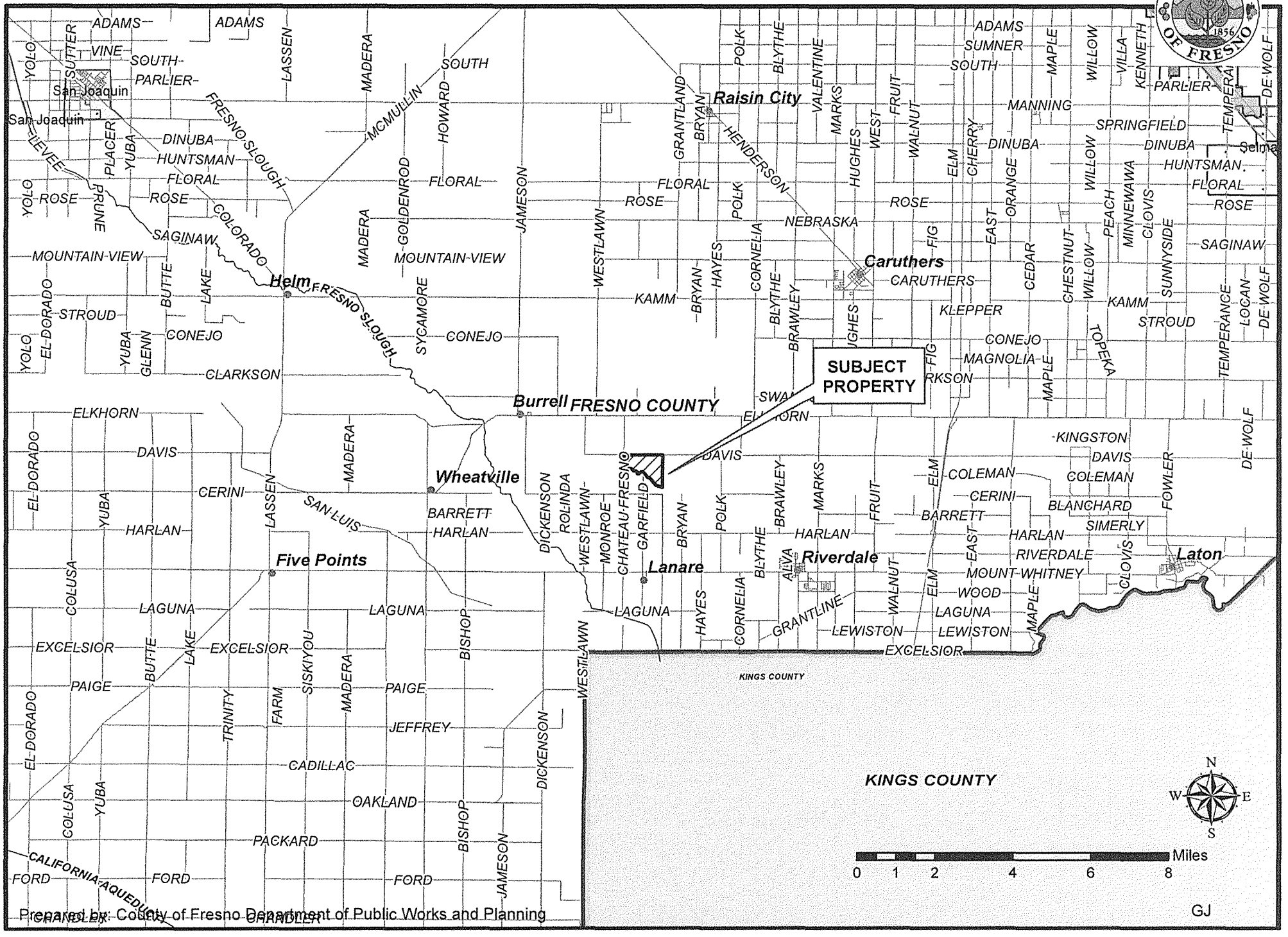
BY: EJAZ AHMAD DATE: 11-30-15
PHONE NUMBER: (559) 600-4204

NOTE: THE FOLLOWING REQUIREMENTS MAY ALSO APPLY:

( ) COVENANT
( ) MAP CERTIFICATE
( ) PARCEL MAP
( ) FINAL MAP
( ) FMFCD FEES
( ) ALUC or ALCC
(✓) SITE PLAN REVIEW
(✓) BUILDING PLANS
(✓) BUILDING PERMITS
( ) WASTE FACILITIES PERMIT
(✓) SCHOOL FEES
( ) OTHER (see reverse side)

CUP 3582

LOCATION MAP



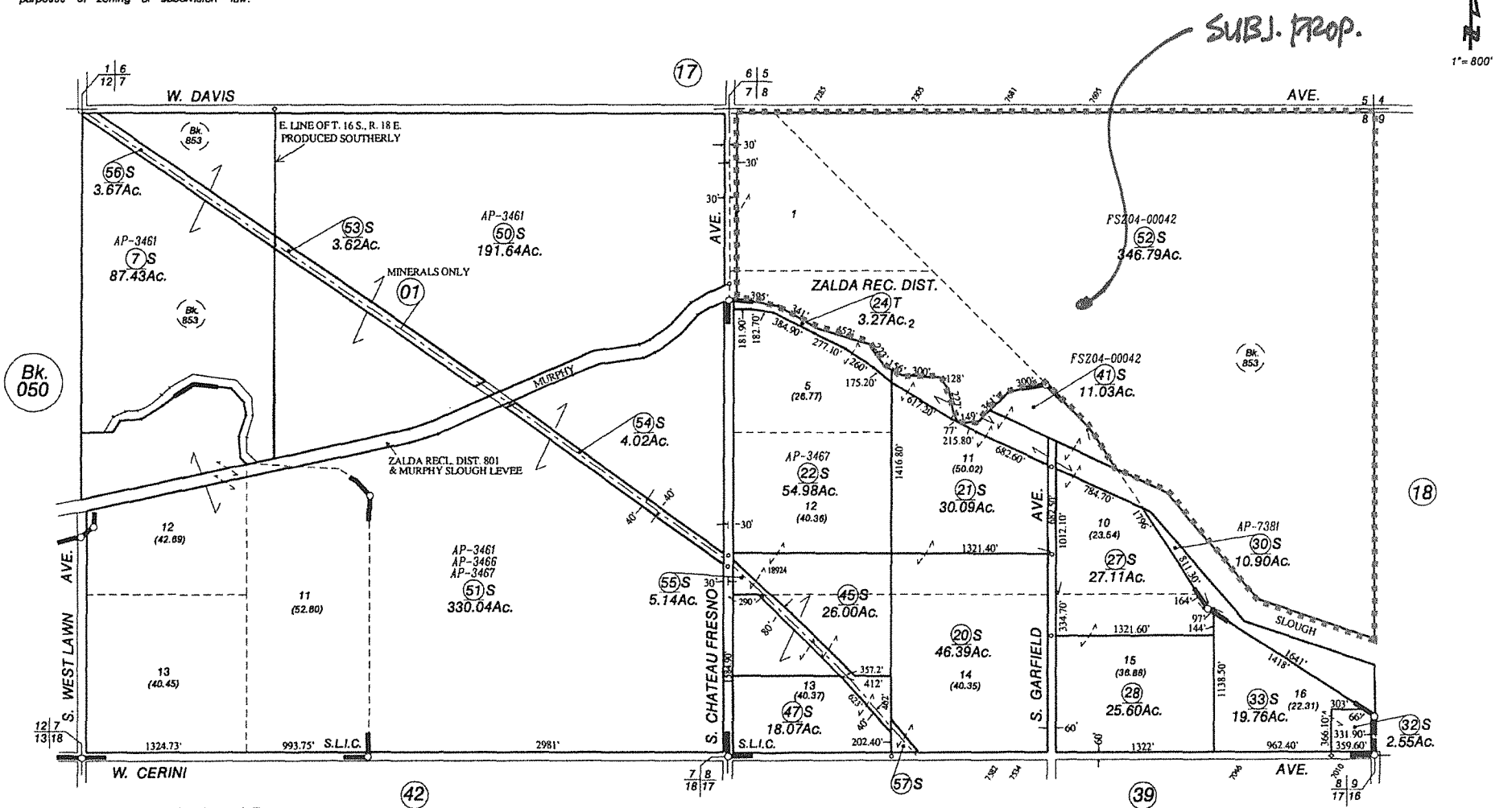
--- NOTE ---
This map is for Assessment purposes only. It is not to be construed as portraying legal ownership or divisions of land for purposes of zoning or subdivision law.

SUBDIVIDED LAND & POR. SEC'S. 7 & 8, T. 17S., R. 19 E., M. D. B. & M.

Tax Rate Area
170-010
171-001

053-05

1"= 800'



Agricultural Preserve
Summit Lake Investment Co., Sub. No. 6 - R.S. 6, Pg. 23

Assessor's Map Bk. 053 - Pg. 05
County of Fresno, Calif.

NOTE - Assessor's Block Numbers Shown In Ellipses.
Assessor's Parcel Numbers Shown In Circles.

05-16-2012 DK

4CREEKS

RUANN DAIRY
OPERATIONAL STATEMENT:

1. **Nature of operation—what do you propose to do? Describe in detail.**

   RuAnn Dairy (Facility) is an existing dairy facility located in Riverdale, California, consisting of 1,294 milk cows, 270 dry cows, and 1,745 support stock (heifers and calves). The owner of the Facility would like to propose an expansion of the Facility, including an increase in animal units, expansion of footprint, and additional structural improvements within the proposed footprint, including the construction and operation of a DVO anaerobic digester. The proposed herd increase would elevate to 1,600 milk cows, 400 dry cows, and 2,000 support stock. The footprint expansion would increase that of the Facility from 80.23 acres to 84.34 acres. The proposed facility improvements include a shade over the existing milk barn, a brand-new milk barn, two (2) freestall barns, two (2) corral shades, two (2) wastewater retention ponds, and the DVO anaerobic digestion system as mentioned above.

2. **Operational time limits**

   The operation of the Facility remains consistent throughout the year. The Facility operates 24 hours per day, 7 days per week. The milk cows are milked twice per day, and this routine governs the milkers' schedule. There are two shifts for milkers, per 24 hours, each approximately 10 hours. Feeders, maintenance, and other employees work between the hours of 4:00AM and 6:00PM. A herdsman is on-call 24 hours per day. The proposed project will not affect the operational time limits.

3. **Number of customers or visitors:**

   The number of visitors per day range depending on the day of week and the time of year. On average, about 6 visitors (which include family members of employees, consultants to the dairy, or salesman) visit per weekday, between the hours of 6:00AM and 5:00PM. The proposed project will not affect the number of customers or visitors on-site.

4. **Number of employees:**

   The current total number of employees is fifteen (15) people. The proposed number of employees will increase up to twenty (20) people. The hours of these employees are explained above in Item 2.

5. **Service and delivery vehicles:**

   Service and Delivery vehicles occur regularly at the dairy to provide feed, pick up the milk, haul animals, provide mechanical services, provide veterinary services and breeding services, and fuel deliveries. The proposed milk barn will generate two additional milk truck loads per day to and from the site.

6. **Access to the site:**

   The Facility is located south of Davis Avenue, adjacent to the paved County-maintained road, between Chateau-Fresno Avenue and Polk Avenue. All access paths within the Facility are unpaved, consisting of dirt / native material.

7. **Number of parking spaces for employees, customers, and service/delivery vehicles.**

   There are no marked parking spaces on the Facility. However, there are designated areas for parking throughout the facility. Majority of parking occurs adjacent to each milk barn and adjacent to the shop.

8. **Are there any goods to be sold on-site? If so, are these goods grown or produced on-site or at some other location?**

   Milk is produced on-site, and picked up by California Dairies, Inc. twice daily from each milk barn.

Visalia Office
324 S. Santa Fe St. Ste. A
Visalia, California 93292
P: (559) 802.3052
F: (559) 802.3215

Porterville Office
881 W. Morton Ave., Suite D
Porterville, California 93257
P: (559) 781. 0102
F: (559) 781.6840

www.4-creeks.com

4CREEKS

9. **What equipment is used?**
   Tractors and feed trucks are used on-site for feeding the animals. In the milk barn, vacuum pumps, plate coolers, and other milk handling equipment are used in compliance with the California Code of Regulations. The proposed digester project will include additional equipment including two (2) generators, gas mixing blowers, sludge pit blowers, and electrical panels, which will all be maintained inside the digester building (see site plan).
10. **What supplies or materials are used and how are they stored?**
    Various supplies and materials are stored and used within the milk barns for milk tank sanitation. New and used oil is also be stored on site.
11. **Does the use cause an unsightly appearance?**
    Slight dust or odor may disturb passers-by, but this is minimal. When the access paths on-site are too dry, they are watered by water truck for dust control.
12. **List any solid or liquid wastes to be produced.**
    Solid manure is produced on-site, stored, and applied to contiguous farmland at agronomic rates. Liquid wastewater is also produced, stored, and applied similarly. According to the Facility's Waste Management Plan, an average of 85,020 gallons of liquid wastewater will be produced per day.
13. **Estimated volume of water to be used (gallons per day).**
    After the proposed expansion, the Facility will generate an average of 77,480 gallons per day, according to the Facility's Waste Management Plan.
14. **Describe any proposed advertising including size, appearance, and placement.**
    Not applicable to this operation.
15. **Will existing buildings be used or will new buildings be constructed?**
    Both existing buildings and constructed new buildings will be used for the operation of the Facility. Some minor structures will be demolished as well. These structures can be found on the attached site plan. These structures are composed of steel support columns, steel beams, metal purlins, and metal roofing.
16. **Explain which buildings or what portion of buildings will be used in the operation.**
    Please see the attached site plan for building location specifics.
17. **Will any outdoor lighting or an outdoor sound amplification system be used?**
    Outdoor lighting will be used when necessary, but all outdoor lighting is hooded so that all light shines downward and does not disrupt nearby people or businesses.
18. **Landscaping or fencing proposed?**
    Some fencing is proposed for animal confinement. Please see the attached site plan for specifics.
19. **Any other information that will provide a clear understanding of the project or operation.**
    The operation is an existing dairy facility, and the expansion is proposed to improve the efficiency of the existing operations, while increasing production.
20. **Identify all Owners, Officers and/or Board Members for each application submitted; this may be accomplished by submitting a cover letter in addition to the information provided on the signed application forms.**
    The owner and operator of the facility is Patrick Maddox, who is also the Applicant.

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www.4-creeks.com

DVO, INC. BACKGROUND AND CAPABILITIES

BACKGROUND

DVO, Inc. (formerly GHD, Inc.) has been a leader in the environmental industry for over 20 years, specializing in environmental engineering. DVO, located in Chilton, Wisconsin, has successfully designed and installed their patented Two-Stage Mixed Plug Flow™ digester system across the nation and internationally.

DVO, Inc. began research and development on its patented anaerobic digester system in 1999. In September, 2001, DVO built its first digester at Gordondale Farms in Nelsonville, Wisconsin. Since that time, DVO has installed almost 100 of its patented anaerobic digestion systems at over 90 farms in 18 states within the US; in addition, DVO has expanded globally, with digesters in Serbia, Canada, Chile and China. Collectively, DVO digesters are currently processing the waste of over 225,000 dairy cows and have installed electrical generation capacity capable of producing over 75 MW of electricity.

Not only do farmers like DVO's technology, so does the USDA. The USDA Rural Business Development has awarded 72 farmers more than $24 million in federal renewable energy grants, based on DVO's technology, since 2003. This highly competitive grant program does not award money for R&D projects, only proven technologies such as DVO's patented system.

In 2005, DVO was proud to be one of five finalists for the Governor's Small Business Technology Transfer Award, sponsored jointly by the Wisconsin Department of Commerce and the Center for Technology Transfer. The purpose of the award was to recognize and reward Wisconsin small businesses that show outstanding achievement in moving a technological innovation from idea to commercialization.

In 2015, the DVO digester system at the Storms Farm earned an American Council of Engineering Companies (ACEC) National Recognition Award. The National Recognition Award is a prestigious distinction honoring projects that demonstrate exceptional achievement in engineering.

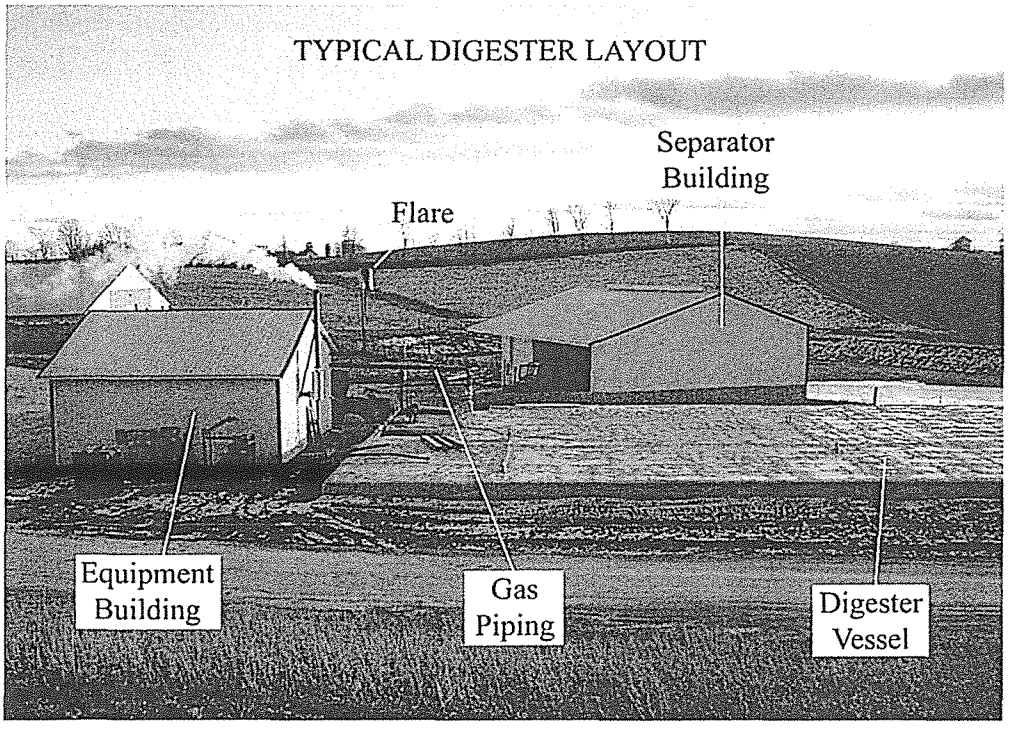
In 2015, DVO introduced a simple and practical solution that removes up to 95 percent of phosphorus from anaerobically-digested wastes. DVO has successfully commissioned this new Phosphorus Recovery system at several large farms. The recovered phosphorus is produced as a condensed solid - a new and useful byproduct from digestion that is stackable, storable, spreadable and profitable.

Recently, DVO, its partner, Magic Dirt™, and customer, Green Cow Power, all received biogas awards at the American Biogas Council's (ABC) annual awards program. ABC recognizes high-achieving companies in the biogas industry serving as an example to others on the scale of innovation, technology collaboration and complexity. DVO earned its first Innovation of the Year award in the Technical category for its Phosphorus Recovery system, a fully commercialized and economical treatment step that removes up to 95 percent of the total phosphorus from large-scale farm and commercial waste streams and up to 50 percent of total nitrogen content from manure slurry. By treating these wastes first in DVO's patented Two-Stage Mixed Plug Flow™ anaerobic digester and then employing the add-on Phosphorus Recovery system, farmers conserve valuable minerals and protect natural resources.

ORGANIZATION CAPABILITIES

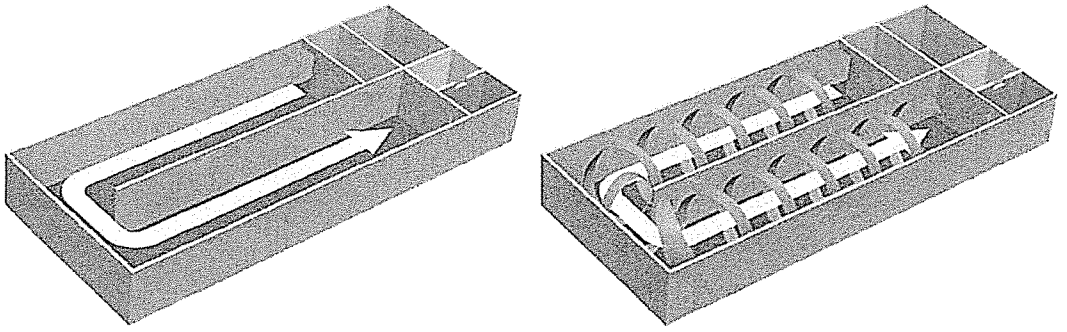
As noted above, DVO has designed and constructed almost 100 anaerobic digesters. Attached is a partial list of DVO digester projects compiled by the EPA AgStar office. From these projects, DVO has the experience in evaluating potential projects, identifying technologies, developing designs, identifying potential financial assistance, permitting, construction, startup, and operation of anaerobic digester systems.

TYPICAL DIGESTER LAYOUT

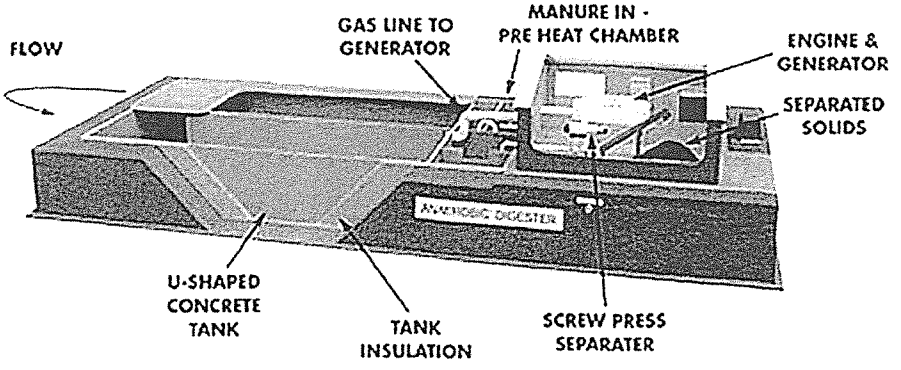


The typical DVO digester design consists of an in-ground, U-shaped concrete vessel with an insulated pre-cast concrete cover. The horizontal movement of the waste through the vessel is caused by additional waste being added to the digester and that same amount leaving the digester. Heating elements in the digester, as well as recirculated biogas, causes a rotational mixing motion perpendicular to the horizontal axis (similar to a cork screw). This design allows

for the guaranteed retention time of a plug flow digester, while keeping the benefits of less stratification and fewer settling issues seen in complete stirred tank reactors, also known as mixed digesters.



During the first stage of the anaerobic digester concrete vessel, the raw waste is mixed and heated to a temperature of 100° F. Reclaimed waste heat from the electrical co-generation system or biogas boiler system is utilized to raise the temperature of the manure to the optimum growth temperature of the methanogenic bacteria. The methanogenic bacteria convert the volatile fatty acids and acetic acids produced in the first stage of the anaerobic digester vessel into a biogas, which consists primarily of methane and CO_2. The methane biogas is collected from the first two stages of the anaerobic digester vessel and utilized for fuel in the combined heat and power genset or boiler heating system. The biogas can also be scrubbed for pipeline injection or processed into Compressed Natural Gas (CNG) for vehicle fuel.



After the second stage of the anaerobic digester system, with a designed waste specific hydraulic retention time, the treated wastes gravity flow into an effluent collection pit, from which the wastes will be further processed.

After the waste has completed the digestion process, the digested liquid is generally pumped from the digester to liquid/solids separators. This could take the form of a vibrating screen, or screwpress and will be dewatered to approximately a 30 - 35% solid material. These solids are then generally carried by a conveyor belt to a storage area. The separated solids, having the same odor and pathogen reduction characteristics as the liquid stream, can be utilized by a dairy for bedding replacement (an expense reduction), or sold to after-markets, such as nurseries and

composters, for soil amendment material. Based on a study by EPA Agstar, the DVO digester system has one of the highest destruction rates for odor, BOD and pathogens (Agstar Gordondale Report). The liquid stream can be applied to nearby farmlands without overloading with too much fertilizer.

DVO's digester systems have been successfully commissioned at a large number of dairy and other farm locations. It is, in-part, the "guaranteed retention time" offered by the DVO's patented anaerobic digester design that allows these systems to be both economical and effective.

DVO's experienced staff includes:

- Steve Dvorak, President of DVO, Inc., is a University of Wisconsin-Madison engineering graduate and a registered professional engineer in the State of Wisconsin. Steve's experience in anaerobic digesters began over 20 years ago with the installation of an anaerobic digester at a food processing company in Green Bay – one of the first agriculture related digesters in the state and still in operation today. His success and experience in the biomass field was acknowledged when Steve was asked to serve as a member of Governor Doyle's Biomass Task Force to Japan in 2004.

- Corey Brickl, General Manager for DVO, is a 1992 graduate from the University of Wisconsin-Madison where he earned a B.S. in electrical engineering. Corey provides management experience in the design and implementation of anaerobic digesters, project financial analysis, grant writing, and overall project management.

- Doug VanOrnum, Business Development, R&D -- holds a degree in Industrial Design, is listed as inventor on 39 USA and international patents, and for 15 years was a Partner in a successful product development consulting firm. Doug focuses on expanding DVO's current markets as well as exploring new ones, while working to continually improve DVO's waste treatment methods and products.

- Eric Dvorak, MD, Business Development, Design Engineering. Dr. Dvorak received a B.S. in biomedical engineering in 2001 and a medical degree in 2005, both from the University of Wisconsin-Madison. After finishing his residency and fellowship programs, he worked as a physician for three years before returning to engineering at DVO.

- Bradd Seegers, Project Administrator, obtained a B.A. in geology from Lawrence University in 1988. Bradd joined DVO in 2001 and handles the administrative duties related to digester costing, grant administration and compliance.

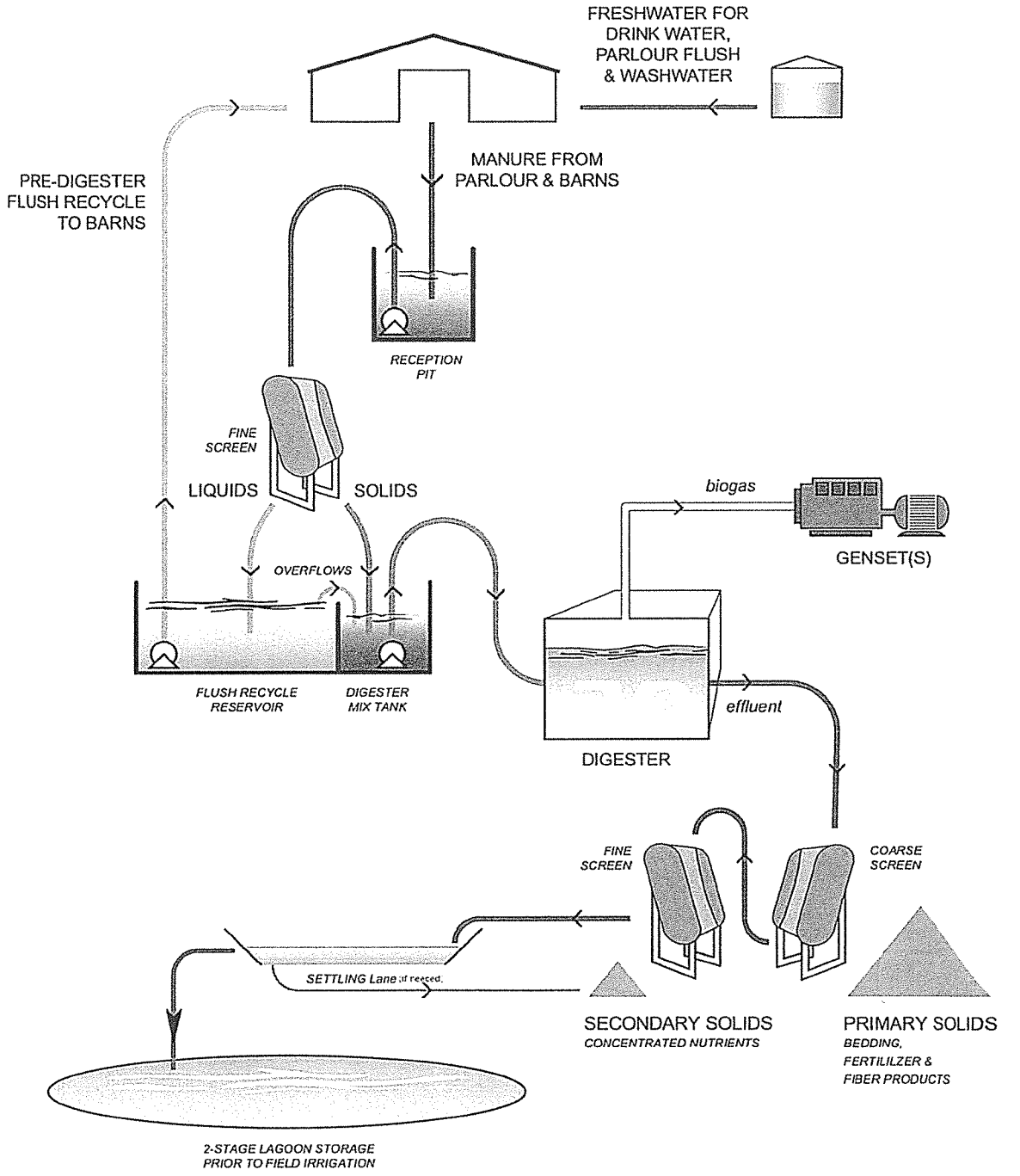
- Adam Nackers joined DVO in 2008 as Construction Manager. Adam received a degree in Finance and Operations Management from the University of Wisconsin – Oshkosh in 2005. His duties include construction scheduling and general project management.

- Kevin Schmitz joined DVO in 2010 as Design Engineer and R&D Specialist. Kevin attended the University of Wisconsin – Platteville. His duties include creating Auto CAD drawings and implementing research and development projects.

- Timothy Ott joined DVO in 1996 upon graduation from the University of Wisconsin Stevens Point where he earned a degree in business and natural resources. As Project Scientist, Timothy's responsibilities include construction bidding, construction management, digester sampling and testing, and research and development.

- Kim Allen joined DVO in 2006 as Administrative Manager. Kim obtained a BSBA, with a concentration in accounting, in 2003 and a MBA from High Point University in 2006. Her duties include administration, interoffice support and accounting.

EXAMPLE FLOW PLAN FOR A FLUSH DAIRY DIGESTER SYSTEM



DVO
renewables at work

RECEIVED
COUNTY OF FRESNO
JUN 07 2017
DEPARTMENT OF PUBLIC WORKS
AND PLANNING
DEVELOPMENT SERVICES DIVISION

CUP3582 **County of Fresno**

DEPARTMENT OF PUBLIC WORKS AND PLANNING

INITIAL STUDY APPLICATION

INSTRUCTIONS

Answer all questions completely. An incomplete form may delay processing of your application. Use additional paper if necessary and attach any supplemental information to this form. Attach an operational statement if appropriate. This application will be distributed to several agencies and persons to determine the potential environmental effects of your proposal. Please complete the form in a legible and reproducible manner (i.e., USE BLACK INK OR TYPE).

OFFICE USE ONLY

IS No. _____

Project No(s). _____

Application Rec'd.: _____

GENERAL INFORMATION

1. *Property Owner :* PATRICK MADDOX *Phone/Fax* _____

   Mailing Address: ~~7285~~ 3899 W. DAVIS AVENUE (*Street*) RIVERDALE (*City*) CA 93656 (*State/Zip*)

2. *Applicant :* SAME AS OWNER *Phone/Fax:* _____

   Mailing Address: _____ (*Street*) _____ (*City*) _____ (*State/Zip*)

3. *Representative:* KYLE PARREIRA *Phone/Fax:* 559-802-3052

   Mailing Address: 324 S. SANTA FE, SUITE A (*Street*) VISALIA (*City*) CA 93292 (*State/Zip*)

4. *Proposed Project:* EXPANSION OF AN EXISTING DAIRY

5. *Project Location:* SOUTH OF DAVIS AVENUE BETWEEN CHATEAU FRESNO AVENUE AND POLK AVENUE

6. *Project Address:* 7285 W. DAVIS AVENUE, RIVERDALE, CA 93656

   Section/Township/Range: 8 / 17S / 19E *8. Parcel Size:* 346.79 AC.

9. *Assessor's Parcel No.* 053-050-525

10. *Land Conservation Contract No. (If applicable):* _____

11. *What other agencies will you need to get permits or authorization from:*

_____	*LAFCo (annexation)*	X	*SJVUAPCD (Air Pollution Control District)*
_____	*CALTRANS*	_____	*Reclamation Board*
_____	*Division of Aeronautics*	_____	*Department of Energy*
X	*Water Quality Control Board*	_____	*Airport Land Use Commission*
_____	*Other* _____		

12. *Will the project utilize Federal funds or require other Federal authorization subject to the provisions of the National Environmental Policy Act (NEPA) of 1969?* _____ *Yes* _____ *No*

If so, please provide a copy of all related grant and/or funding documents, related information and environmental review requirements.

13. *Existing Zone District*[1]*:* AE-20

14. *Existing General Plan Land Use Designation*[1]*:* AGRICULTURE

ENVIRONMENTAL INFORMATION

15. *Present land use:* EXISTING DAIRY FACILITY
Describe existing physical improvements including buildings, water (wells) and sewage facilities, roads, and lighting. Include a site plan or map showing these improvements:
ALL EXISTING & PROPOSED PHYSICAL IMPROVEMENTS ARE IDENTIFIED ON THE SITE PLAN.
Describe the major vegetative cover: N/A
Any perennial or intermittent water courses? If so, show on map: REID IRRIGATION DITCH (SHOWN)

Is property in a flood-prone area? Describe:
No

16. *Describe surrounding land uses (e.g., commercial, agricultural, residential, school, etc.):*
North: AGRICULTURAL
South: AGRICULTURAL
East: AGRICULTURAL
West: AGRICULTURAL

17. *What land use(s) in the area may be impacted by your Project?:* PROJECT WILL NOT CAUSE CHANGE IN IMPACT.

18. *What land use(s) in the area may impact your project?:* NONE WILL IMPACT THE PROJECT

19. *Transportation:*

NOTE: The information below will be used in determining traffic impacts from this project. The data may also show the need for a Traffic Impact Study (TIS) for the project.

A. *Will additional driveways from the proposed project site be necessary to access public roads?*
____ *Yes* _X_ *No*

B. *Daily traffic generation:*

I.	*Residential - Number of Units*	8
	Lot Size	
	Single Family	
	Apartments	
II.	*Commercial - Number of Employees*	20
	Number of Salesmen	6
	Number of Delivery Trucks	8
	Total Square Footage of Building	84 ACRE DAIRY

III. *Describe and quantify other traffic generation activities:* N/A (ALL LISTED ABOVE)

20. *Describe any source(s) of noise from your project that may affect the surrounding area:* PROPOSED IMPROVEMENTS WILL NOT CAUSE ADDITIONAL IMPACT / NO INCREASE

21. *Describe any source(s) of noise in the area that may affect your project:* NONE

22. *Describe the probable source(s) of air pollution from your project:* AIR QUALITY WILL BE IMPROVED BY HOUSING ANIMALS IN FREESTALL BARNS

23. *Proposed source of water:*
(X) *private well*
( ) *community system[3]--name:*

24. *Anticipated volume of water to be used (gallons per day)[2]:* 77,480

25. *Proposed method of liquid waste disposal:*
(X) septic system/individual
( ) community system[3]–name _____

26. *Estimated volume of liquid waste (gallons per day)[2]:* 85,020

27. *Anticipated type(s) of liquid waste:* ANIMAL (DAIRY) WASTEWATER

28. *Anticipated type(s) of hazardous wastes[2]:* SAME AS EXISTING

29. *Anticipated volume of hazardous wastes[2]:* SAME AS EXISTING

30. *Proposed method of hazardous waste disposal[2]:* SAME AS EXISTING

31. *Anticipated type(s) of solid waste:* SOLID MANURE (ANIMAL/DAIRY)

32. *Anticipated amount of solid waste (tons or cubic yards per day):* 27 TONS PER DAY

33. *Anticipated amount of waste that will be recycled (tons or cubic yards per day):* N/A

34. *Proposed method of solid waste disposal:* LAND APPLICATION (FARMLAND)

35. *Fire protection district(s) serving this area:* FRESNO COUNTY FIRE PROTECTION DISTRICT

36. *Has a previous application been processed on this site? If so, list title and date:* No

37. *Do you have any underground storage tanks (except septic tanks)? Yes_____ No* X

38. *If yes, are they currently in use? Yes_____ No_____*

TO THE BEST OF MY KNOWLEDGE, THE FOREGOING INFORMATION IS TRUE.

Patti Wong
SIGNATURE

6/7/17
DATE

[1] *Refer to Development Services Conference Checklist*
[2] *For assistance, contact Environmental Health System, (559) 600-3357*
[3] *For County Service Areas or Waterworks Districts, contact the Resources Division, (559) 600-4259*

(Revised 9/23/14)

NOTICE AND ACKNOWLEDGMENT

INDEMNIFICATION AND DEFENSE

The Board of Supervisors has adopted a policy that applicants should be made aware that they may be responsible for participating in the defense of the County in the event a lawsuit is filed resulting from the County's action on your project. You may be required to enter into an agreement to indemnify and defend the County if it appears likely that litigation could result from the County's action. The agreement would require that you deposit an appropriate security upon notice that a lawsuit has been filed. In the event that you fail to comply with the provisions of the agreement, the County may rescind its approval of the project.

STATE FISH AND WILDLIFE FEE

State law requires that specified fees (effective January 1, 2015: $3,069.75 for an EIR; $2,210.00 for a (Mitigated) Negative Declaration) be paid to the California Department of Fish and Wildlife (CDFW) for projects which must be reviewed for potential adverse effect on wildlife resources. The County is required to collect the fees on behalf of CDFW. A $50.00 handling fee will also be charged, as provided for in the legislation, to defray a portion of the County's costs for collecting the fees.

The following projects are exempt from the fees:

1. *All projects statutorily exempt from the provisions of CEQA (California Environmental Quality Act).*
2. *All projects categorically exempt by regulations of the Secretary of Resources (State of California) from the requirement to prepare environmental documents.*

A fee exemption may be issued by CDFW for eligible projects determined by that agency to have "no effect on wildlife." That determination must be provided in advance from CDFG to the County at the request of the applicant. You may wish to call the local office of CDFG at (559) 222-3761 if you need more information.

Upon completion of the Initial Study you will be notified of the applicable fee. Payment of the fee will be required before your project will be forwarded to the project analyst for scheduling of any required hearings and final processing. The fee will be refunded if the project should be denied by the County.

Patt Neu — 6/7/17

Applicant's Signature — *Date*

4CREEKS

FRESNO COUNTY ZONING ORDINANCE

TECHNICAL REPORT

FOR

RUANN DAIRY

APRIL 2017

324 S. SANTA FE, SUITE A
VISALIA, CA 93292

881 W. MORTON AVE
PORTERVILLE, CA 93291

TABLE OF CONTENTS

1. INTRODUCTION

This Technical Report has been prepared for the expansion of RuAnn Dairy. The following studies, plans and programs were prepared per the requirements outlined within the Fresno County Zoning Ordinance.

The existing facility is located within Fresno County as described below. Floor plans, elevation plans, and a site plan of the proposed expansion are provided in *Project Description.*

Address:	7285 W. Davis Avenue, Riverdale, CA 93656
Facility APN's:	053-050-52s, 053-80-07s
Owned Land Application APN's:	053-050-41s, 053-061-03, 053-061-09s, 053-061-10s, 053-070-45s, 053-070-46s, 053-170-34s, 053-170-47s, 053-170-48s, 053-180-01s, 053-180-09
Township, Range, Section:	Township 17 South, Range 19 East, Section 8 Township 17 South, Range 19 East, Section 9
Baseline Meridian:	Mount Diablo Base and Meridian
Zoning:	AG-20
FEMA Flood Designation:	Zone X

The existing permitted facility consists of a herd level of 3,309 Holstein bovines. The existing permitted herd level consists of approximately 1,294 milk cows in freestall barns, and 270 dry cows, and 1,745 support stock (heifers and calves) in scraped corrals.

The proposed expansion to the facility consists of a maximum herd level of 4,000 Holstein bovines. The proposed herd level consists of approximately 1,600 milk cows in freestall barns, and 400 dry cows and 2,000 support stock (heifers and calves) in scraped corrals.

The expansion will include the construction of additional structures and the demolition of some existing structures. The demolition includes two (2) corral shades and one of the milk barns. The new construction includes two (2) freestall barns, a new milk barn to replace the demolished milk barn, corral shades, a shade over the remaining, existing milk barn, and a DVO anaerobic digestion system. The entire footprint of the expanded facility will include approximately 84 acres (See *Project Description*).

In order to comply with the Fresno County Fire Protection District minimum standards for dairy developments, RuAnn Dairy shall install a 4" National Standard Hose Thread male fitting on the discharge plumbing on one the domestic wells located near each milk barn. The well will supply adequate water for any necessary fire control and be accessible by the Fresno County Fire Department.
The facility will be both a flushed facility for all milk cows, as well as a scraped facility for the dry cows and young stock. The milk cows will be housed in freestall corrals, which are flushed, and the rest of the animals will be housed in scraped open lot corrals. All of the solid waste will be exported off-site. All process wastewater and flush water will be separated by the mechanical separation system. The process water and flush water are stored within the retention ponds prior to land application. Any wastewater generated from a rain event, including the 25 year, 24 hour event, will be stored within the existing retention pond. From the retention pond, the wastewater is applied over approximately 1,957 gross acres (See *Appendix F*).

Following is a brief summary of the additional studies and reports prepared in accordance with the requirements of Section 869.3 of the Fresno County Zoning Ordinance, most of which are included within the Appendices to this report.

2. SITING / DEVELOPMENT STANDARDS

The proposed facility is not located within one mile of a LAFCO-adopted City Sphere of Influence (SOI) boundary, or one-half mile from the nearest point of any unincorporated community plan boundary or Rural Settlement Area, or any residential zone district not within a City SOI. Less than ten dwellings or sensitive areas, such as schools, public parks, or hospitals, are located within the identified wind shed area. No dwellings other than owned by the facility owner are located within the identified micro wind shed area. The proposed facility is not located within 2,500 feet of any waterway used for public drinking water, or within two miles of the Mendota Wildlife Area. There is no property operated by the facility adjacent to parcels located in the Resource Conservation or Open Space zone districts. As there are no airports in the vicinity of the facility, the proposed facility adheres to the applicable United States Department of Transportation (USDOT) separation requirements between confined livestock operations and airports. See *Project Description* for exhibits displaying these locations and setbacks.

3. LAGOON AND RETENTION POND REQUIREMENTS

The proposed expansion of the existing dairy facility includes the construction of two (2) wastewater retention ponds. Both ponds will be constructed with Tier 1 liners, conforming to the California Code of Regulations, Title 27, Section 22562, together with additional requirements in General Order No. R5-2013-0122 (General Order) of the Central Valley Regional Water Quality Control Board, Section B (General Specifications).

Plans for the design, structure, and maintenance of the retention ponds will be designed and signed by a California Registered Civil Engineer, and submitted to the Regional Water Quality Control Board. These ponds will have markers on the inside slope which to clearly indicate the design volume and the minimum freeboard necessary to allow for the 25-year, 24-hour rainfall event. A minimum of one (1) foot of freeboard is required at all times.

A flow meter and associated plumbing will be installed on the effluent line from the retention ponds.

All retention ponds are surrounded by lanes at least twelve feet in width and nothing (i.e. trees, calf pens, hay stacks, silage, tires, equipment, etc.) shall be placed around the holding ponds that would prevent passage or use of vector control equipment. No fencing is proposed to surround the new retention ponds.

The wastewater system design includes a solids separation system. All drainage lines of the facility run through the solids separation system, prior to entering the ponds. All drainage lines are sufficiently graded to prevent solids accumulation in the holding ponds. Details of the waste management and solids separation system are described in the Waste Management Plan (See *Appendix F*).

RuAnn Dairy is responsible for keeping vegetative growth from all areas of the wastewater and solids separation ponds. This includes access lanes, interior pond embankments and any weed growth that might become established as floating mats on the pond surface. The owner will also ensure that floatage of any solid substance that could harbor immature mosquito species will be kept out of the wastewater holding ponds.

4. FEDERAL AND STATE REGULATIONS

This proposed project complies with the effluent limitations established by the Federal Clean Water Act and any applicable terms of the National Pollution Discharge Elimination System Permit. The project adheres to the provisions set under the California Code of Regulations, Title 27, Division 2, Chapter 7, Subchapter 2, Article 1, the requirements set by the Regional Water Quality Control Board, and the rules and regulations of the San Joaquin Valley Air Pollution Control District (SJQAPCD).

5. APPLICATION REQUIREMENTS

5.1 Department of Public Works & Planning Documents

This application packet for the Classified Conditional Use Permit has been submitted pursuant to the requirements specified by the Department of Public Works and Planning Pre-Application Review process, in addition to requirements specified in Section 869.2.E.1 of the Fresno County Zoning Ordinance. These items include the following:

Application Forms:
- Application Form
- Initial Study Application
- Pre-Application Review Application

Project Description:
- Operational Statement
- Photographs
- Legal Description / Grant Deeds
- Siting Development Standards
- Site Plans, Floor Plans, and Elevations

All of these required documents for the Planning Department have been prepared in accordance with the provided requirements. Each of these documents can be found in their respective files as listed above.

5.2 Operational Management Plan

RuAnn Dairy will implement operational methods and practices to control nuisances such as flies, dust, and odors. In example, dairy wastewater discharged for irrigation purposes shall be managed so that it does not stand for more than three days. Other necessary methods and practices are described in the following subsections:

5.2.1 Emergency Action Plan

The purpose of the Emergency Action Plan is to establish procedures for safely and effectively managing an emergency event for RuAnn Dairy. All employees, supervisors, and managers are expected to follow the procedures outlined in the plan to ensure that all persons on the production area are protected from any further harm during an emergency situation. The Emergency Action Plan is prepared in accordance with California Code of Regulations, Title 8, Sections 3220, 3203, 6184, and NFPA 1 Uniform Code, Section 10.9. The site-specific Emergency Action Plan for RuAnn Dairy is included in *Appendix A*.

5.2.2 Odor Management Plan

RuAnn Dairy will make reasonable efforts to reduce the potential for odor impacts to any nearby receptors. The following are the standard operating procedures for livestock handling, and manure collection, treatment, storage, and land application:

A. Manure Collection Areas
- The corrals will be cleaned out and scraped a minimum of every 90 days to minimize odors.
- The animals at the facility will be kept as dry as feasible by corral shades. In addition, the facility is maintained to divert any run-off to the wastewater retention pond within 72 hours of a rain event to minimize any ponding on-site that could produce odors.

B. Manure Treatment and Application
- Minimize the moisture levels in stockpile manure during storage. If possible, the manure will be exported off-site at the time it is scraped. The stockpiled manure will be stored on graded areas that divert the wastewater from the piles away from the manure to the wastewater retention ponds.
- Well irrigation water will be mixed with wastewater at the time of application, per rates identified in the Nutrient Management Plan, to minimize odors and maintain appropriate nutrient content in the effluent.
- Apply process water containing ammonia so that it minimizes exposure to air.
- Clean up manure spills at time of each occurrence
- Maintain wastewater retention pond to prevent solids build-up to minimize odor levels
- Avoid exporting any dry manure or applying wastewater during windy conditions
- Apply wastewater uniformly in a thin layer to that it will dry quickly.

C. General
- Implement dust suppression measures to prevent the release of odorous compound-carrying fugitive dust
- During project operations, RuAnn Dairy shall respond to neighbors who have odor complaints from odors generated at the facility and take prompt action to address the complaint.

D. Record Keeping
- RuAnn Dairy will keep a complaint register at the facility. The register shall include each complaint received, who received the complaint, and the date of the complaint (See *Appendix B*). In addition, the documentation will indicate what action was taken to

determine the cause of the odor, action taken to resolve the odor problem, the results of the action, and whether additional action is required to eliminate the problem from re-occurring. The complaint register shall be available to the Code Compliance personnel upon request.

Any amendments to the Odor Management Plan shall be submitted to the Zoning Administrator for approval.

5.2.3 Dust Emissions Control Plan

RuAnn Dairy shall follow all required procedures to ensure that potential dust emissions created at the facility are reduced. The corrals will be cleaned out and scraped a minimum of every 90 days to minimize dust emissions from cattle movement and maintenance activities. Equipment movement during feeding and corral maintenance shall be done at times when dust emissions are minimal. All unpaved roads, high traffic areas, and any other areas where dust emissions are prevalent shall be treated at minimum by use of a water truck. The water truck shall apply a minimum of 650 gallons/acre as needed throughout the year. These areas are to be treated and recorded (See *Appendix C*). If any permanent or long term dust control measures, such as paving or oil-sealed decomposed granite, are implemented on the perimeter roads or high traffic areas, the treatment shall be recorded as well.

The operator of RuAnn Dairy will perform periodic visual inspections at dust sources around the facility. Dust sources include cattle movement areas, unpaved roads, and high traffic areas. These inspection areas will be performed at least monthly. In addition, an inspection shall be performed and recorded during periods of high winds throughout the year. All inspections shall be recorded using the Monthly Dust Control Visual Inspection Record in *Appendix C* and kept on site.

5.2.4 Dead Animal Management Plan

Dead animals will be removed from the facility and taken to a rendering plant within 72 hours, or by the end of the first working day after a holiday weekend. Burial or otherwise disposing of carcasses on site shall not be done unless by order of the Health Officer, Agricultural Commissioner, or other authority authorized to make such an order. A location has been set aside for personnel to place the fallen animal carcasses until the service arrives.

Service:	Baker Commodities, Inc.
Phone #:	(855) 422-5370

Record keeping shall be kept at the facility including the number of dead animals by date, the date and method of their removal, and the location to where the dead animals were taken (See *Appendix D*). The documentation shall be made available to Code Compliance personnel upon their request.

The disposal of dead animals at the facility is prohibited except when federal, state, or local officials declare a State of Emergency and where all other options for disposal have been pursued and failed and the onsite disposal complies with all state and local policies for disposal of dead animals.

5.2.5 Wastewater Spill Prevention & Contingency Plan

A spill prevention and contingency plan is required for any unpermitted, accidental off-property discharge of facility wastewater, and corresponding reporting to the Regional Water Quality Control Board within four hours of discovery. The written report to the Regional Water Quality Control Board shall contain the following information:

1. The date the discharge began
2. Duration and estimated volume of the discharge
3. Point of discharge
4. Specific source of discharge (e.g. overflow from holding pond, rainfall runoff from manure storage areas, etc.)
5. Steps taken to mitigate the effects of the discharge
6. Steps taken to prevent such a discharge in the future
7. Notification of adjacent and/or affected property owners
8. In case of spills affecting crops intended for human consumption, the Agricultural Commissioner and the Fresno County Health Officer shall also be notified.

Appendix E contains a Wastewater Spill Prevention & Contingency Plan

5.3 Waste Management Plan & Nutrient Management Plan

5.3.1 Feed Management

RuAnn Dairy hires a qualified nutritionist to determine the rations fed to the animals. All calves 0 – 3 months are raised in hutches, and bottle-fed milk twice daily. These calves are also provided with grain and water to help ween them from solely drinking milk. The calves 3 – 6 months are fed alfalfa and grain. The grain and milk diets for the calves are the typical ration for the growth and health of the animals. The larger heifers, milk cows, and dry cows are fed a ration as determined by the nutritionist. The nutritionist determines the maximum feed efficiency to optimize animal consumption while keeping the ration economically feasible. Each ration ensures that the animals have adequate nutrients and feed to maintain optimum health. All of the feed is stored in areas that drain to the wastewater retention pond.

5.3.2 Manure Handling & Storage

The manure at the existing facility is handled and stored properly to prevent adverse impacts to water quality. The open corrals are scraped throughout the year to prevent manure build-up. Once the manure accumulates, the dry manure is hauled off-site and used as organic soil amendments for farmers in the area. The open lot corrals and the manure storage areas are graded to drain any precipitation run-off to the wastewater retention pond.

The freestall facilities are maintained throughout the year by replacing bedding weekly and flushing daily. All flush water from the milk barns is diverted to the separation system and then to the storage pond(s). The proposed expansion to the facility will be incorporated within the existing facility and the manure handling and storage will continue to function to prevent standing water and uncontrolled manure run-off.

The process water is primarily generated at the milk barns. The process water is used to cool the milk and then recycled to flush the milk barns and freestall flush lanes. Additional process water is used to clean equipment and the milk tanks after each milking. All of the process water generated in the milk barns is controlled and diverted to the retention ponds. Any precipitation run-off generated from the milk barn areas or other equipment storage areas is diverted to the wastewater retention ponds.

There are surface water diversions and canals adjacent to the facility. Any surface run-off is diverted away from the canals and collected within the facility itself. This run-off is diverted to the wastewater retention ponds.

The ponds will continue to be maintained to prevent weeds and rodents from the liner of the pond. In addition, the pond will be managed to prevent the excess build-up of manure to ensure adequate capacity for a rainfall event and prevent solids from clogging the irrigation distribution system.

No new irrigation or domestic wells are proposed as part of the expansion. A 100-foot setback from the existing wells to any potential source of pollution will be maintained.

5.3.3 Land Application of Manure

The land application shall be planned to ensure that the proper amounts of all nutrients are applied in a way that does not cause harm to the environment of public health. The Nutrient Balance, along with the timing and methods of application were prepared by a qualified agronomist, which is included in *Appendix G*.

The methods of application require that care is taken when applying the wastewater to prevent it from entering groundwater or environmentally sensitive areas. The timing and methods of application shall prevent the loss of excess nutrients to groundwater. As discussed, all dry manure will be hauled off-site, and distribution of this manure will be avoided during periods of winds in excess of 20 miles per hour.

5.3.4 Land Management

Tillage, crop residue management, and other conservation practices shall be utilized to minimize movement to groundwater of soil, organic materials, nutrients, and pathogens from lands where manure is applied. A qualified agronomist will assist to ensure the proper management practices are implemented as identified in *Appendix G*.

5.3.5 Record Keeping

RuAnn Dairy operators shall document the annual estimated quantity of solid manure produced at the facility and transported off-site. Documentation of this estimate shall be maintained by the dairy and shall be made available to the County Code Compliance personnel and Regional Water Quality Control Board inspectors upon request.

5.4 Vector Control Management Plan

Proper maintenance of the facility and implementation of good housekeeping practices are the primary tools used to combat vector infestation. The facility will be maintained to ensure good drainage of manured areas, frequent lane scraping, removal of any manure build-up along fences, stanchion curbs, or water troughs, and prompt repair of broken pipes or water troughs. All corrals, retention ponds, settling basins, milk barns, watering areas, calf areas, freestalls, flush lanes, shades, feed storage areas, and feeding areas shall be checked for vectors on a quarterly basis to ensure good housekeeping practices are properly maintaining pest and vector infestation.

When the housekeeping items have a limited effect on the pests and vectors, chemicals and biological controls will be implemented. When the chemicals (pesticides) are used, special care shall be taken to select and apply chemicals that are compatible with existing biological controls in place (those that do not kill parasitic wasps). Growth of weeds shall be inhibited in all of the areas in and around the wastewater ponds. In addition to vector management at the ponds, the rodents will also be managed to prevent degradation of the pond liner.

Record keeping shall consist of documentation kept at the dairy site that includes pest control methods used and the dates of the pest control activities. A complaint register shall also be included, which includes who received the complaint, the date a complaint was received, what and when action was taken to determine the cause of the pest problem, action taken to resolve the problem, and the results action and whether additional action was required to solve the problem (See *Appendix H*). The complaint register will be available to the Code Compliance personnel at their request.

5.5 Soil Monitoring Plan

A Soil Sampling & Analysis Plan was prepared for RuAnn Dairy by JMLord, Inc. on September 19, 2016. RuAnn Dairy shall be responsible for following the schedule and protocol for Soil Sampling as described this plan (See *Appendix I*). Any person to conduct sampling shall be trained to properly sample soils, and soil samples must be analyzed by an approved laboratory. Every field covered by the General Order used by RuAnn Dairy for land application shall be sampled once every 5 years, and the soil analyses shall be kept on-site. Based on this plan, it is only required to sample for soluble phosphorous once every 5 years, but it is also recommended to sample each spring and fall, pre-plant for each crop, for nitrate as nitrogen, organic matter, electric conductivity, potassium, and hydrogen phosphate at various depths. Any laboratory analysis, chain of custody, or other documentation will be kept on-site and made available to the Code Compliance personnel at their request.

5.6 Groundwater Monitoring Program

Section 869.3 "Regulations for New Dairy/Feedlot Facilities and the Expansion of Dairy/Feedlot Facilities Permitted After the Adoption of This Ordinance (Date: 10-23-07)" requires the applicant to "prepare and submit a groundwater monitoring program for review and approval by the California Regional Water Quality Control Board." Due to the significant costs of groundwater monitoring wells, the Facility owner has agreed to coverage under the Central Valley Dairy Representative Monitoring Program (CVDRMP), in satisfaction of the said requirements. An animal facility's membership in good standing in the CVDRMP can substitute for the current RWQCB Dairy General Order requirement to install monitoring wells, and is a lower cost alternative. The CVDRMP agrees to evaluate groundwater monitoring data to identify the management practices that are protective of groundwater quality at

facilities covered by the CVDRMP. The CVDRMP will submit Annual Representative Monitoring Reports (ARMRs) to the RWQCB. No later than six years following the first ARMR, a Summary Representative Monitoring Report (SRMR) that identifies management practices that are protective of groundwater quality for the range of conditions found at facilities covered by the CVDRMP will be submitted. The RWQCB will evaluate the monitoring data to determine if certain types of facilities under certain conditions are impacting groundwater quality in the Central Valley. The RWQCB may use the data submitted to the CVDRMP to issue new or additional waste discharge requirements or orders to operators that may result in operators/landowners needing to change certain practices and/or operations at their facilities. The RWQCB has approved the CVDRMP and retains the right to order an individual monitoring network, if deemed necessary. CVDRMP work is being directed by a qualified Registered Geologist in accordance with the California Well Standards.

RuAnn Dairy is an active member in good standing with the CVDRMP, thus fulfilling the requirements of a Groundwater Monitoring Program. Written confirmation of this is provided in *Appendix J.*

6. REFERENCES

California Department of Water Resources, Water Data Library, Well Data Information. http://www.water.ca.gov/waterdatalibrary/

NFPA 1 Uniform Code, Section 10.9. http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list of-codes-and-standards?mode=code&code=1

San Joaquin Valley Air Pollution Control District. www.valleyair.org

Title 8 of the California Code of Regulations (CCR), Sections 3220, 3203, 6184. https://www.dir.ca.gov/title8/index/T8index.asp

Title 27 of the California Code of Regulations (CCR), Division 2, Subdivision 1, Chapter 7, Subchapter 2, Article 1. http://www.ciwmb.ca.gov/Regulations/Title27/ch7s2345.htm#Article1

United States Department of Agriculture, National Resource Conservation Service. National Engineering Handbook, Agricultural Waste Management Field Handbook

4CREEKS

RUANN DAIRY EXPANSION

LIST OF APPENDICES

APPENDIX A: EMERGENCY ACTION PLAN

APPENDIX B: ODOR MANAGEMENT PLAN

APPENDIX C: DUST EMISSIONS CONTROL PLAN

APPENDIX D: DEAD ANIMAL MANAGEMENT PLAN

APPENDIX E: WASTEWATER SPILL PREVENTION & CONTINGENCY PLAN

APPENDIX F: WASTE MANAGEMENT PLAN

APPENDIX G: NUTRIENT MANAGEMENT PLAN

APPENDIX H: VECTOR CONTROL MANAGENT PLAN

APPENDIX I: SOIL MONITORING PLAN

APPENDIX J: GROUNDWATER MONITORING PLAN

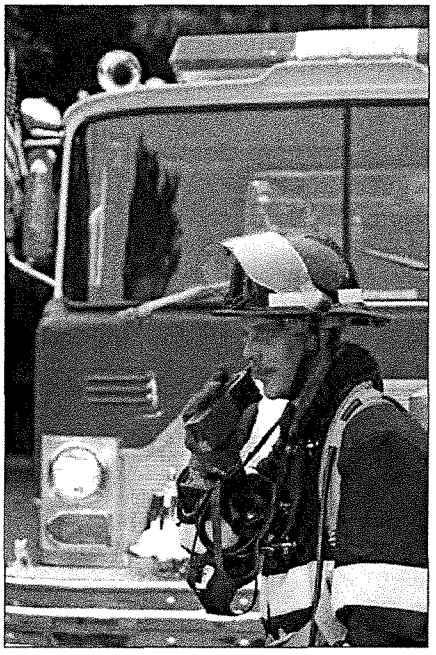
APPENDIX K: RECORD KEEPING FORMS

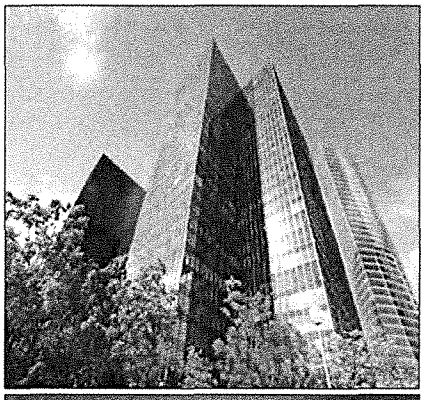
324 S. SANTA FE, SUITE A
VISALIA, CA 93292

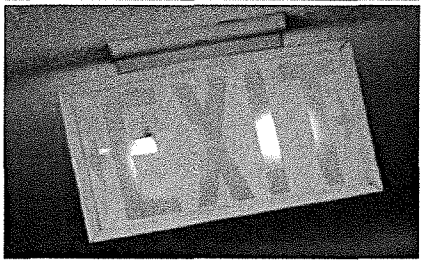
881 W. MORTON AVE
PORTERVILLE, CA 93291

APPENDIX A

Emergency Action Plan
RuAnn Dairy
7285 W. Davis Avenue, Riverdale, CA 93656
June 28, 2016







Purpose:

The purpose of this Emergency Action Plan is to establish procedures for safely and effectively managing an emergency event for the RuAnn Dairy. All employees, supervisors, and managers are expected to follow the procedures outlined in this plan to ensure that employees and consumers are protected from any further harm during an emergency situation.

Authority:

California Code of Regulations, Title 8, Sections 3220, 3203, 6184, NFPA 1 Uniform Fire Code, section 10.9.

Scope:

This Emergency Action Plan covers those designated actions managers and employees must take to ensure employee and consumer safety from fire and other emergencies. This plan includes: emergency escape procedures; procedures for employees who must stay to operate critical plant operations before they evacuate (if applicable); procedures to account for employees after emergency evacuation has been completed; rescue and medical duties for those employees who are to perform them; the preferred means of reporting fires and other emergencies; and individuals who can be contacted for further information about the plan.

I. Responsibility

A. **Person(s) responsible for emergency planning and information is/are:**

Patrick Maddox, Owner / Operator
(559) 960-9469

B. **Training**

Specific employees will be trained and made aware of their duties so that they can assist in the safe and orderly emergency evacuation of employees. They shall be made aware of their responsibilities under this plan:

- Initially when the plan is developed;
- Whenever the employee's responsibility under the plan changes, and
- Whenever the plan is changed

III. Evacuation Route and Assembly Area Map/First Aid Kits

A. Location of First Aid Kits

The First Aid Kits are located in offices of the milking barns.

B. Designated Meeting Locations

Once employees have evacuated the facility, they **must** meet **on the north side of each milk barn** to check in with **the owner / operator** who will be accounting for individuals. Those employees who do not show up to the designated meeting location will be presumed to still be in the building and fire and police personnel shall be notified of their absence immediately.

IV. Fire Emergency Procedures

a. Remove anyone in immediate danger.
b. Once an employee is alerted to the fire danger, he/she will go to the nearest exit, activate the fire alarm (if present), exit the building, and proceed directly to the designated assembly point.
c. Confine the fire to the room/area by closing the door to the area where the fire is located and by ensuring all doors leading to the main hallways are closed.
d. Attempt to extinguish the fire only if you have received training on the use of portable fire extinguishers, the fire is in its beginning stage, and it can be extinguished safely.
e. Disabled and non-ambulatory (unable to walk personnel) should request assistance from those nearest to them. Advise the Fire Department or Security of personnel trapped who may require assistance to evacuate.

V. Earthquake Emergency Procedures

a. If you are indoors, stay there. Take shelter under a desk, table, or in a doorway. If you cannot get under something sturdy or stand in a doorway, get on your hands and knees and cover your head with your hands and arms.
b. If you are outdoors, go to an open area away from trees, buildings, walls, roadways and power lines.
c. If the building is evacuated, do not return until authorized.
d. Beware of potential dangers after an earthquake such as escaping gas, unstable building structures, electrical hazards, etc. Also beware of aftershocks.

VI. Evacuation of the Disabled

In the event an emergency renders exit of any disabled person(s), a trained employee will assist or carry the disabled person(s) to the safe area.

VII. Serious Injury

a. Check the scene and the victim to determine the danger potential and the extent of the injury. Do not move a seriously injured victim unless there is an immediate danger such as fire, flood, or poisonous gas. If you must move the victim, do it as quickly and carefully as possible. If there is no immediate danger, do not move the victim and advise the bystanders the victim is not to be moved.
b. Call 911 (9-911 if in a County facility) immediately if the victim is unconscious. Additionally, you should call for an ambulance if the victim has trouble breathing or is breathing in a strange way; has pressure or pain in the chest or abdomen; is bleeding severely; has slurred speech; appears to have been poisoned; has injuries to the head, neck, or back; or has possible broken bones.
c. Keep the victim calm and as comfortable as possible. Administer CPR or First Aid if you have been trained in those areas. A First Aid kit should be used and precautions should be taken to minimize exposure to blood and other bodily fluids. Remain with the victim until emergency services personnel and Security arrive.

VIII. Hazardous Materials

a. A hazardous material is a substance that presents a physical or health hazard. A health hazard refers to a substance for which there is significant evidence that health effects may occur for exposed employees.
b. A Material Safety Data Sheet (MSDS) is required for all hazardous substances in use within the department. Employees will be provided with training on the safe use of all chemicals they will be exposed to.
c. In the event of a hazardous material emergency:
    i. Evacuate the area, securing access to the area when possible.
    ii. Immediately call 911 (9-911 if in a County facility) and inform the operator of the emergency. Provide as much information as possible to the operator and refer to the MSDS.
    iii. If safe, remain in the immediate area and call Security at (559) 488-6785.

d. The list of chemicals regularly used in this facility is located in the milk barn office, along with the MSDS binder.

APPENDIX B

Appendix B
Odor Complaint Register

Date of Complaint	Complaint Recipient	Action Taken To Determine Cause of Odor Complaint	Action Taken To Resolve The Odor Problem	Results of the Action	Additional Action, If Any, Required To Eliminate The Odor Problem From Re-Occuring

Appendix B
Odor Management Monitoring Plan

Frequency: Minimum On A Monthly Basis
When Potential For Odor Release is High (i.e. Dry Weather, High Temperature)

Inspection Areas: Unpaved Corrals and Calf Hutches, Lagoons and Manure Stockpiles, Land Application Areas, Site Boundaries

Year _____

Month	Date	Are The Open Lot Corrals Being Kept Effectively Dry to Prevent Odors?	Is Manure Being Removed Frequently to Reduce Possible Odors?	Are Manure Storage Areas Being Managed Properly to Prevent Odors?	Are Manure Land Applications Causing Nuisance Conditions Due to Application Methods or Timing?	Initials
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						

APPENDIX C

Appendix C
Monthly Dust Control Visual Inspection Record

Frequency	Date	Name of Person Performing Inspection	Visual Dust Emissions From On-Site Activity	Action Taken To Reduce Visible Dust Emissions	Presence/Absence of Breeding Mosquitos and Other Vectors Due to Implementation of Dust Control Measures	Additional Action, If Any, Required To Eliminate Excess Dust Emissions
Jan.						
Feb.						
Mar.						
Apr.						
May						
Jun.						
Jul.						
Aug.						
Sep.						
Oct.						
Nov.						
Dec.						
Once During Remainder of Year						
Period of High Winds						
Period of High Winds						
Period of High Winds						
Period of High Winds						
Period of High Winds						
Period of High Winds						

Requirements: Visual Inspection must be performed during the dry season (April - October), once during the remainder of the year, and during periods of high winds. Inspection must be performed at dust sources throughout the dairy (i.e. cattle movemnt at upaved corrals and all over unpaved or gravel paved areas per the Fugitive Dust Emissions Control Plan (FDECP)

APPENDIX D

Appendix D
Dead Animal Management Plan Records

Month	Number of Dead Animals Picked Up	Name of Company That Picked Up Dead Animals

Baker Commodities Inc.
Recycling for Life.

April 26, 2017

To: Fresno County

Re: RuAnn Dairy

To whom it may concern;

We are writing this letter to you on behalf of our customer RuAnn Dairy; located at 7285 W. Davis Avenue, Riverdale, CA 93656. Ru Ann Dairy has been a Baker Commodities Inc. customer since January 2004. We provide them animal mortality service daily. We service their dairy Monday thru Friday in the winter and Monday thru Saturday in the summer months.

If you there is anything else Baker can do please don't hesitate to call us at 559-846-9393.

Sincerely;

Tammie Reeves
Asst. General Manager
Baker Commodities
Kerman Division

APPENDIX E

Appendix E
Wastewater Spill Prevention & Contingency Plan

Frequency: Accidental Off-Property Discharge of Wastewater

Note: In the case of spills affecting crops intended for human consumption, the Agricultural Commissioner and the Fresno County Health Officer shall be notified.

Date of Discharge Event	Duration of Discharge	Location Point of Discharge	Specific Source of Discharge	Steps Taken to Mitigate Effects of Discharge	Steps Taken to Prevent Such Discharge in Future	Adjacent Property Owner(s) Notified

APPENDIX F

WASTE MANAGEMENT PLAN

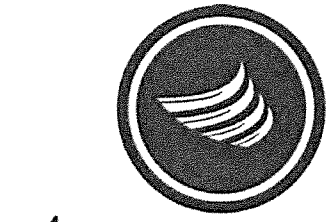
RUANN DAIRY

JUNE 5, 2017

PREPARED FOR:

RUANN DAIRY
7285 W. DAVIS AVENUE
RIVERDALE, CA 93656

COMPLETED BY:



4CREEKS

324 S. SANTA FE, STE. A
VISALIA, CA 93292
(559) 802-3052

SUBMITTED TO:

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION
1685 E. STREET
FRESNO, CA 93706

WASTE MANAGEMENT PLAN

The California Regional Water Quality Control Board, Region 5, requires that each new dairy after 2005 comply with waste discharge requirements identified in the dairy permitting process. One of these requirements is a Waste Management Plan (WMP). The purpose of the WMP is to ensure that the production area of the dairy facility is designed, constructed, operated, and maintained so that dairy wastes are managed in compliance with Waste Discharge Requirements to prevent adverse impacts to groundwater and surface water quality.

RUANN DAIRY

FRESNO COUNTY, CA

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.

OWNER:

Patt Maddox

SIGNATURE OF OWNER

PATRICK MADDOX

PRINT

6/7/17

DATE

OPERATOR:

Patt Maddox

SIGNATURE OF OPERATOR

PATRICK MADDOX

PRINT

6/7/17

DATE

ENGINEER:

MATTHEW RAZOR, PE #81897

6/7/2017

DATE

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Introduction

A Report of Waste Discharge (ROWD) is required for any person or facility discharging or proposing to discharge waste that could affect the quality of the waters of the State of California, pursuant to California Water Code Section 13260. One portion of the ROWD is a Waste Management Plan (WMP). This WMP has been prepared for the facility expansion of RuAnn Dairy, located northwest of Riverdale in Fresno County, California.

I. Existing Dairy Facility Description

A. Name of the Facility & County Location

Facility Name:	RuAnn Dairy
County:	Fresno County

B. Facility Location

Address:	7285 W. Davis Avenue Riverdale, CA 93656
Assessor's Parcel Number:	053-050-52s, 053-180-07s
Township, Range, Section:	Township 21 South, Range 26 East, Section 31
Baseline Meridian:	Mount Diablo Base and Meridian

C. Responsible Party

Owner/Operator:	Patrick Maddox
Contact Person:	3899 W. Davis Avenue Riverdale, CA 93656

D. Dairy Animal Population

The present number and maximum number of the dairy animal population are summarized in Table 1.

Table 1: Dairy Profile

Type of Animal	*Proposed Permitted Number of Animals*	*Breed*
Milking Cows	1,600	Holstein
Dry Cows	400	Holstein
Heifers: 15-24 mo.	833	Holstein
Heifers: 7-14 mo.	667	Holstein
Heifers: 4 - 6 mo.	250	Holstein
Calves: up to 3 mo.	250	Holstein
Total Herd Size	**4,000**	

E. Facility Wastewater Analysis

During the November through February 120 day retention period, the total estimated volume of process wastewater generated daily from the milk barns is: **85,020 gallons per day.**

All water used for cooling milk (through the plate cooler) is collected and stored in the above ground storage tanks. The sprinkler systems and barn flush valves are supplied by recycled milk cooling water from the above ground storage tanks. The volume of the wastewater leaving the barns to the wastewater retention ponds was determined by measuring the water level at different periods in the above ground tank at the existing pond, and projecting the new barn will use 45 gallons of water per day per cow.

F. Facility Site Maps

1. Vicinity Map (See Attachment A)

The Vicinity Map identifies the location of the dairy and farming operation within a five-mile radius. It also identifies any cropland that is under control of the dairy owner that is not used for wastewater application.

2. Production Area Maps

a. Production Area Map (See Attachment B)

The Production Area Map identifies all structures on the dairy facility, including the open lot corrals, freestall barns, milk barns, wastewater retention ponds, feed storage areas, and any other structures within the Production Area. The process wastewater distribution system is also identified.

b. Dairy Facility Wastewater Flow Diagram (See Attachment C)

The Dairy Facility Wastewater Flow Diagram locates the key components to the process wastewater system for the facility associated with the milk barn. It identifies the route wastewater flows prior to entering the wastewater retention ponds.

c. Storm Water Tributary Area Map (See Attachment D)

The Storm Water Tributary Map identifies the total impervious areas and the total retention pond areas within the Production Area.

3. Property Boundary Map (See Attachment E)

The Property Boundary Map identifies the property associated with the dairy, the ownership of the associated land, and each parcel associated with the dairy.

4. Land Application Map 2016 (See Attachment F)

The Land Application Map identifies the following:

a. Land Application for 2016

The Land Application Map identifies the fields where wastewater is applied. Because the types of waste applied in each field may vary from year to year, the map only applies to 2016.

b. Irrigation and Water Supply

The Land Application Map identifies the irrigation water distribution system for the Land Application Area. This map includes irrigation supply wells, tile drains, return pumps, and surface water connections. This map also identifies each domestic and irrigation well within the Land Application Area.

c. Off-Property Well Locations

The Land Application Map locates all domestic and municipal wells within a 600 ft radius and any municipal wells within a 1,500 ft radius of the Production Area and Land Application Area.

II. Wastewater Storage Containment Capacity Analysis

The following analysis determines whether the existing wastewater retention pond storage capacity is in accordance with Title 27 of the California Code of Regulations, Chapter 7.2.1.

A. Existing Wastewater Storage Containment Capacity

1. Required Period of Retention Time from Nutrient Management Plan

The required period of retention time is defined in the Nutrient Management Plan as 120 days. This storage period retention time is based on no wastewater land application during the winter months (November 1st through February 28th).

2. Wastewater Accumulated in Production Area From Operations

The two sources of wastewater from operations are the daily milk barn process wastewater output and the animal manure and urine output deposited on flushed surfaces.

The volume of the wastewater leaving the barn to the wastewater retention ponds was determined by measuring the water level at different periods in the above ground tank at the existing barn, and projecting the new barn will use 45 gallons of water per day per cow. The total process wastewater generated daily from the milk barns is 85,020 gallons.

The animal output per day was determined by reference to March, 2005 ASABE 384.2 (See Appendix D). Based on the age of animal, type of animal housing, approximate hours per day spent on flushed surfaces, and the reduction in solids volume from the mechanical separator and separation ponds, the total volume of animal waste output entering the wastewater system was determined. A summary of the net animal output is shown in Table 2.

Table 2: Animal Waste Output

Age of Animal & Housing Type	*# of Animals*	*Waste Produced - Urine & Manure (ft^3/day) (ASABE 384.2)*	*Hours/Day on Flush Surface*	*Single Stage Mechanical Separator with Separation Pond(s) Reduction Factor*	*Total (gal/day)*
Milking Cows (Freestall, Flushed)	1,600	2.4	18.0	65%	7,540
Dry Cows (Open Lot, Scraped)	400	1.3	0	65%	0
Heifers: 15-24 mo. (Open Lot, Scraped)	833	0.78	0	65%	0
Heifers: 7-14 mo. (Open Lot, Scraped)	667	0.78	0	65%	0
Heifers: 4 - 6 mo. (Open Lot, Scraped)	250	0.3	0	65%	0
Calves: up to 3 mo. (Hutches)	250	0.2	0	65%	0
				Total	**7,540**

Combining the animal output and the milk barn outputs yields the total wastewater volume that flows into the retention ponds. This volume is summarized in Table 3 below.

Table 3: Wastewater Volume from Operations

Wastewater Source	*Volume (gal./day)*	*Total Volume Accumulated in 120 day period (gal.)*
West Milk Barn Output:	32,480	3,897,570
East Milk Barn Output	45,000	5,400,000
Animal Output:	7,540	904,781
Total Process Wastewater Volume From Operations:	**85,020**	**10,202,351**

3. Wastewater Accumulated in Production Area From Precipitation

The wastewater accumulated from the Production Area due to precipitation was calculated using the rational method (Appendix A). An outline of the steps used to calculate the total wastewater volume from rainfall using this method is summarized in the following sections.

a. Production Area Subdivision by Run-off Coefficient

The Production Area was divided into three run-off coefficient categories: the retention pond surface areas, pervious areas, and impervious areas of the tributary area. The impervious areas include all concrete, buildings, and shades. Pervious area includes all other areas within the Production Area. These areas are outlined on the Storm Water Tributary Map (Attachment D).

The precipitation run-off for each area varies, and is defined by published run-off coefficients (See Appendix H). The size of each area, shown in Table 4, was determined by calculations based on the land use data. The precipitation run-off calculated in Tables 5 and 6 was determined by multiplying each period's rainfall amounts (using a conversion factor of 0.623377 to convert inches of rainfall to gallons of run-off per square foot) with the weighted run-off area.

Table 4: Production Area Summary

Area Description	*Run-off Area (ft^2)*	*Run-off Coefficient*	*Weighted Run-off Area (ft^2)*
Wastewater Retention Pond Area	268,970	1.00	268,970
Total Impervious Area	513,849	0.75	385,387
Total Pervious Area	2,891,097	0.31	896,240
Total Production Area	**3,673,916**		**1,550,597**

b. Wastewater Accumulated From Normal Precipitation

The average normal precipitation per month was determined by averaging the monthly rainfall precipitation from California Department of Water Resources (CDWR) data for the Hanford, Fresno, and Coalinga stations, based on station proximity to the facility site (Appendix E).

As shown in Appendix A, precipitation run-off was computed for each Production Area, for each month, using applicable run-off coefficients. A summation of the results for each month and for the entire 120 day retention period is shown in Table 5.

Table 5: Wastewater Accumulated from Normal Precipitation

Month	*Average Rainfall (inches)*	*Days of Retention*	*Total Volume Accumulated in Each Period (gallons)*
November	0.84	30	811,949
December	1.42	31	1,372,580
January	1.79	31	1,730,224
February	1.63	28	1,575,567
Total	**5.68**	**120**	**5,490,321**

c. Wastewater Accumulated From Normal Precipitation with 1.5 Factor

A second precipitation run-off analysis was completed by multiplying the Average Rainfall with a factor of 1.5. This is shown in Table 6.

Table 6: Wastewater Accumulated from Normal Precipitation with 1.5 Factor

Month	*Average Rainfall X 1.5 (inches)*	*Days of Retention*	*Total Volume Accumulated in Each Period (gallons)*
November	1.26	30	1,217,923
December	2.13	31	2,058,870
January	2.69	31	2,595,337
February	2.45	28	2,363,351
Totals	**8.52**	**120**	**8,235,481**

d. Wastewater Accumulated From 25 Year, 24 Hour Storm Event

The 25 year, 24 hour storm event was assumed to happen one time during the 120 day retention period. The rainfall amount was taken from the Isopluvial Map in NOAA Atlas 2, 1973 (Appendix F). A summary of the rainfall volume is shown in Table 7.

Table 7: Wastewater Accumulated from 25 Year, 24 Hour Storm Event

Area Description	*Rainfall (inches)*	*Run-off Coefficient*	*Weighted Run-off Area (ft²)*	*Total Volume Accumulated (gallons)*
Wastewater Retention Pond Area	2.00	1.00	268,970	335,339
Total Impervious Part of Tributary Area	2.00	0.88	452,187	563,766
Total Pervious Part of Tributary Area	2.00	0.40	1,156,439	1,441,794
Total Production Area			**1,877,596**	**2,340,889**

e. Evaporation from Wastewater Retention Pond

During the 120 day retention period, wastewater from the pond will evaporate. The evaporation rate average was determined by taking the average evaporation rates from Fresno based on CDWR Evaporation Pan Data (Appendix G). The average evaporation rates and the total volume of water evaporated during the 120 day retention period are shown in Table 8.

Table 8: Evaporation from Wastewater Retention Pond

Month	*Fresno Evaporation Rate (in)*	*Total Volume Evaporated (gallons)*
November	2.23	373,903
December	1.20	201,204
January	1.24	207,910
February	2.08	348,753
Total:	**6.75**	**1,131,770**

4. Wastewater Retention Ponds Storage Capacity

a. Total Wastewater Retention Ponds Storage Volume

A field study was completed on the existing wastewater retention pond, Pond 1. A cross section detail of the pond is shown in Attachment G. The field study identified the retention pond to be a below ground level pond, thus allowing 1 foot of freeboard, and the pond contained wastewater, so depths and side slopes were unattainable. While the earthen length and width of the pond were measured, the depth and side slopes of the pond were derived from the facility's previously approved Waste Management Plan, completed and submitted by Joseph Lord on June 28, 2010. The total volume of the wastewater retention pond was calculated based on these values (Appendix B). Ponds 2 and 3 are proposed, and the volume calculations for these ponds were based upon design values. The total available storage volume for the ponds is summarized in Table 10.

b. Pond System Organization

The wastewater from the West Milk Barn gravity flows to wastewater collection pits, located at the south, central side of the dairy. This waste is then pumped via sump pump to the eastern wastewater collection pit (See Appendix B). The wastewater from the East

Milk Barn gravity flows directly into the same wastewater collection pit, which is pumped over the single-stage mechanical separators. After the solids are removed from the wastewater by the mechanical separator, the wastewater flows into Pond 1. Pond 1 overflows into Pond 2 through a gravity flow pipeline. Pond 2 overflows into Pond 3 through a gravity flow pipeline. Pond 2 contains flush pumps to supply the dairy flush system, and Pond 3 contains irrigation sump pumps, which supply the irrigation distribution system.

c. Minimum Pond Levels

Minimum pond levels are determined by pond location and usage. *Evaporation Ponds* are allowed to dry out completely during the summer months and therefore the minimum pond level for ponds of this type is zero. *Irrigation Ponds* are pumped down to the level of residual solids[1]. *Overflow Ponds* have overflow pipes to either an Evaporation Pond or an Irrigation Pond. The minimum level for these ponds is at the overflow pipe level. Table 9 identifies each pond, the minimum pond level, and the resulting volume reduction used for computing the available winter storage volume.

Table 9: Pond Capacity Reduction Criteria

Pond Identification	*Pond Type*	*Depth of Residual Solids[1] (feet)*	*Storage Period Pond Volume Reduction (gallons)*
Pond 1	Overflow	10.0	5,060,241
Pond 2	Irrigation	0.50	284,676
Pond 3	Irrigation	0.25	48,933

[1] - *Residual Solids in Irrigation Ponds are assumed to be 2 feet deep if the wastewater did not pass through a solids separation system before entering the pond. If there is solids separation before entering the pond, the assumed level of residual solids is reduced by half. If there is secondary separation after the primary separation, the residual solids are reduced again by half.*

d. Pond Management

By November 1st every year, RuAnn Dairy pumps down the pond to minimum levels of wastewater to ensure that there are 120 days of storage capacity for all wastewater generated from dairy operations and precipitation. Table 10 shows the total available 120 day storage period volume for all ponds on the dairy facility.

Table 10: Maximum Available Wastewater Storage Capacity

Pond Identification	*Total Available Storage Capacity (gallons)*	*Freeboard Capacity Reduction (gallons)*	*Storage Period Pond Capacity Reduction (gallons)*	*Total Available Storage Period Capacity (gallons)*
Pond 1	5,868,398	540,208	5,060,241	267,949
Pond 2	15,848,727	1,023,824	284,676	14,540,227
Pond 3	6,183,896	432,564	48,933	5,702,400
			TOTAL:	**20,510,576**

5. Summary

As required in General Order Number R5-2013-0122, the determination of the required storage capacity for the wastewater retention ponds must reflect run-off due to normal precipitation times a factor of one and a half. As shown by the Maximum Available Storage Period Capacity, the calculation results show that the retention pond capacity is adequate under these circumstances. Based on this summary, additional modifications to the dairy facility are not required and the existing storage capacity meets the requirements of the General Order. This is summarized in Table 11.

Table 11: Existing vs. Required Wastewater Retention Pond Storage Capacity

Volume Description	*Total Volume in 120 Day Period (gallons)*
Wastewater from Operations	10,202,351
Wastewater Accumulated From Normal Precipitation w/ 1.5 Factor	8,235,481
Wastewater Accumulated From 25 Year, 24 Hour Event	2,340,899
Less: Evaporation from Wastewater Retention Ponds	(1,131,770)
Net Required Wastewater Retention Pond Storage Volume	**19,646,962**
Less: Net Existing Wastewater Retention Ponds Storage Volume	20,510,576
Excess Wastewater Retention Pond Capacity	**863,614**

B. Proposed Modifications

No modifications are required.

C. Contingency Plan

A contingency plan is not required because the wastewater retention ponds have enough existing storage capacity for the storm water precipitation and run-off volume with a 1.5 factor.

III. Flood Protection Analysis

The Federal Emergency Management Agency (FEMA) provides a Flood Insurance Rate Map which identifies different flood zone areas. The Flood Insurance Rate Map, Panel 2875 Community Panel Number 06019C2875J, January 20, 2016, indicates that the production area is in a Zone X designation.

Zone X represents areas outside the 1-percent annual chance floodplain, areas of 1% annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1% annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1% annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone. Insurance purchase is not required in these zones.

Based on the existing FEMA Flood Insurance Map, shown in Attachment H, the dairy facility has adequate flood protection. As the facility was observed in August 2016, no inundations or washouts from flood water were visible. Due to the continued maintenance of the protection area roads, rodent control, and weed control, any inundations or washouts from flood waters are very unlikely.

IV. Production Area Design Assessment

A. Existing Conditions

All wastewater produced by the dairy and all storm water run-off from areas that contact manure are directed to the wastewater retention ponds. A complete field study of the production area was completed to verify the drainage directions and slopes. The drainage directions and slopes are shown in the Production Area, Attachment B; and the Storm Water Tributary Area Map, Attachment D. The following sections provide a more detailed description of the run-off from the different areas within the production area:

1. Corrals

Each corral is sloped to the rear of the corral to a drainage swale. The drainage swale is graded to either an area drain which diverts run-off to the wastewater retention ponds via an underground pipeline, or to a localized low spot that is pumped to the wastewater retention pond via a mobile sump pump within 72 hours of a storm event. Each corral is graded with a minimum slope to prevent standing wastewater.

2. Enclosed Animal Housing Areas

Storm water run-off from animal housing areas, including roofs and shades, are collected in gutters and drain directly into the flush system. Gutters and downspouts are maintained as necessary to keep them functional.

The milk parlors use well water for: the plate cooler, the milk line and milk truck sanitation, the barn washdown hoses, and the cow wash hoses. The sprinkler pens and barn flush valves use recycled milk cooling water. All of this process wastewater is diverted to the wastewater collection pits, as shown in Attachment C. Any storm water run-off outside the milk parlor area is diverted to area drains which connect to the wastewater retention pond.

3. Manure & Feed Storage Areas

The manure storage area is located in the rear of the corrals. Any run-off is pumped to the ponds within 72 hours of the storm event.

The feed storage area is graded to area drains that collect the run-off and diverts it to the wastewater ponds via an underground pipeline.

B. Required Modifications to Existing Facility

After review of the production area and verification of the existing site conditions based upon the field study, it was determined that all process wastewater and storm water run-off that contacts manure is diverted and stored in the wastewater retention pond. No facility modifications are required.

V. Operation & Maintenance Plan

The following sections outline the existing general operations of the dairy and the existing maintenance plan:

A. Precipitation & Surface Drainage of Non-Manured Areas

All precipitation and surface drainage from outside manured areas, including that collected from roofed areas, is diverted away from manured areas, unless such drainage is fully contained and is included in the storage requirement calculations required in item II, above;

The Production Area Map (Attachment B) identifies the drainage direction of all run-offs within the production area. All drainage from the manured and roofed areas within the production areas is included in the storage volume calculations for the wastewater retention pond. Any precipitation and surface drainage outside the manured areas is adequately diverted away from manured areas. If not, then drainage is collected and stored in the pond. The Storm Water Tributary Area Map (Attachment D) identifies the limits of the run-off area included in the retention pond volume analysis.

B. Pond Management

Ponds are managed to maintain the required freeboard and to prevent odors, breeding of mosquitoes, damage from burrowing animals, damage from equipment during removal of solids, embankment settlement, erosion, seepage, excess weeds, algae, and vegetation;

On an annual basis, burrowing animals living in the vicinity of the pond are exterminated to reduce population levels, thus reducing and preventing damage to the pond embankments. On a monthly basis, pictures of the pond are taken to record the existence of the minimum 1-foot freeboard. The wastewater in the Irrigation Ponds is agitated and drawn down on a periodic basis during the crop growing season in accordance with the Nutrient Management Plan. These draw-downs maintain the pond's required freeboard. Excess weeds and vegetation are periodically removed. Oil is applied to the water surface periodically during the mosquito breeding season.

C. Pond Storage Volume Maintenance for Winter Months

Holding ponds provide necessary storage volume prior to winter storms (by November 1st at the latest), maintain capacity considering buildup of solids, and comply with the minimum freeboard required in Waste Discharge Requirements General Order No. R5-2013-0122;

Wastewater Retention Pond Storage Capacity is described in Section II.A.4.

D. Elimination of Discharge to Surface Waters

There is no discharge of waste or storm water to surface waters from the production area;

A man-made canal runs through the production area of the facility. All production area is sloped awat from the canal, and is separated by an elevated berm. There are no areas where wastewater is discharged to surface water or areas where storm water run-off can enter the surface water.

E. Pond Solids Removal Procedures

Procedures have been established for removal of solids from any lined pond to prevent damage to the pond liner;

Solids are removed from the wastewater using the separator ponds, mechanical separation, and agitator pumps. During the crop growing season, the wastewater in Pond 3 is agitated and pumped to the land application areas at agronomic rates. Using the combination of separator ponds, mechanical separation, and agitation, pond solids are kept to a minimum level. As solids accumulate in the ponds, they are removed with an excavator keeping careful consideration not to damage the existing pond liner.

F. Corral and/or Pen Maintenance

Corrals and/or pens are maintained to collect and divert all process wastewater to the retention pond and to prevent ponding of water and to minimize infiltration of water into the underlying soils;

RuAnn Dairy uses an employee to maintain corrals and bedding, weather permitting. During the winter months, the open lot corrals are maintained to prevent excess manure buildup, specifically the area around the flush lane system to ensure its functionality. Any excess manure is stacked in the rear of the corral and removed during the spring.

Areas within the facility that pond after a storm event and areas of broken concrete are noted during the winter months. During the dry season, these areas are compacted, patched, and repaired to ensure all wastewater is diverted to the wastewater retention pond to minimize infiltration of water into the underlying soils. Any ponding rain water is pumped to the wastewater pond within 72 hours of rainfall event.

During the summer months, corral surfaces are cleaned and repaired to ensure proper drainage. Slopes are maintained to diminish ponding. Accumulation of manure under fence lines is removed to ensure proper drainage. Weeds and other accumulated debris in drainage weirs behind corrals are removed.

G. Animal Housing Area Maintenance

The animal housing area (e.g., barn, shed, milk parlor, etc.) is maintained to collect and divert all water that has contacted animal wastes to the retention pond and to minimize the infiltration of water into the underlying soils;

The animal housing area maintenance program is described in Item F above.

H. Manure & Feed Storage Area Maintenance

Manure and feed storage areas are maintained to ensure runoff and leachate from these areas are collected and diverted to the retention pond and to minimize infiltration of leachate from these areas to the underlying soils;

The manure and feed storage area maintenance is described in Section IV.A.

I. Dead Animal Disposal

All dead animals are disposed of properly;

Dead animals are collected as necessary and transported to a dead animal enclosure shown on Production Area Map (Attachment B). The dead animals are removed by a six-day-per-week pickup rendering service.

J. Chemical & Contaminant Handling

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

The chemical concentrations are diluted by the approximately 31,032,300 gallons of wastewater produced annually by the dairy. The low chemical concentration levels caused by this dilution are not detectable.

K. Prevention of Animal Trespassing of Surface Waters

All animals are prevented from entering any surface water within the confined area;

Animals are prevented from entering any surface water near the boundary of the production area by the corral fencing. The fence is inspected and maintained by the dairy operator to prevent animals from trespassing into the surface waters.

L. Salt Limitations in Animal Rations

Salt in animal rations is limited to the amount required to maintain animal health and optimum production.

Salt in animal rations is fed per National Research Council Guidelines under the supervision of a professional nutritionist retained as a consultant to South Point Dairy. Salt intake is limited to the amount required to maintain animal health and optimal milk production.

VI. Backflow Prevention Plan

Backflow is the undesirable reversal of flow of water or mixtures of water and other liquids, gases, or other substances into the distribution pipes of the potable supply of water from any source. Per the General Order, there are to be no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water. This requires an air gap, or physical separation between the discharge end of the water supply pipe and an open or non-pressure receiving vessel. To effectively prevent backflow, an air gap must be at least double the diameter of the water supply pipe, unless otherwise noted by the Natural Resources Conservation Services equation for determining air gap size.

VII. Changed Conditions & Limitations

The findings of this report are valid as of the date of this report. However, if there are any changes to the existing facility, including management of wastewater, barn efficiency, expansion, new improvements, and/or operations, a Registered Civil Engineer shall be notified to review the change(s) at the facility to determine if calculations for this report are still applicable. If the change alters the waste management for the facility, an amendment to this Waste Management Plan shall be submitted to the California Regional Water Quality Control Board, Central Valley Region (CRWQCB).

The CRWQCB shall be notified via a letter of any change in the facility name, owner, operator, or contact person of the facility. If the owner decides to terminate the operations at this facility, a closure plan will be submitted to the CRWQCB.

The validity of the analysis contained in this report is dependent upon the prescribed testing, observation, and analysis program specified by 4Creeks, Inc. during the operation of the facility. Any recommendations in the report shall be reviewed and observed using the same program. Our firm assumes no responsibility for the compliance of the recommendations with these design concepts unless we have been retained to perform the observation and review during the installation and operation of any recommended items.

4Creeks, Inc. has prepared this report for the exclusive use of the said client. The report has been prepared in accordance with generally accepted practices of engineering. No other warranties, either expressed or implied, are made as to the professional advice provided in this report.

VIII. Regional Water Quality Control Board Correspondence & Revision Record

Correspondence:

Date Received	Description

Revision Record:

Revision #	Date	Section	Description

IX. References

California Regional Water Quality Control Board - Central Valley Region – Order Number R5-2013-0122 "Waste Discharge Requirements General Order for Existing Milk Cow Dairies"

California Department of Water Resources, Online Data from Sampling Stations (HFD, FRO, CLN) http://cdec.water.ca.gov/selectQuery.html

California Department of Water Resources, Online Data for Evaporation http://www.sid.water.ca.gov/landwateruse/evaporation/

California Department of Water Resources, Online Groundwater Level Data Reports http://www.water.ca.gov/waterdatalibrary/groundwater/

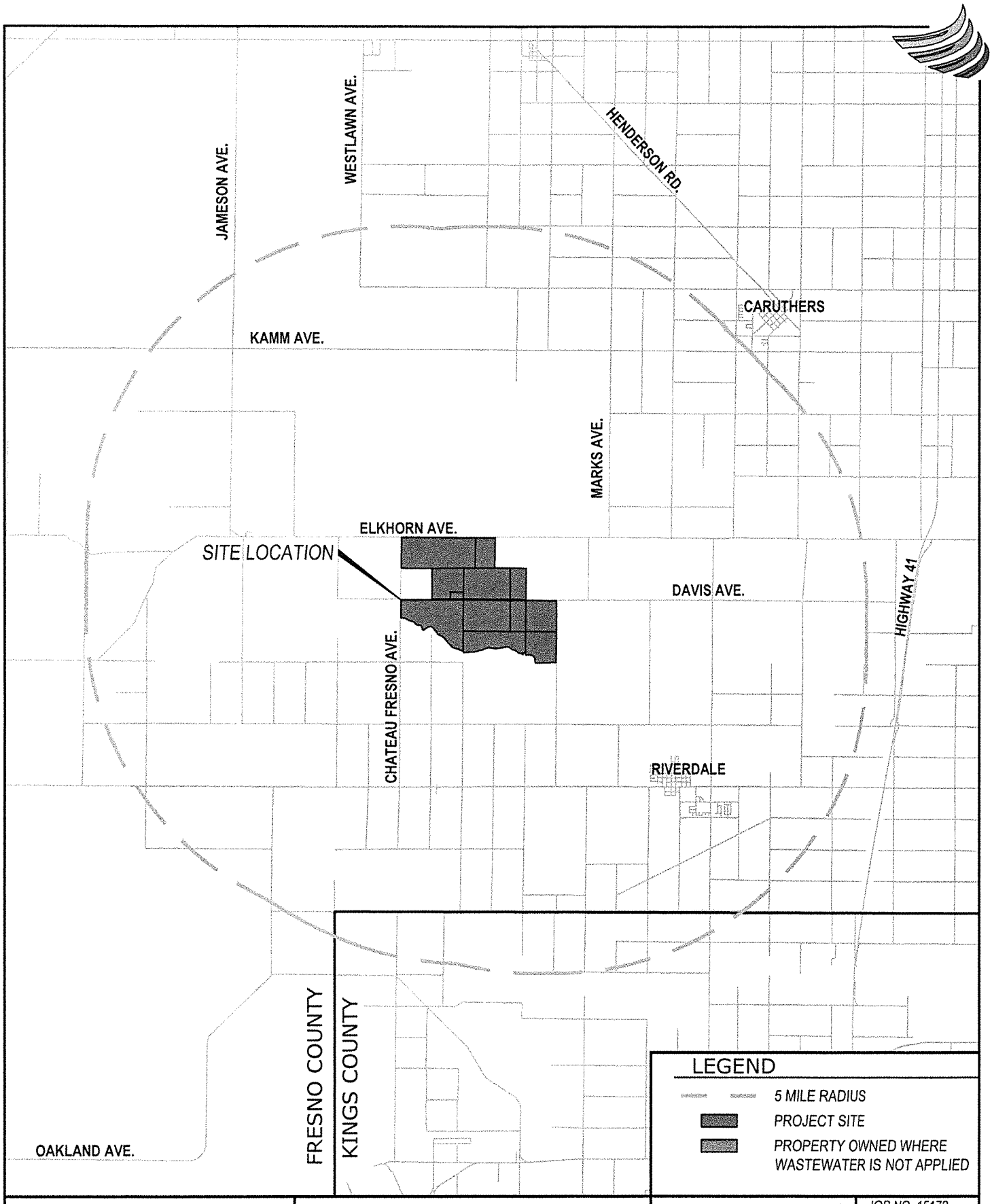
NOAA Geodetic to State Plane Coordinates (SPC) http://www.ngs.noaa.gov/cgi-bin/spc_getpc.prl

NOAA Online Weather Data, NOAA Atlas 2, 1973 for 25 yr, 24 hr event http://www.wrcc.dri.edu/pcpnfreq/sca25y24.gif

Title 27 of the California Code of Regulations (CCR), Division 2, Subdivision 1, Chapter 7, Subchapter 2, Article 1 http://www.ciwmb.ca.gov/Regulations/Title27/ch7s2345.htm#Article1

Waste Management Plan, RuAnn Dairy, Date-Stamped June 28, 2010 by California Regional Water Quality Control Board – Central Valley Region

Water Quality Control Plan for the Tulare Lake Basin, 2nd Edition http://www.swrcb.ca.gov/centralvalley/water_issues/basin_plans/tlbp.pdf



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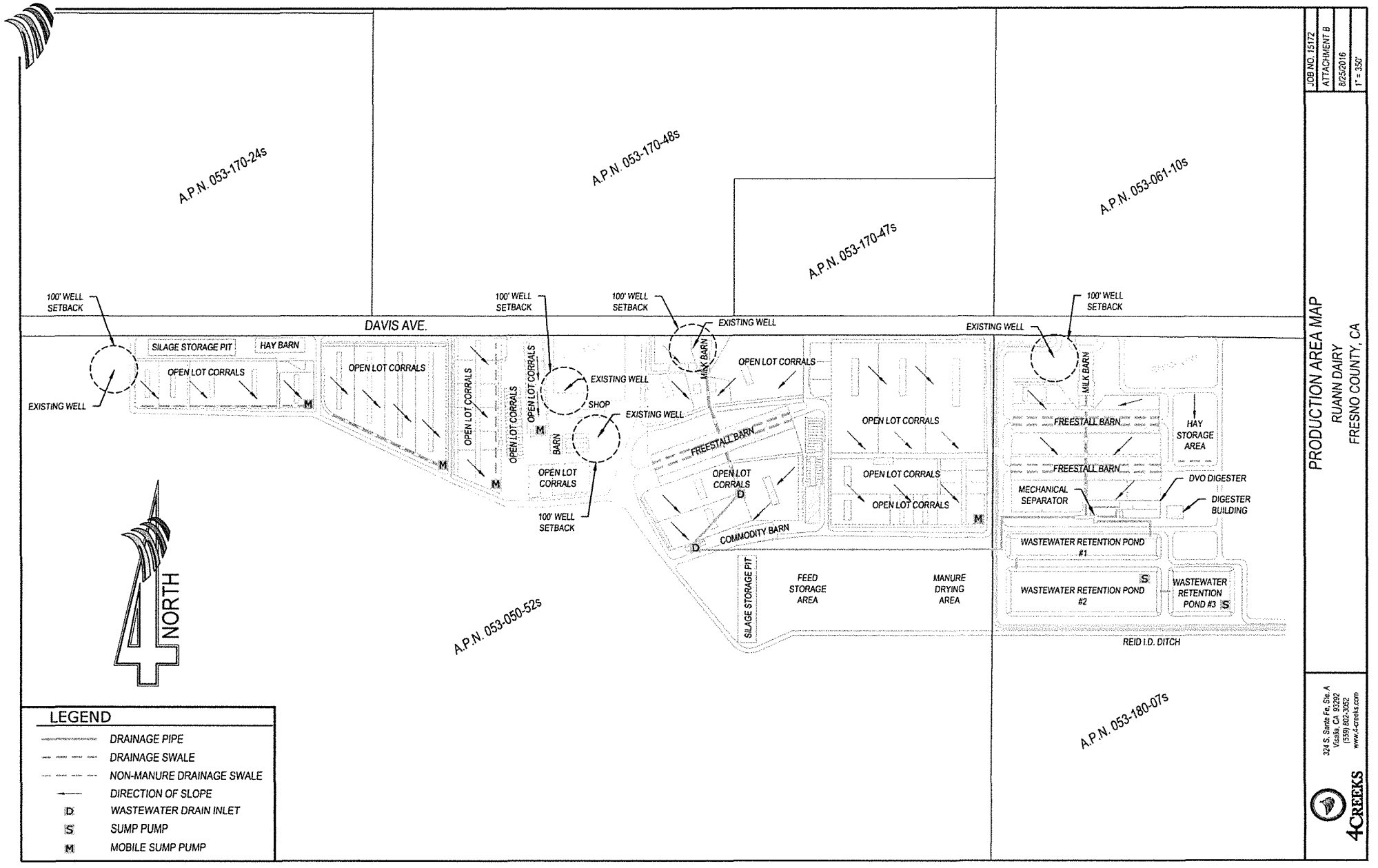
VICINITY MAP

RUANN DAIRY
FRESNO COUNTY, CA

NORTH

JOB NO.	15172
	ATTACHMENT A
	5/27/2016
	1" = 2 MI.



JOB NO. 15172
ATTACHMENT B
8/25/2016
1" = 350'

PRODUCTION AREA MAP
RUANN DAIRY
FRESNO COUNTY, CA

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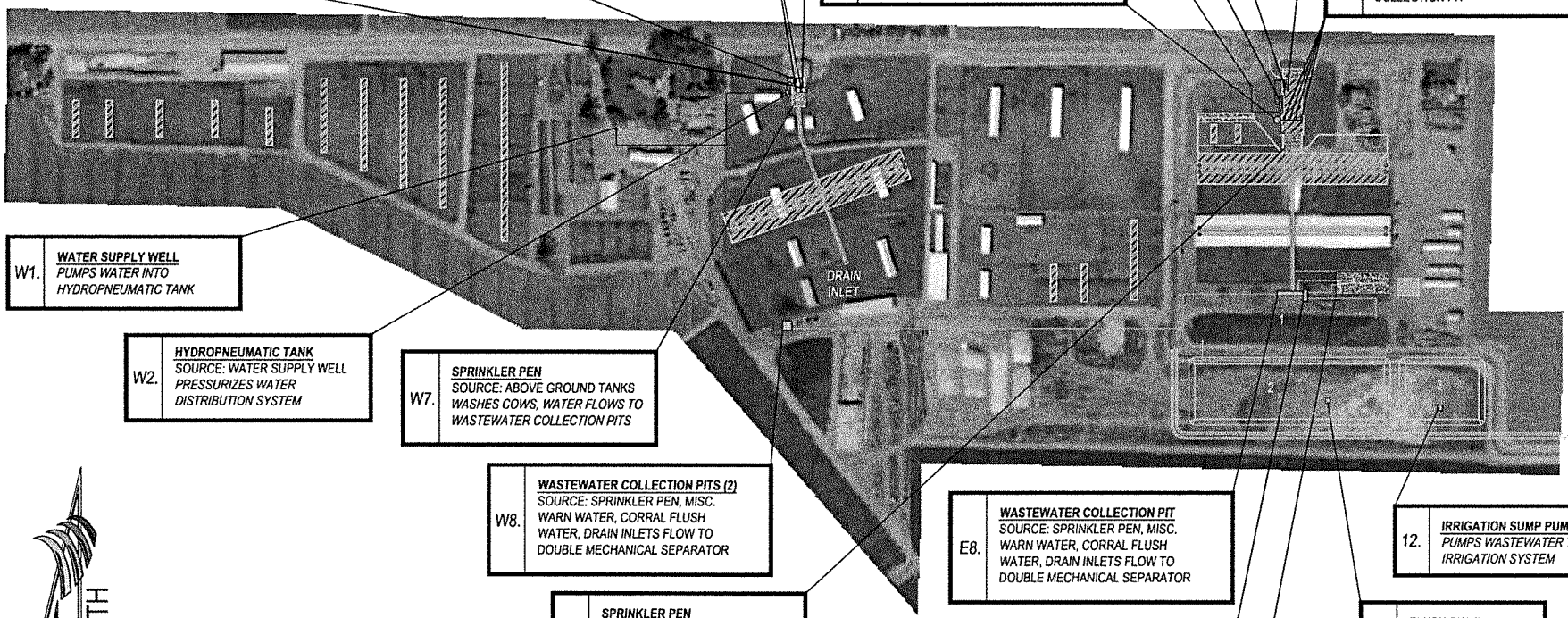

W1. **WATER SUPPLY WELL**
PUMPS WATER INTO HYDROPNEUMATIC TANK

W2. **HYDROPNEUMATIC TANK**
SOURCE: WATER SUPPLY WELL
PRESSURIZES WATER DISTRIBUTION SYSTEM

W3. **PLATE COOLER**
SOURCE: HYDROPNEUMATIC TANK
RECYCLES WATER TO ABOVE GROUND TANKS

W4. **MISC. BARN WATER**
SOURCE: HYDROPNEUMATIC TANK
BARN HOSES, WASH-UP, ETC. FLOWS TO WASTEWATER COLLECTION PITS

W5. **ABOVE GROUND TANKS (2)**
SOURCE: RECYCLED PLATE COOLER WATER
PROVIDES WATER TO BARN FLUSH AND SPRINKLER PENS

W6. **BARN FLUSH (2)**
SOURCE: ABOVE GROUND TANKS
WASHES COW TRAFFIC LANES, WATER FLOWS TO WASTEWATER COLLECTION PITS

W7. **SPRINKLER PEN**
SOURCE: ABOVE GROUND TANKS
WASHES COWS, WATER FLOWS TO WASTEWATER COLLECTION PITS

W8. **WASTEWATER COLLECTION PITS (2)**
SOURCE: SPRINKLER PEN, MISC. WARN WATER, CORRAL FLUSH WATER, DRAIN INLETS FLOW TO DOUBLE MECHANICAL SEPARATOR

E1. **WATER SUPPLY WELL**
PUMPS WATER INTO HYDROPNEUMATIC TANK

E2. **HYDROPNEUMATIC TANK**
SOURCE: WATER SUPPLY WELL
PRESSURIZES WATER DISTRIBUTION SYSTEM

E3. **PLATE COOLER**
SOURCE: HYDROPNEUMATIC TANK
RECYCLES WATER TO ABOVE GROUND TANKS

E4. **MISC. BARN WATER**
SOURCE: HYDROPNEUMATIC TANK
BARN HOSES, WASH-UP, ETC. FLOWS TO WASTEWATER COLLECTION PIT

E5. **ABOVE GROUND TANK**
SOURCE: RECYCLED PLATE COOLER WATER
PROVIDES WATER TO BARN FLUSH AND SPRINKLER PENS

E6. **BARN FLUSH (4)**
SOURCE: ABOVE GROUND TANKS
WASHES COW TRAFFIC LANES, WATER FLOWS TO WASTEWATER COLLECTION PIT

E7. **SPRINKLER PEN**
SOURCE: ABOVE GROUND TANKS
WASHES COWS, WATER FLOWS TO WASTEWATER COLLECTION PIT

E8. **WASTEWATER COLLECTION PIT**
SOURCE: SPRINKLER PEN, MISC. WARN WATER, CORRAL FLUSH WATER, DRAIN INLETS FLOW TO DOUBLE MECHANICAL SEPARATOR

9. **DVO DIGESTER**
SOURCE: WASTEWATER COLLECTION PIT
MICRO-ORGANISMS BREAKDOWN WASTEWATER TO PRODUCE BIOGAS

10. **MECHANICAL SEPARATOR**
SOURCE: WASTEWATER COLLECTION PIT & DVO DIGESTER
SEPARATES SOLID MANURE FROM PROCESS WATER

11. **FLUSH PUMP**
PUMPS WASTEWATER TO BARN FLUSH

12. **IRRIGATION SUMP PUMP**
PUMPS WASTEWATER TO IRRIGATION SYSTEM

NORTH

DAIRY FACILITY WASTEWATER FLOW DIAGRAM

RUANN DAIRY
FRESNO COUNTY, CA

JOB NO. 15172
ATTACHMENT C
6/25/2016
NTS

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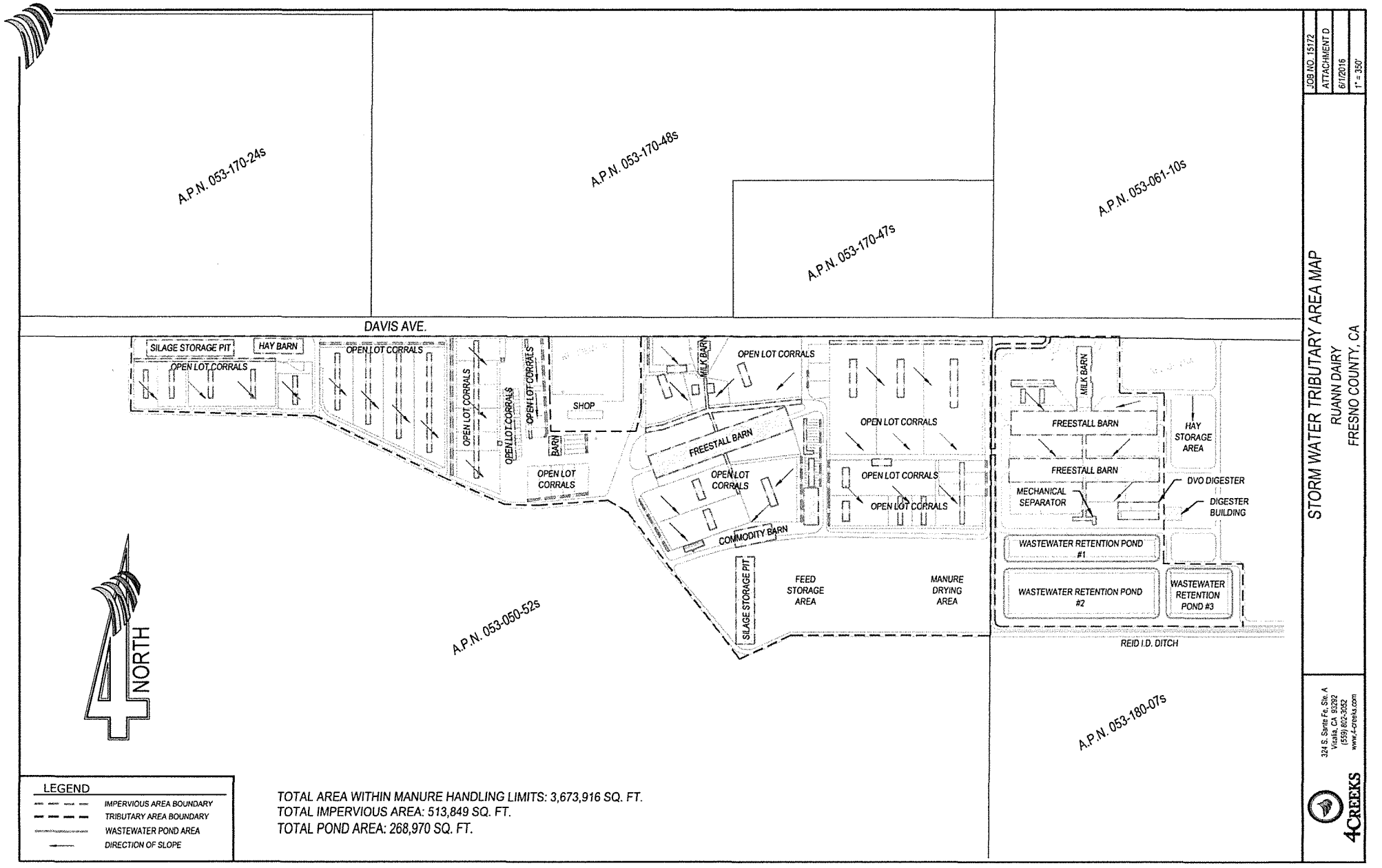

TOTAL AREA WITHIN MANURE HANDLING LIMITS: 3,673,916 SQ. FT.
TOTAL IMPERVIOUS AREA: 513,849 SQ. FT.
TOTAL POND AREA: 268,970 SQ. FT.

STORM WATER TRIBUTARY AREA MAP

RUANN DAIRY
FRESNO COUNTY, CA

JOB NO. 15172
ATTACHMENT D
6/1/2016
1" = 350'

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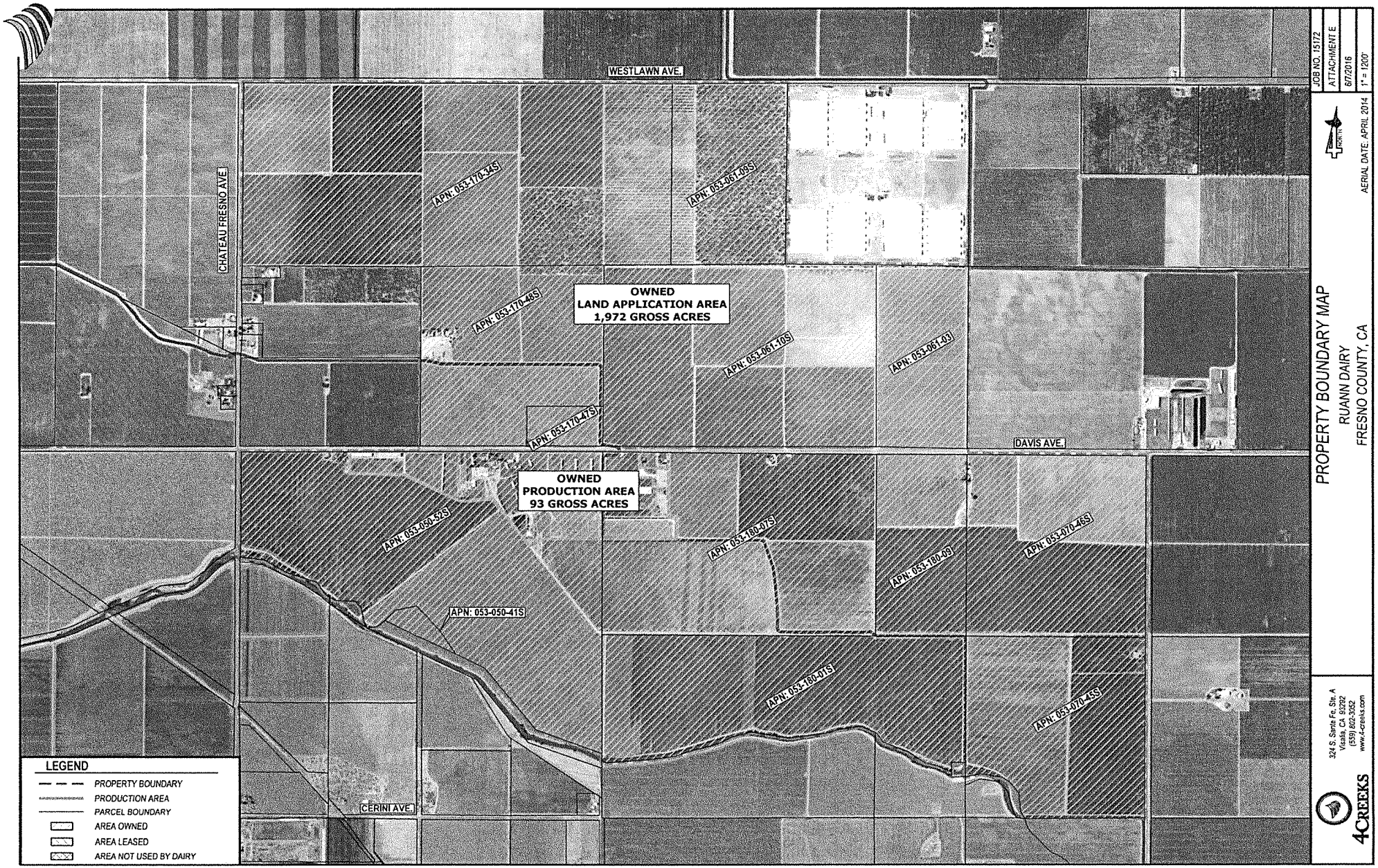

PROPERTY BOUNDARY MAP

RUANN DAIRY

FRESNO COUNTY, CA

AERIAL DATE: APRIL 2014

JOB NO.	15172
ATTACHMENT E	
6/7/2016	
1" = 1200'	

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LAND APPLICATION MAP 2016

RUANN DAIRY

FRESNO COUNTY, CA

AERIAL DATE: APRIL 2014

JOB NO. 15172

ATTACHMENT F

6/7/2016

1" = 1200'

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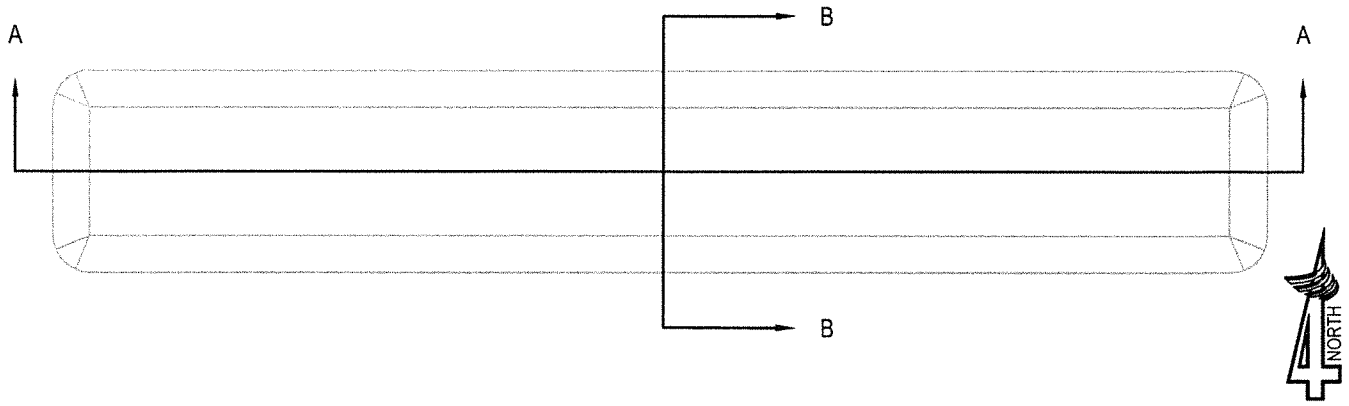
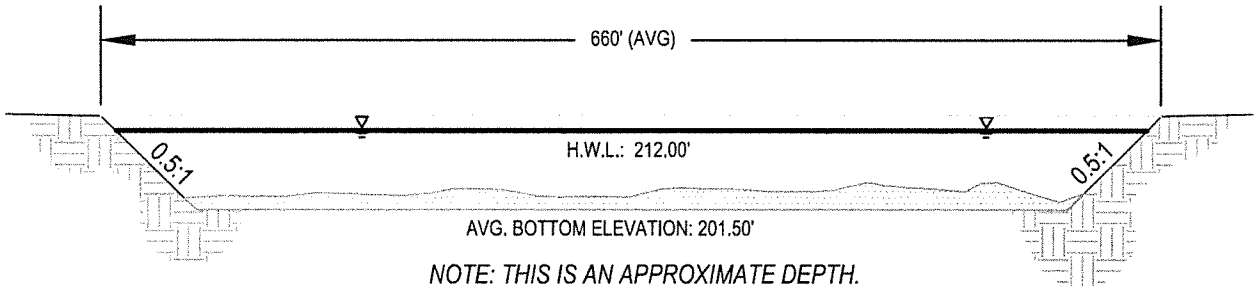
WASTEWATER RETENTION POND #1 - OVERFLOW POND

TOTAL VOLUME: 5,868,398 GALLONS
REDUCTION - 1 FT OF FREEBOARD: 540,208 GALLONS
REDUCTION - STORAGE PERIOD POND REDUCTION: 5,060,241 GALLONS
TOTAL RETENTION VOLUME: 267,949 GALLONS



WASTEWATER RETENTION POND 1 - PLAN VIEW

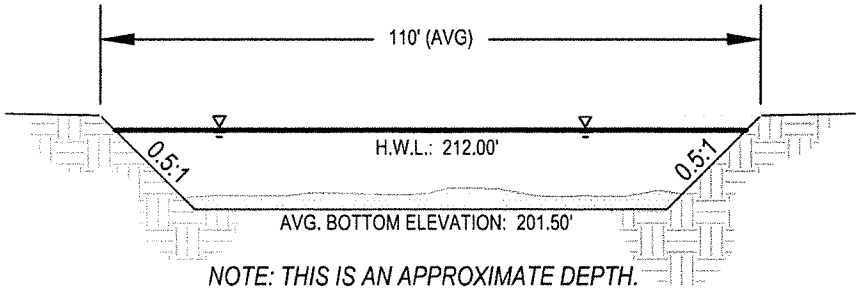
SCALE: 1" = 100'



NOTE: THIS IS AN APPROXIMATE DEPTH. SOLIDS IN POND AT TIME OF MEASUREMENT PREVENTED ACCURATE MEASUREMENTS.

SECTION A-A

NTS



NOTE: THIS IS AN APPROXIMATE DEPTH. SOLIDS IN POND AT TIME OF MEASUREMENT PREVENTED ACCURATE MEASUREMENTS.

SECTION B-B

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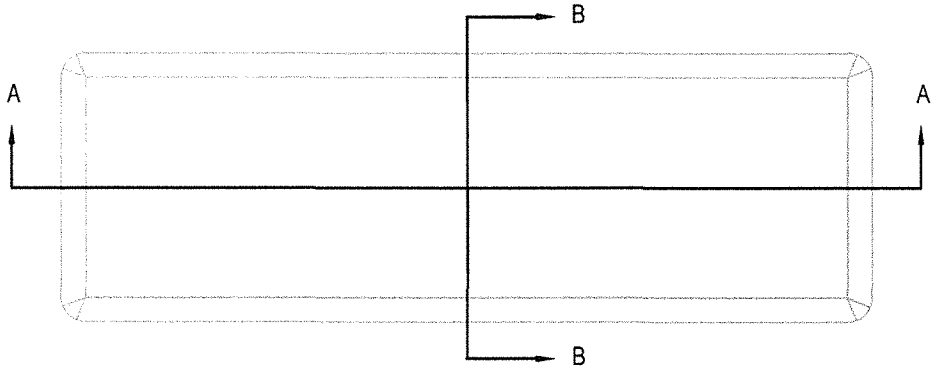
WASTEWATER RETENTION POND 1 DETAIL
RUANN DAIRY
FRESNO COUNTY, CA

JOB NO. 15172
ATTACHMENT G-1
6/7/2016
SEE DRAWING

WASTEWATER RETENTION POND #2 - IRRIGATION POND

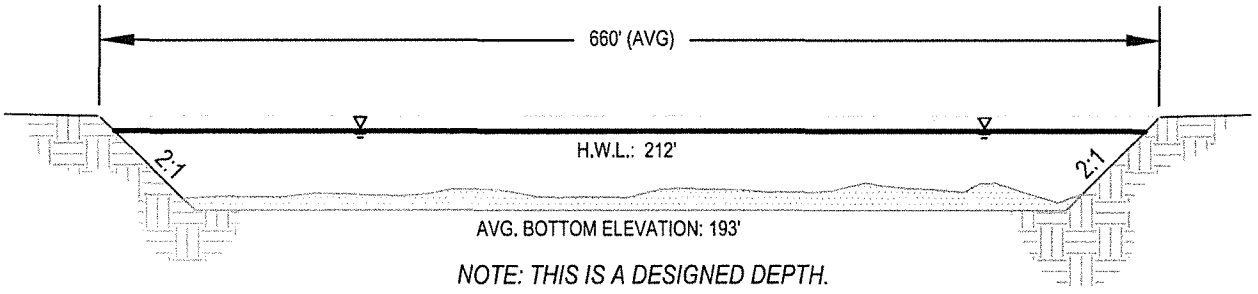
TOTAL VOLUME: 15,848,727 GALLONS
REDUCTION - 1 FT OF FREEBOARD: 1,023,824 GALLONS
REDUCTION - STORAGE PERIOD POND REDUCTION: 284,676 GALLONS
TOTAL RETENTION VOLUME: 14,540,227 GALLONS



NORTH

WASTEWATER RETENTION POND 2 - PLAN VIEW

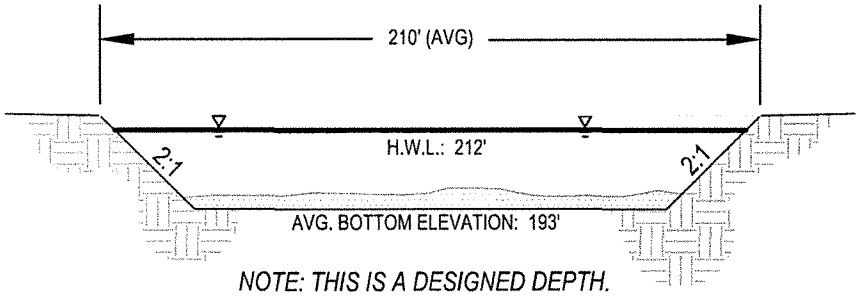
SCALE: 1" = 150'



NOTE: THIS IS A DESIGNED DEPTH.
ELEVATIONS ARE RELATIVE.

SECTION A-A

NTS



NOTE: THIS IS A DESIGNED DEPTH.
ELEVATIONS ARE RELATIVE.

SECTION B-B

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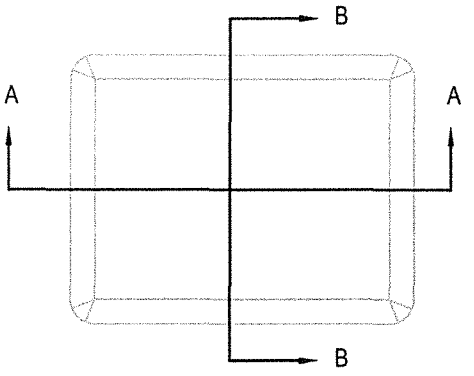
WASTEWATER RETENTION POND 2 DETAIL
RUANN DAIRY
FRESNO COUNTY, CA

JOB NO. 15172
ATTACHMENT G-2
6/7/2016
SEE DRAWING

WASTEWATER RETENTION POND #3 - IRRIGATION POND

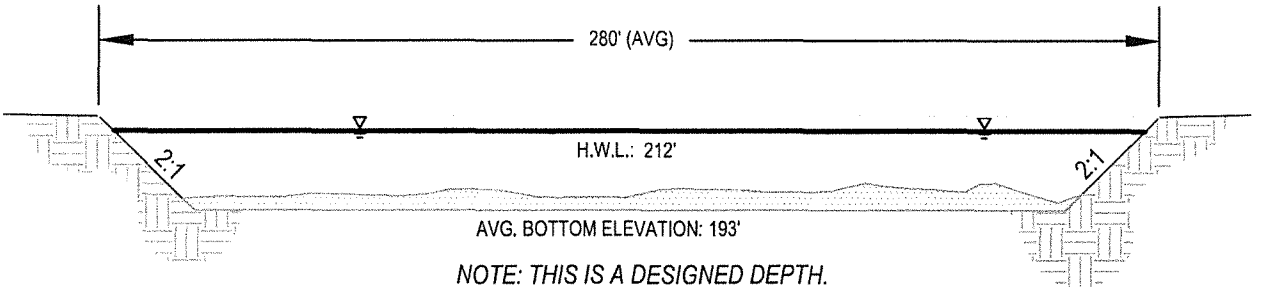
TOTAL VOLUME: 6,183,896 GALLONS
REDUCTION - 1 FT OF FREEBOARD: 432,564 GALLONS
REDUCTION - STORAGE PERIOD POND REDUCTION: 48,933 GALLONS
TOTAL RETENTION VOLUME: 5,702,400 GALLONS



NORTH

WASTEWATER RETENTION POND 3 - PLAN VIEW

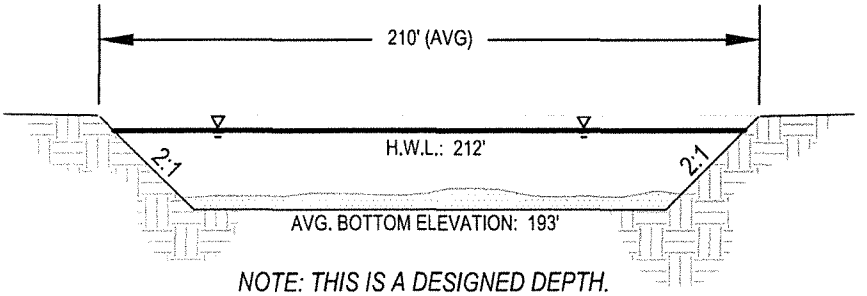
SCALE: 1" = 150'



NOTE: THIS IS A DESIGNED DEPTH.
ELEVATIONS ARE RELATIVE.

SECTION A-A

NTS



NOTE: THIS IS A DESIGNED DEPTH.
ELEVATIONS ARE RELATIVE.

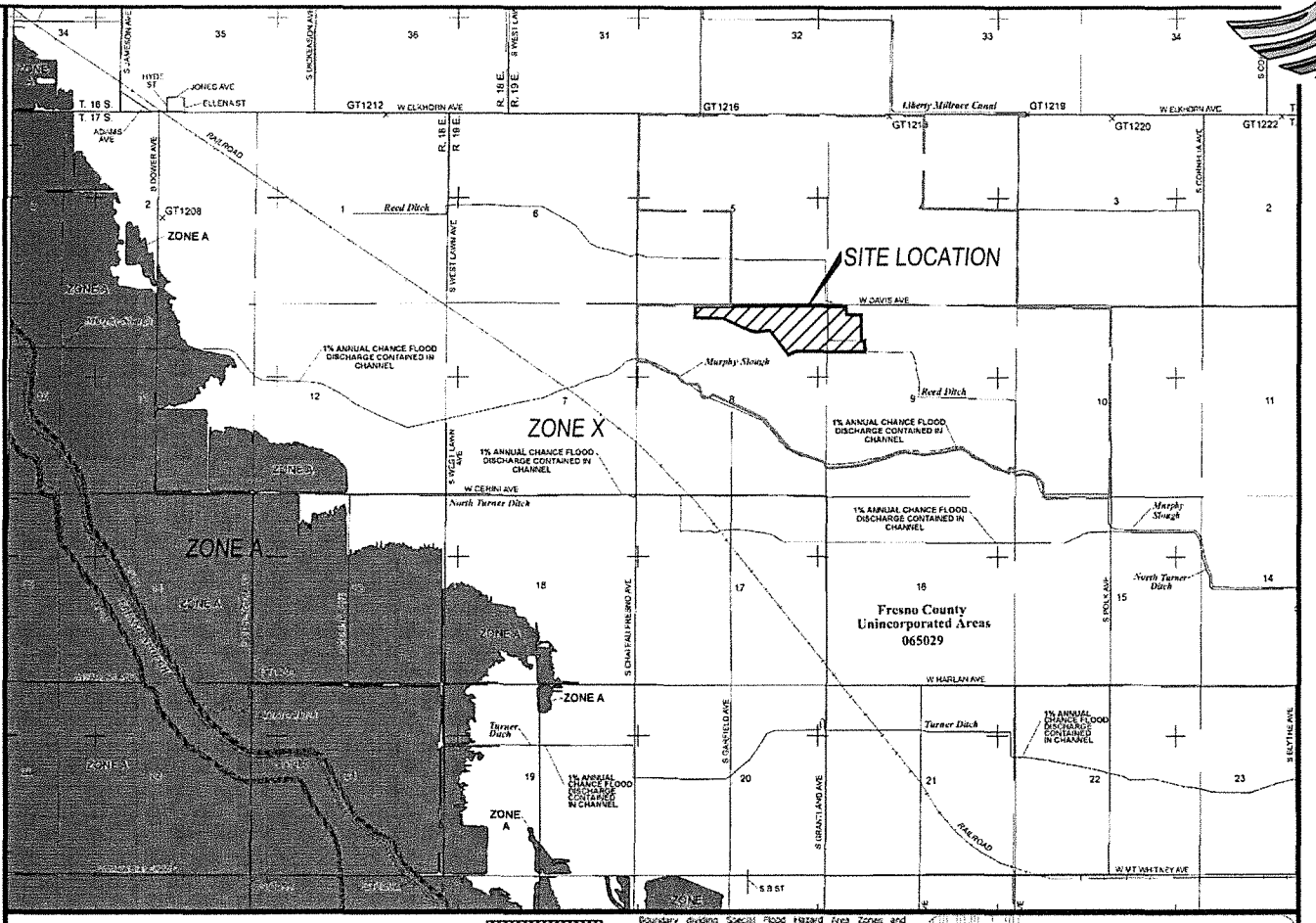
SECTION B-B

NTS

4CREEKS
324 S. SANTA FE., STE. A
VISALIA, CA 93292
(559) 802-3052

WASTEWATER RETENTION POND 3 DETAIL
RUANN DAIRY
FRESNO COUNTY, CA

JOB NO. 15172
ATTACHMENT G-3
6/7/2016
SEE DRAWING



LEGEND

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

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

Floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.

513 — Base Flood Elevation line and value; elevation in feet*

(EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

A — A — Cross section line

23 — 23 — Transect line

97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere

4275000mE — 1000-meter Universal Transverse Mercator grid ticks, zone 11

6000000 FT — 5000-foot grid values: California State Plane coordinate system, Zone IV (FIPSZONE = 4041), Lambert projection

DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)

• M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2875J

FIRM

FLOOD INSURANCE RATE MAP

FRESNO COUNTY, CALIFORNIA

AND INCORPORATED AREAS

PANEL 2875 OF 3525

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
FRESNO COUNTY	065029	2875	J

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
06019C2875J

MAP REVISED
JANUARY 20, 2016

Federal Emergency Management Agency

LEGEND

LIMITS OF PRODUCTION AREA

LIMITS OF FARMING OPERATION

4CREEKS
324 S. SANTA FE, STE. A
VISALIA, CA 93292
(559) 802-3052

FEMA MAP

RUANN DAIRY

FRESNO COUNTY, CA

NORTH

JOB NO. 15172

ATTACHMENT H

6/7/2016

1" = 5000'

APPENDIX A

WASTEWATER RETENTION POND VOLUME ANALYSIS

4CREEKS

Calculations Completed By:	KMP
Calculations Checked By:	MDR
Date:	6/6/2017

Wastewater Retention Pond Volume Analysis

RUANN DAIRY

A. POND STORAGE VOLUME

SUMMARY *(See Appendix B for Calculations)*

Pond	Pond Type	Depth of Pond November 1st (ft)	Storage Period Pond Volume Reduction (gal)
Pond 1:	Overflow	10.00	5,060,241
Pond 2:	Irrigation	0.50	284,676
Pond 3:	Irrigation	0.25	48,933

Pond	Total Raw Volume (gal)	1 Foot Freeboard Reduction (gal)	Storage Period Pond Reduction (gal)	Total Retention Volume (gal)
Pond 1:	5,868,398	540,208	5,060,241	267,949
Pond 2:	15,848,727	1,023,824	284,676	14,540,227
Pond 3:	6,183,896	432,564	48,933	5,702,400
			TOTAL:	20,510,576

B. PROCESS WASTEWATER VOLUME ANALYSIS

Age of Animal & Housing Type	*# of Animals*	*Waste Produced - Urine & Manure (ft^3/day) (ASABE 384.2)*	*Hours/Day on Flush Surface*	*Single Stage Mechanical Separator with Separation Pond(s) Reduction Factor*	*Total (gal/day)*
Milking Cows (Freestall, Flushed)	1,600	2.4	18.0	65%	7,540
Dry Cows (Open Lot, Scraped)	400	1.3	0	65%	0
Heifers: 15-24 mo. (Open Lot, Scraped)	833	0.78	0	65%	0
Heifers: 7-14 mo. (Open Lot, Scraped)	667	0.78	0	65%	0
Heifers: 4 - 6 mo. (Open Lot, Scraped)	250	0.3	0	65%	0
Calves: 0-3 mo. (Hutches)	250	0.2	0	65%	0
				Total :	7,540

West Milk Barn Wastewater Output (See Appendix C for Calculations)

Barn Cooling Water Volume:	27,000	gallons/day
Other Water Uses in Barn:	5,480	gallons/day
TOTAL:	**32,480**	**gallons/day**
Sprinkler Pen & Barn Flush Combo:	26,760	Uses Recycled Water from Barn Cooling, Barn Cooling Controls

East Milk Barn Wastewater Output (See Appendix C for Calculations)

Barn Cooling Water Volume:	45,000	gallons/day (Based on 45 gal/day/cow)
TOTAL:	**45,000**	**gallons/day**

Summary:

Wastewater Source	*Volume (gal./day)*	*Total Volume Accumulated in 120 day period (gal.)*
West Milk Barn Wastewater Output :	32,480	3,897,570
East Milk Barn Wastewater Output:	45,000	5,400,000
Animal Output (Urine & Manure):	7,540	904,781
Total Process Wastewater Volume From Operations:	**85,020**	**10,202,351**

C. PRECIPITATION RUN-OFF VOLUME ANALYSIS

Rainfall Run-off from Production Area (Attachment D)

Total Production Tributary Area	3,673,916	ft^2
	84.34	*acres*

Run-off Coefficients (Appendix H)

Runoff Coefficient for Impervious:	0.75
Runoff Coefficient for Pervious:	0.31
25 Yr. 24 Hr. Storm Runoff Coefficient for Impervious:	0.88
25 Yr. 24 Hr. Storm Runoff Coefficient for Pervious:	0.40

Production Area Subdivision Summary

Area Description	Run-off Area (ft^2)	Run-off Coefficient	Weighted Run-off Area (ft^2)
Wastewater Retention Pond Area	268,970	1.00	268,970
Total Impervious Area	513,849	0.75	385,387
Total Pervious Area	2,891,097	0.31	896,240
Total Production Area	**3,673,916**		**1,550,597**

Conversion Factor: **0.623377**
(7.48051941 gal/ft^3 x 1 ft/12 in)

25 year 24 hour Rainfall Event

Source: NOAA Online Weather Data: NOAA Atlas 2, 1973 for 25 yr / 24 hr (Appendix F)

Area Description	Rainfall (in.)	Run-off Coefficient	Weighted Run-off Area	Total Volume Accumulated (gal)
Wastewater Retention Pond Area	2.00	1.00	268,970	335,339
Total Impervious Part of Tributary Area	2.00	0.88	452,187	563,766
Total Pervious Part of Tributary Area	2.00	0.40	1,156,439	1,441,794
Total Production Area			**1,877,596**	**2,340,899**

Run-Off to Wastewater Retention Basin

Source: California Department of Water Resources (DWR) & California Irrigation Management Information Systems (CIMIS) Online Data from Sampling Stations, Appendix E

Rational Method - Equation:

Average Rainfall (in)/12 X (Total Production Area (ft^2)- Wastewater Pond Area(ft^2)) X (Weighted Run-off Coefficient) X 7.48051941 (ft^3 to gallons) = Normal Rainfall Run-off Volume to Pond (gallons)

Normal Precipitation & Run-off

Month	Ave. Rainfall (in.)	Days of Retention	Total Volume Accumulated in Each Period (gal.)
November	0.84	30	811,949
December	1.42	31	1,372,580
January	1.79	31	1,730,224
February	1.63	28	1,575,567
Total:	**5.68**	**120**	**5,490,321**

Normal Precipitation & Run-off times a factor of 1.5

Month	Ave. Rainfall X 1.5 (in.)	Days of Retention	Total Volume Accumulated in Each Period (gal.)
November	1.26	30	1,217,923
December	2.13	31	2,058,870
January	2.69	31	2,595,337
February	2.45	28	2,363,351
Total:	**8.52**	**120**	**8,235,481**

Evaporation from Wastewater Basin

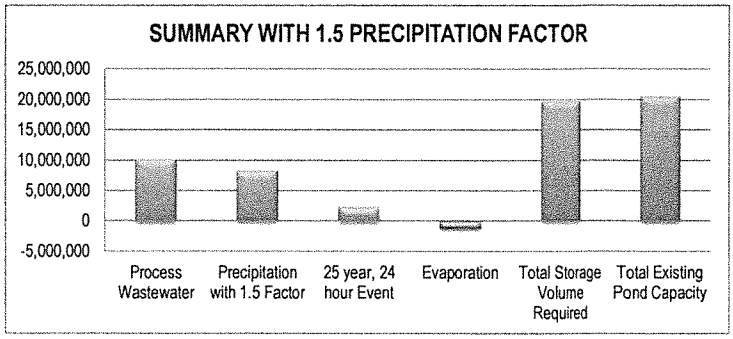
Source DWR-San Joaquin District Plan Evaporation Monthly Averages for Fresno and Bakersfield from 1968-2010 (Appendix G)

Month	*Fresno Evaporation Rate (in.)*	*Total Volume Evaporated (gal.)*
November	2.23	373,903
December	1.20	201,204
January	1.24	207,910
February	2.08	348,753
Total:	**6.75**	**1,131,770**

D. SUMMARY OF REQUIRED WASTEWATER RETENTION POND STORAGE VOLUME:

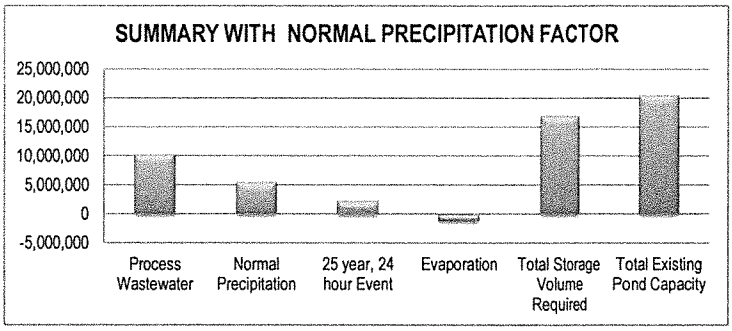
1.5 PRECIPITATION FACTOR

Volume Description	Total Volume in 120 Day Period (gal.)
Wastewater from Operations	10,202,351
Wastewater Accumulated From Normal Precipitation w/ 1.5 Factor	8,235,481
Wastewater Accumulated From 25 Year, 24 Hour Event	2,340,899
Less: Evaporation from Wastewater Retention Ponds	(1,131,770)
Net Required Wastewater Retention Pond Storage Volume	**19,646,962**
Less: Net Wastewater Retention Ponds Storage Volume	20,510,576
Excess Wastewater Retention Pond Capacity	**863,614**



1.5 PRECIPITATION FACTOR NOT INCLUDED

Volume Description	Total Volume in 120 Day Period (gal.)
Wastewater from Operations	10,202,351
Wastewater Accumulated From Normal Precipitation w/o 1.5 Factor	5,490,321
Wastewater Accumulated From 25 Year, 24 Hour Event	2,340,899
Less: Evaporation from Wastewater Retention Ponds	(1,131,770)
Net Required Wastewater Retention Pond Storage Volume	**16,901,801**
Less: Net Wastewater Retention Ponds Storage Volume	20,510,576
Excess Wastewater Retention Pond Capacity	**3,608,775**



Total Available Retention Days of Storage (1.5 factor): 125.3

Total Available Retention Days of Storage (Normal): 145.6

APPENDIX B

WASTEWATER POND FIELD ANALYSIS

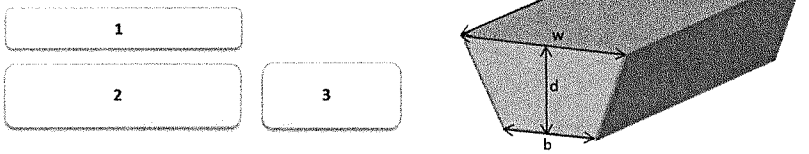
Calculations Completed By:	KMP
Calculations Checked By:	MDR
Date:	6/6/2017

4CREEKS

Wastewater Retention Pond Field Capacity Analysis

RUANN DAIRY

KEY MAP



Volume Formula

B_1= (L)(W)

B_2= [L-(2Sd)][W-(2Sd)]

M= [L-(Sd)][W-(Sd)]

Volume= 1/6d(B_1+4M+B_2)

SUMMARY

Pond	Total Raw Volume (ft^3)	1 Foot Freeboard Reduction (ft^3)	Storage Period Pond Volume Reduction (ft^3)	Total Retention Volume (ft^3)
Pond 1:	784,491	72,215	676,456	35,820
Pond 2:	2,118,667	136,865	38,056	1,943,746
Pond 3:	826,667	57,825	6,541	762,300

Pond	Total Volume (gal)	1 Foot Freeboard Reduction (gal)	Storage Period Pond Reduction (gal)	Total Retention Volume (gal)
Pond 1:	5,868,398	540,208	5,060,241	267,949
Pond 2:	15,848,727	1,023,824	284,676	14,540,227
Pond 3:	6,183,896	432,564	48,933	5,702,400
			TOTAL:	20,510,576

Definitions:

Overflow Pond: Capacity is that volume above the overflow pipe, less the freeboard

Irrigation Pond: Capacity is that volume above the residual solids*, less the freeboard

Evaporation Pond: Capacity is the entire "raw capacity", less the freeboard

** Residual Solids are assumed to be 2 feet deep if the wastewater did not pass through a solids separation system before entering the pond. If there is solids separation before entering the pond, the assumed level of residual solids is reduced by half. If there is secondary separation after the primary separation, the residual solids are reduced again by half.*

Pond #1 - Overflow Pond

Average Slope of Pond:	0.5	
Average Total Pond Depth*:	11.50	ft
Distance From Hingepoint to Flowline of Overflow Pipe	0.50	ft

Existing Pond Surveyed Dimensions

	Total Volume (ft^3)	1 Foot Freeboard Reduction (ft^3)	Storage Period Pond Reduction (ft^3)
Pond Top Length	660.00	660.00	658.50
Pond Top Width	110.00	110.00	108.50
Average Depth (d)	11.50	1.00	10.00
Side Slope H:V (S)	0.50	0.50	0.50
Wastewater Pond Surface Area	72,600	72,600	71,447
Calculations:			
B_1=	72,600	72,600	71,447
B_2=	63,877	71,831	63,877
M=	68,206	72,215	67,637
Calculated Volume (ft^3):	**784,491**	**72,215**	**676,456**

Pond #2 - Irrigation Pond

Average Slope of Pond:	2	
Average Total Pond Depth*:	20.00	ft
Residual Solids:	0.50	ft

Existing Pond Surveyed Dimensions

	Total Volume (ft^3)	1 Foot Freeboard Reduction (ft^3)	Storage Period Pond Reduction (ft^3)
Pond Top Length	660.00	660.00	582.00
Pond Top Width	210.00	210.00	132.00
Average Depth (d)	20.00	1.00	0.50
Side Slope H:V (S)	2.00	2.00	2.00
Wastewater Pond Surface Area	138,600	138,600	76,824
Calculations:			
B_1=	138,600	138,600	76,824
B_2=	75,400	135,136	75,400
M=	105,400	136,864	76,111
Calculated Volume (ft^3):	**2,118,667**	**136,865**	**38,056**

Pond #3 - Irrigation Pond

Average Slope of Pond:	2	
Average Total Pond Depth*:	20.00	ft
Residual Solids:	0.25	ft

Existing Pond Surveyed Dimensions

	Total Volume (ft^3)	1 Foot Freeboard Reduction (ft^3)	Storage Period Pond Reduction (ft^3)
Pond Top Length	280.00	280.00	201.00
Pond Top Width	210.00	210.00	131.00
Average Depth (d)	20.00	1.00	0.25
Side Slope H:V (S)	2.00	2.00	2.00
Wastewater Pond Surface Area	58,800	58,800	26,331
Calculations:			
B_1=	58,800	58,800	26,331
B_2=	26,000	56,856	26,000
M=	40,800	57,824	26,165
Calculated Volume (ft^3):	**826,667**	**57,825**	**6,541**

APPENDIX C

PROCESS WASTEWATER FIELD ANALYSIS

Calculations Completed By:	KMP
Calculations Checked By:	MDR
Date:	6/6/2017

4CREEKS

Process Wastewater Analysis - Field Study Results

RuAnn Dairy - West Milk Barn

Above Ground Storage Tank Dimensions:

		INPUT				INPUT	
Concrete Tanks:	Height:	9.16667	ft	Plastic Tanks:	Height:	6	ft
	Width	8	ft		Diameter:	4	ft
	Length	8	ft^2		Area:	12.56	ft^2
	Volume:	586.67	ft^3		Volume:	75.36	ft^3
	# of Tanks:	2			# of Tanks:	2	
	Total Volume:	8,776.54	gal		Total Volume:	1,127.39	gal

Above Ground Storage Tanks Volume: 9,904 gallons

Determine if control is sprinkler pen/flush pump or barn water cooling system:

Barn Cooling: Constant Flow from Hydropneumatic Tank through Plate Cooler to Above Ground Storage Tanks During Entire Milking (Compressors Air-Cooled)

	INPUT	
# of Milk Cows:	600	
Milk Cows/hr:	75	
Time Per Milking:	8.00	hours
# of Milkings/Day:	2	
Assumed Barn Water Use:	45	gal/day/cow

**NOTE: Measurements of Barn Cooling could not be taken because access to the above ground storage tan min./day*

The Barn Cooling Average was estimated based on dairies of similar size with similar setups

Barn Cooling Average: 27,000 gal/day

Sprinkler Pen: Supplied by Above Ground Storage Tank

	INPUT	
# of Strings/Milking:	8	
# of Cycles/String:	1	
# of Minutes/Cycle:	2	
# Milkings/Day:	2	
# of Sprinkler Heads:	40	
Sprinkler Head Flow Rate:	4.5	gpm

Sprinkler Pen Average: 5,760 gal/day

Barn Flush: Supplied by Above Ground Storage Tank

	INPUT	
Flush/String:	1	
Estimated Gallons/Flush	1750	gal
Strings/Milking:	6	
Milking/Day:	2	

Combined Total: 26,760 gal/day

Barn Flush Average 21,000 gal/day

Other Water Uses in Barn: Includes barn hoses, milk truck/line cleaning, other misc. uses of water

Milk Tank Sanitation:	INPUT		Barn Hose Volume:	INPUT		Milk Line Sanitation:	INPUT		Cow Wash Hose Volume:	INPUT	
# of Minutes hose fills tank/wash:	15	min.	Volume of Bucket:	10	quarts	Size of Wash Tank:	90	gal.	Volume of Bucket:	10	quarts
Flow Rate of Hose:	0.43	gal/s	Volume of Bucket:	2.5	gal	# of Washes/Day:	1		Volume of Bucket:	2.5	gal
Volume of wash water:	388	gal.	Time:	5.8	sec	# of Times filled/wash:	3		Time:	17.5	sec
# of Washes/Day:	1		Flow Rate:	0.43	gal/s	# of Tanks:	2		Flow Rate:	0.142857143	gal/s
# of Times filled/wash:	3		Time/Milking:	20	min.				Time/Milking:	20	min.
# of Tanks:	1		# of Hoses:	1					# of Hoses:	8	
			Milking/Day:	2					Milking/Day:	2	
Flow Rate:	1,164	gal/day	Flow Rate:	1,034	gal/day	Flow Rate:	539	gal/day	Flow Rate:	2,743	gal/day

Total Other Water Uses in Barn: 5,480 gal/day

Calculations Completed By:	KMP
Calculations Checked By:	MDR
Date:	6/6/2017

4CREEKS

Process Wastewater Analysis - Field Study Results

RuAnn Dairy - East Milk Barn

Barn Cooling: Constant Flow from Hydropneumatic Tank through Plate Cooler to Above Ground Storage Tank During Entire Milking (Compressors Air Cooled)

	INPUT	
# of Milk Cows:	1,000	
Milk Cows/hr:	125	
Time Per Milking:	8.00	hours
# of Milkings/Day:	2	
Assumed Barn Water Use:	45	gal/day/cow

**NOTE: Measurements of Barn Cooling could not be taken because dairy is under construction.*

The Barn Cooling Average was estimated based on dairies of similar size with similar setups

Barn Cooling Average:	*45,000*	*gal/day*

Sprinkler Pen: Supplied by Above Ground Storage Tank

	INPUT	
# of Strings/Milking:	6	
# of Cycles/String:	2	
# of Minutes/Cycle:	2	
# Milkings/Day:	2	
# of Sprinkler Heads:	90	
Sprinkler Head Flow Rate:	4	gpm

Sprinkler Pen Average:	17,280	gal/day

Barn Flush: Supplied by Above Ground Storage Tank

	INPUT	
Flush/String:	1	
Estimated Gallons/Flush	2000	gal
Strings/Milking:	6	
Milking/Day:	2	

Barn Flush Average:	24,000	gal/day

Sprinkler Pen and Barn Flush Combined:	41,280	gal/day

APPENDIX D

ANIMAL OUTPUT DATA

ASAE D384.2 MAR2005
Manure Production and Characteristics

American Society of
Agricultural and Biological Engineers

STANDARD

ASABE is a professional and technical organization, of members worldwide, who are dedicated to advancement of engineering applicable to agricultural, food, and biological systems. ASABE Standards are consensus documents developed and adopted by the American Society of Agricultural and Biological Engineers to meet standardization needs within the scope of the Society; principally agricultural field equipment, farmstead equipment, structures, soil and water resource management, turf and landscape equipment, forest engineering, food and process engineering, electric power applications, plant and animal environment, and waste management.

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Standards designated as 'ANSI' are American National Standards as are all ISO adoptions published by ASABE. Adoption as an American National Standard requires verification by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by ASABE.

Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

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ASABE, 2950 Niles Road, St. Joseph, MI 49085-9659, USA ph. 269-429-0300, fax 269-429-3852, hq@asabe.org

Table 1.b – Section 3 – All other livestock and poultry. Diet based numbers are in **BOLD**. See footnotes 2 and 3 for source of non-bold values.

Animal Type and Production Grouping	Total solids[3]	Volatile solids[3]	COD[3,4]	BOD[3,4]	Nitrogen	P	K	Ca	Mg	Total Manure[5]		Moisture[6]
	kg / day-animal (d-a)									kg / (d-a)	liter / d-a.	% w.b.
Beef - Cow (confinement)[7,10]	**6.6**	**5.9**	6.2	1.4	**0.19**	**0.044**	0.14	**0.089**		-	-	88
Beef - Growing Calf (confinement)	**2.7**	**2.3**	2.3	0.52	**0.13**	**0.025**	0.085	**0.040**		22	22	88
Dairy - Lactating cow	**8.9**	7.5	8.1	1.30	**0.45**	**0.078**	**0.103**			68	68	87
Dairy - Dry cow	**4.9**	4.2	4.4	0.626	**0.23**	0.03	0.148			38	3	87
Dairy - Milk fed calves					0.0079							
Dairy - Calf-150 kg	1.4				0.063					8.5	8.5	83
Dairy - Heifer-440 kg	3.7	3.2	3.4	0.54	**0.12**	**0.020**				22	22	83
Dairy - Veal-118 kg	0.12				0.015	0.0045	0.0199			3.5	3.5	96
Horse - Sedentary-500 kg[8]	**3.8**	3.0		0.48	**0.089**	**0.013**	**0.027**	**0.023**	**0.009**	25	25	85
Horse - Intense exercise -500 kg[8]	**3.9**	3.1		0.49	**0.15**	**0.033**	**0.095**	**0.069**	**0.018**	26	26	85
Layer	**0.022**	0.016	0.018	0.0050	**0.0016**	**0.00048**	0.00058	**0.0022**		0.088	0.088	75
Swine - Gestating sow-200 kg	0.50	0.45	0.47	0.17	**0.032**	**0.009**	0.022			5.0	5.0	90
Swine - Lactating sow[9] -192 kg	1.2	1.0	1.1	0.38	**0.085**	**0.025**	.053			12	12	90
Swine - Boar-200 kg	0.38	0.34	0.27	0.13	0.028	0.0097	.0176			3.8	3.8	90
	lb / day-animal (d-a)									lb / d-a.	ft^3 / d-a.	% w.b.
Beef - Cow (confinement)[7,10]	**15**	**13**	14	3.0	**0.42**	**0.097**	0.30	**0.20**		-	-	88
Beef - Growing Calf (confinement)	**6.0**	**5.0**	5.2	1.1	**0.29**	**0.055**	0.19	**0.088**		50	0.81	88
Dairy - Lactating cow	**20**	17	18	2.9	**0.99**	**0.17**	**0.23**			150	2.4	87
Dairy - Dry cow	**11**	9.2	9.7	1.4	**0.50**	**0.066**	0.33			83	1.3	87
Dairy - Milk fed calves					0.017							
Dairy - Calf-330lb	3.2				0.14					19	0.30	83
Dairy - Heifer-970 lb	8.2	7.1	7.5	1.2	**0.26**	**0.044**				48	0.78	83
Dairy - Veal-260 lb	0.27				0.033	0.0099	0.044			7.8	0.12	96
Horse - Sedentary-1,100 lb[8]	**8.4**	6.6		1.1	**0.20**	**0.029**	**0.060**	**0.051**	**0.020**	56	0.90	85
Horse - Intense exercise -1,100 lb[8]	**8.6**	6.8		1.1	**0.34**	**0.073**	**0.21**	**0.15**	**0.040**	57	0.92	85
Layer	**0.049**	0.036	0.039	0.011	**0.0035**	**0.0011**	0.0013	0.0048		0.19	0.0031	75
Swine - Gestating sow-440 lb	1.1	0.99	1.0	0.37	**0.071**	**0.020**	0.048			11	0.18	90
Swine - Lactating sow[9] 423 lb	2.5	2.3	2.4	0.84	**0.19**	**0.055**	0.12			25	0.41	90
Swine - Boar-440 lb	0.84	0.75	0.60	0.29	0.061	0.021	0.039			8.4	0.13	90

[1] Prior to any changes due to dilution water addition, drying, volatilization or other physical, chemical or biological processes.

[2] Non-bold table numbers indicate that predictive equations were not available from Sections 4 – 9 for estimating this characteristic. These numbers are average values taken from MWPS-18 Section 1, NRCS Agricultural Waste Management Field Handbook, and the previous version ASAE D384.1 or calculated based upon procedures used in footnote 3.

[3] Total Solids (TS) is estimated for most animal groups by equations in Sections 4 – 9. For beef cattle, volatile solids is also based upon equations. For all other species, volatile solids are calculated from TS and literature values of the ratio of VS to TS. Similarly, BOD and COD values are calculated using VS and the literature values of the ratio of BOD and COD to VS. Literature values are taken from MWPS-18 Section 1, NRCS Agricultural Waste Management Field Handbook, and the previous version ASAE D384.1.

[4] BOD – Biochemical oxygen demand, 5-day, COD – Chemical oxygen demand.

[5] Total manure is calculated from Total Solids and manure moisture content.

[6] As-excreted manure moisture contents range from 75 to 90 percent. At these moisture levels as-excreted manure has a density nearly equal to that of water, and a specific gravity of 1.0 was assumed in calculation of manure volume.

[7] Solids estimates (TS, VS, COD, and BOD) do not include solids in urine.

[8] These values apply to horses 18 months of age or older that are not pregnant or lactating. The representative number applies to 500 kg horses and the range represents horses from 400 to 600 kg. "Sedentary" would apply to horses not receiving any imposed exercise. Dietary inputs are based on minimum nutrient requirements specified in "Nutrient Requirements of Horses" (NRC, 1989). "Intense" represents horses used for competitive activities such as racing. Dietary inputs are based on a survey of race horse feeding practices (Gallagher et al, 1992) and typical feed compositions (forage = 50% alfalfa, 50% timothy; concentrate = 30% oats, 70% mixed performance horse concentrate).

[9] Bold values include contribution of nursing pigs.

[10] Beef cows values are representative of animals during non-lactating period and first six months of gestation.

APPENDIX E

NORMAL PRECIPITATION DATA

RUANN DAIRY

Appendix E - Normal Precipitation Analysis Summary

Source: Department of Water Resources

http://cdec.water.ca.gov/selectQuery.html

Source: CIMIS

http://wwwcimis.water.ca.gov/cimis/frontMonthlyReport.do

Average Precipitation at 3 Nearest Precipitation Recording Station *(Inches)*

	Hanford	*Fresno*	*Coalinga*
November	0.82	0.97	0.67
December	1.29	1.63	1.19
January	1.61	1.99	1.62
February	1.45	1.80	1.51
March	1.31	1.69	1.12

Average Rainfall

Enter Latitude & Longitude:

Latitude: 36°28'24.27"N Longitude: 119°54'47.81"N

Enter State Plane Coordinates:

x:	1,918,156	meters
	6,293,163	ft
y:	626,894	meters
	2,056,739	ft

(State Plane Coordinates and Station proximity detailed in CAD Exhibit, See Attachment)

Normal Precipitation Summary

(Average based on proximity to DWR collection station)

120 Day Precipitation (November - February)

November:	0.84	inches
December:	1.42	inches
January:	1.79	inches
February:	1.63	inches

Retention Period Total Precipitation

November - February: 5.68 in.

Normal Precipitation Averages

Source:Department of Water Resources

http://cdec.water.ca.gov/selectQuery.html

Source: NOAA Geodetic to SPC

http://www.ngs.noaa.gov/cgi-bin/datasheet.prl

DWR-Hanford (HND)
1964-2017

Latitude: 36.3330°N 36-19'-58.8"
Longitude: 119.6670°W 119-40'-1.2"
Zone: 4
Date / Time: RAIN INCHES

State Plane Coordinates:
x: 1,940,117.918 meters
6,365,216.266 ft
y: 611,132.228 meters
2,005,026.995 ft

Hanford (HND)

November:	0.8188	in.
December:	1.2856	in.
January:	1.6069	in.
February:	1.4531	in.
March:	1.3132	in.
April:	0.7052	in.

November - February Total: 5.1645 in.

Date / Time	RAIN INCHES
Oct-64	0.93
Nov-64	1.43
Dec-64	1.43
Jan-65	0.87
Feb-65	0.26
Mar-65	0.53
Apr-65	1.16
May-65	0
Jun-65	0
Jul-65	0
Aug-65	0
Sep-65	0.07
Oct-65	0
Nov-65	1.77
Dec-65	1.86
Jan-66	0.59
Feb-66	0.63
Mar-66	0.08
Apr-66	0
May-66	0.08
Jun-66	0.04
Jul-66	0.04
Aug-66	0
Sep-66	0.3
Oct-66	0
Nov-66	1.1
Dec-66	2.77
Jan-67	1.14
Feb-67	0.06
Mar-67	2.21
Apr-67	2.63
May-67	0.1
Jun-67	0.29
Jul-67	0
Aug-67	0
Sep-67	0.13
Oct-67	0
Nov-67	1.93
Dec-67	0.48
Jan-68	0.62
Feb-68	0.63
Mar-68	1.11
Apr-68	0.5
May-68	0.08
Jun-68	0
Jul-68	0
Aug-68	0
Sep-68	0
Oct-68	1.5
Nov-68	1.1
Dec-68	1.5
Jan-69	7.46
Feb-69	4.94
Mar-69	0.7
Apr-69	1.07
May-69	0.27
Jun-69	0.22
Jul-69	0.1
Aug-69	0
Sep-69	0.15
Oct-69	0.03
Nov-69	0.49
Dec-69	0.81
Jan-70	1.81
Feb-70	1.56
Mar-70	1.3
Apr-70	0.2
May-70	0
Jun-70	0
Jul-70	0
Aug-70	0
Sep-70	0
Oct-70	0.01
Nov-70	2.56
Dec-70	1.41
Jan-71	0.49
Feb-71	0.2
Mar-71	0.29

DWR-Fresno (FRO)
1905 - 2017

Latitude: 36.7670°N 36° 46' 1.2"
Longitude: 119.7170°W 119° 43' 1.1994"
Zone: 4
Date / Time: RAIN INCHES

State Plane Coordinates:
x: 1,935,988.641 meters
6,351,668.770 ft
y: 659,321.179 meters
2,163,127.228 ft

Fresno (FRO)

November:	0.9679	in.
December:	1.6303	in.
January:	1.9864	in.
February:	1.7986	in.
March:	1.6906	in.
April:	0.9409	in.

November - February Total: 6.3832 in.

Date / Time	RAIN INCHES
Jan-05	0.93
Feb-05	0.9
Mar-05	2.04
Apr-05	0.45
May-05	1.56
Jun-05	0
Jul-05	0
Aug-05	0
Sep-05	0
Oct-05	0
Nov-05	0.96
Dec-05	0.41
Jan-06	2.05
Feb-06	2.2
Mar-06	4.12
Apr-06	0.92
May-06	2.88
Jun-06	0
Jul-06	0
Aug-06	0
Sep-06	0
Oct-06	0
Nov-06	0.73
Dec-06	3.16
Jan-07	3.34
Feb-07	0.94
Mar-07	1.74
Apr-07	0.69
May-07	0
Jun-07	0.24
Jul-07	0
Aug-07	0
Sep-07	0
Oct-07	1.08
Nov-07	0
Dec-07	0.97
Jan-08	1.78
Feb-08	1.75
Mar-08	0.71
Apr-08	0.8
May-08	0.63
Jun-08	0
Jul-08	0.01
Aug-08	0
Sep-08	0.15
Oct-08	0.02
Nov-08	0.66
Dec-08	0.57
Jan-09	4.44
Feb-09	2.76
Mar-09	1.18
Apr-09	0
May-09	0
Jun-09	0.08
Jul-09	0
Aug-09	0
Sep-09	0
Oct-09	0.72
Nov-09	2.79
Dec-09	4.5
Jan-10	1.22
Feb-10	0.21
Mar-10	1.28
Apr-10	0.27
May-10	0
Jun-10	0
Jul-10	0
Aug-10	0
Sep-10	1
Oct-10	0.45
Nov-10	0.24
Dec-10	0.21
Jan-11	4.23
Feb-11	1.14
Mar-11	3.3
Apr-11	1.03
May-11	0.22
Jun-11	0
Jul-11	0
Aug-11	0
Sep-11	0.01
Oct-11	0.09
Nov-11	0.17
Dec-11	1.06
Jan-12	0.72
Feb-12	0
Mar-12	3.02

DWR-Coalinga (CLN)
1940 - 2017

Latitude: 36.1360°N 36-8'-9.6"
Longitude: 120.3610°W 120-21'-39.6"
Zone: 404
Date / Time: RAIN INCHES

State Plane Coordinates:
x: 1,877,505.172 meters
6,159,793.871 ft
y: 569,933.250 meters
1,935,476.542 ft

Coalinga (CLN)

November:	0.6743	in.
December:	1.1697	in.
January:	1.6163	in.
February:	1.5079	in.
March:	1.1151	in.
April:	0.5448	in.

November - February Total: 4.9882 in.

Date / Time	RAIN INCHES
Oct-40	0
Nov-40	0
Dec-40	3.89
Jan-41	1.79
Feb-41	4.96
Mar-41	2.83
Apr-41	1.06
May-41	0
Jun-41	0
Jul-41	0
Aug-41	0
Sep-41	0
Oct-41	0.56
Nov-41	0.5
Dec-41	2.51
Jan-42	1.39
Feb-42	0.41
Mar-42	0.85
Apr-42	1.28
May-42	0.13
Jun-42	0
Jul-42	0
Aug-42	0
Sep-42	0
Oct-42	0.31
Nov-42	0.2
Dec-42	0.53
Jan-43	2.63
Feb-43	0.72
Mar-43	2.14
Apr-43	0.45
May-43	0
Jun-43	0
Jul-43	0
Aug-43	0
Sep-43	0
Oct-43	0.31
Nov-43	0.15
Dec-43	1.68
Jan-44	0.39
Feb-44	3.13
Mar-44	0.15
Apr-44	0.25
May-44	0.36
Jun-44	0.43
Jul-44	0
Aug-44	0
Sep-44	0
Oct-44	0.18
Nov-44	0.29
Dec-44	0.31
Jan-45	0.48
Feb-45	1.7
Mar-45	1.16
Apr-45	0.09
May-45	0.85
Jun-45	0.01
Jul-45	0
Aug-45	0.07
Sep-45	0
Oct-45	0.72
Nov-45	0.4
Dec-45	1.42
Jan-46	0.27
Feb-46	0.96
Mar-46	1.39
Apr-46	0.01
May-46	0.17
Jun-46	0
Jul-46	0.03
Aug-46	0
Sep-46	0
Oct-46	0.27
Nov-46	1.33
Dec-46	1.3
Jan-47	0.24
Feb-47	0.41
Mar-47	0.52

NOVEMBER

Calculations of a point on a Plane

Equation for a Plane

Ax+By+Cz+D=0

Point 1	Hanford(Sta.)
x1	6365216.266
y1	2005026.995
z1(Rain)	0.8188

Point 2	Fresno(Sta.)
x2	6351668.77
y2	2163127.228
z2(Rain)	0.967946429

Point 3	Coalinga(Sta.)
x3	6159793.871
y3	1935476.542
z3(Rain)	0.674266667

	1	2005027	0.8188		
A=	1	2163127.2	0.9679464	A=	-12477.55
	1	1935476.5	0.6742667		

	6365216.266	1	0.8188		
B=	6351668.77	1	0.9679464	B=	-32596.08
	6159793.871	1	0.6742667		

	6365216.266	2005027	1		
C=	6351668.77	2163127.2	1	C=	3.342E+10
	6159793.871	1935476.5	1		

	6365216.266	2005027	0.8188		
-D=	6351668.77	2163127.2	0.9679464	D=	1.174E+11
	6159793.871	1935476.5	0.6742667		

X=	6293162.73	
Y=	2056738.845	
Z=	0.84	Value of rainfall data on site

DECEMBER

Calculations of a point on a Plane

Equation for a Plane

Ax+By+Cz+D=0

Point 1	Hanford(Sta.)
x1	6365216.266
y1	2005026.995
z1(Rain)	1.2856

Point 2	Fresno(Sta.)
x2	6351668.77
y2	2163127.228
z2(Rain)	1.630267857

Point 3	Coalinga(Sta.)
x3	6159793.871
y3	1935476.542
z3(Rain)	1.189736842

		1	2005026.99	1.2856	
A=		1	2163127.23	1.6302679	A= 8815.817921
		1	1935476.54	1.1897368	
	6365216.266		1	1.2856	
B=	6351668.77		1	1.6302679	B= -72101.20252
	6159793.871		1	1.1897368	
	6365216.266	2005026.99		1	
C=	6351668.77	2163127.23		1	C= 33419563033
	6159793.871	1935476.54		1	
	6365216.266	2005026.99		1.2856	
-D=	6351668.77	2163127.23		1.6302679	D= 45486079528
	6159793.871	1935476.54		1.1897368	

X= 6293162.73

Y= 2056738.845

Z= 1.42 Value of rainfall data on site

JANUARY

Calculations of a point on a Plane

Equation for a Plane

Ax+By+Cz+D=0

Point 1	Hanford(Sta.)
x1	6365216.266
y1	2005026.995
z1(Rain)	1.606938776

Point 2	Fresno(Sta.)
x2	6351668.77
y2	2163127.228
z2(Rain)	1.986396396

Point 3	Coalinga(Sta.)
x3	6159793.871
y3	1935476.542
z3(Rain)	1.616266667

A=

1	2005027	1.6069388
1	2163127.2	1.9863964
1	1935476.5	1.6162667

A= 27866.191

B=

6365216.266	1	1.6069388
6351668.77	1	1.9863964
6159793.871	1	1.6162667

B= -77822.72

C=

6365216.266	2005027	1
6351668.77	2163127.2	1
6159793.871	1935476.5	1

C= 3.342E+10

-D=

6365216.266	2005027	1.6069388
6351668.77	2163127.2	1.9863964
6159793.871	1935476.5	1.6162667

D= -7.5E+10

X= 6293162.73

Y= 2056738.845

Z= 1.79 Value of rainfall data on site

FEBRUARY

Calculations of a point on a Plane

Equation for a Plane

Ax+By+Cz+D=0

Point 1	Hanford(Sta.)
x1	6365216.266
y1	2005026.995
z1(Rain)	1.453125

Point 2	Fresno(Sta.)
x2	6351668.77
y2	2163127.228
z2(Rain)	1.798558559

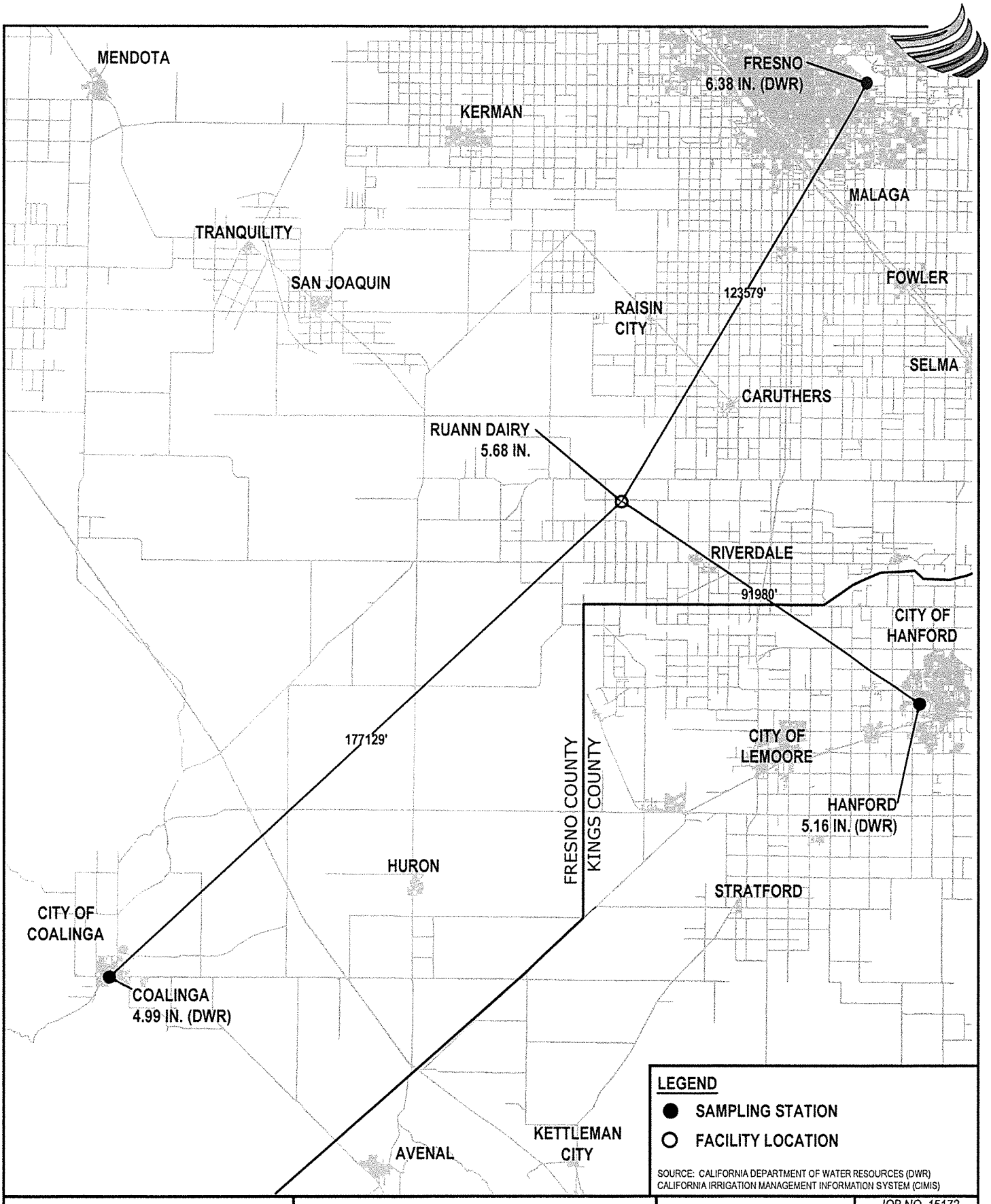
Point 3	Coalinga(Sta.)
x3	6159793.871
y3	1935476.542
z3(Rain)	1.507894737

		1	2005026.99	1.453125	
A=		1	2163127.23	1.7985586	A= 32684.16855
		1	1935476.54	1.5078947	
	6365216.266		1	1.453125	
B=	6351668.77		1	1.7985586	B= -70217.79609
	6159793.871		1	1.5078947	
	6365216.266	2005026.99		1	
C=	6351668.77	2163127.23		1	C= 33419563033
	6159793.871	1935476.54		1	
	6365216.266	2005026.99		1.453125	
-D=	6351668.77	2163127.23		1.7985586	D= -1.15816E+11
	6159793.871	1935476.54		1.5078947	

X= 6293162.73

Y= 2056738.845

Z= 1.63 Value of rainfall data on site



4CREEKS
324 S. SANTA FE, STE. A
VISALIA, CA 93292
(559) 802-3052

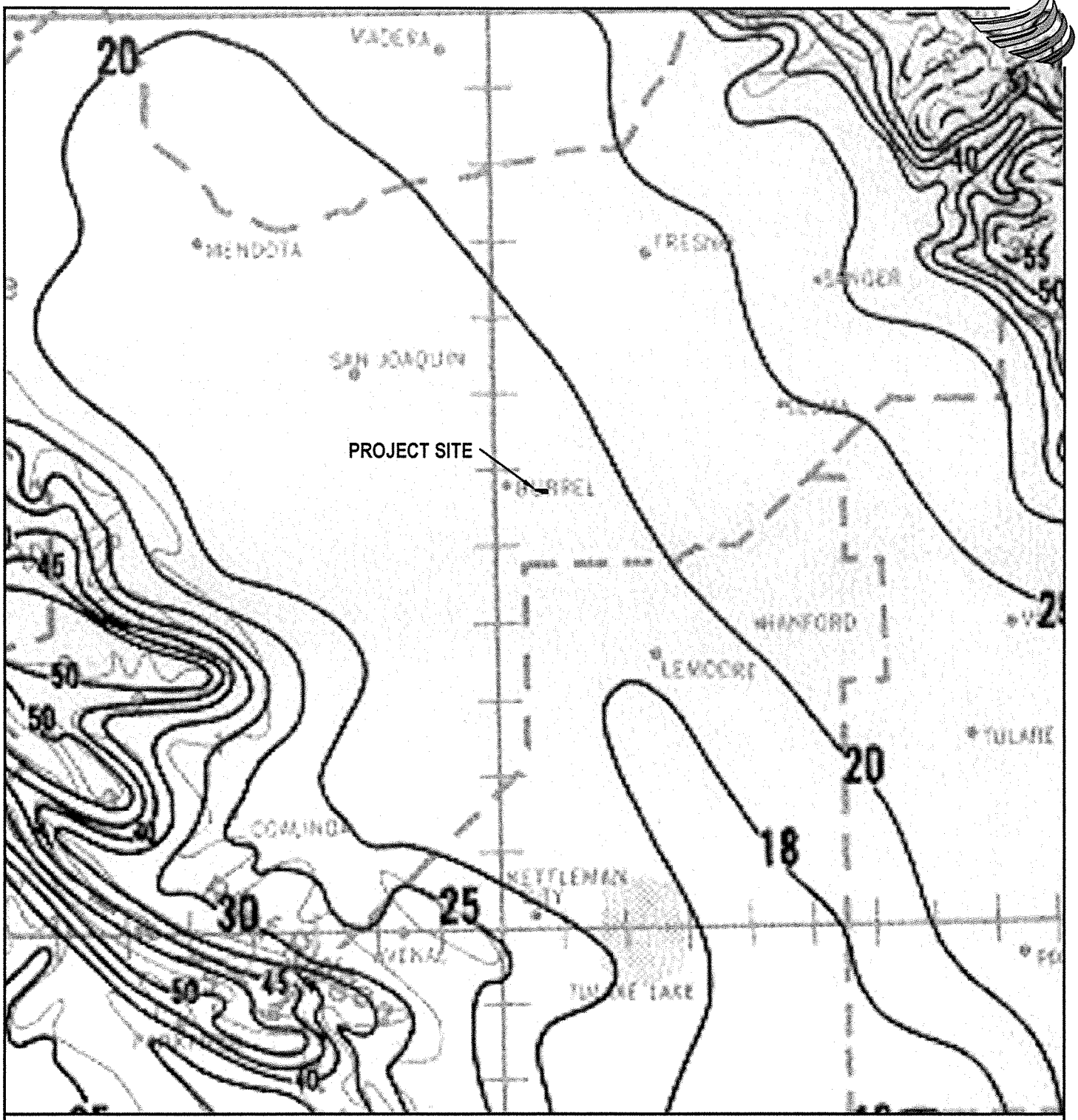
STATION COLLECTION LOCATIONS
RUANN DAIRY
FRESNO COUNTY, CA

NORTH

JOB NO. 15172
APPENDIX E
6/3/2016
1" = 6 MILES

APPENDIX F

25 YEAR, 24 HOUR STORM WATER DATA



NOAA ATLAS 2, VOLUME XI

PREPARED BY U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE, OFFICE OF HYDROLOGY

ISOPLUVIALS OF 25-YR 24-HR PRECIPITATION FOR
SOUTHERN HALF OF CALIFORNIA TENTHS OF AN INCH

PREPARED FOR U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE, ENGINEERING DIVISION

4CREEKS
324 S. SANTA FE, STE. A
VISALIA, CA 93292
(559) 802-3052

ISOPLUVIAL - 25 YEAR, 24 HOUR

RUANN DAIRY
FRESNO COUNTY, CA

NORTH

JOB NO. 15172
APPENDIX F
5/27/2016
1": ~10 MILES

APPENDIX G

EVAPORATION DATA

AVERAGE MONTHLY EVAPORATION FROM CLASS
'A' PAN IN IRRIGATED PASTURE ENVIRONMENTS NEAR
BAKERSFIELD, CALIFORNIA FROM 1958-2010 /1

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MAR - OCT TOTAL	JAN - DEC TOTAL
	****EVAPORATION IN INCHES****													
AVERAGE	1.44	2.25	4.13	5.95	8.35	9.58	9.94	8.85	6.62	4.47	2.24	1.35	57.89	65.17
STD DEV	0.34	0.45	0.71	0.86	0.82	0.79	0.82	0.71	0.64	0.43	0.36	0.36	0.72	0.61
STD ERROR	0.05	0.06	0.10	0.12	0.11	0.11	0.11	0.10	0.09	0.06	0.05	0.05	0.10	0.08

AVERAGE MONTHLY EVAPORATION FROM CLASS
'A' PAN IN IRRIGATED PASTURE ENVIRONMENTS AT
CALIFORNIA STATE UNIVERSTIY AT FRESNO
FROM 1968-2010 /1

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MAR - OCT TOTAL	JAN - DEC TOTAL
	****EVAPORATION IN INCHES****													
AVERAGE	1.26	2.08	3.94	6.03	8.75	10.43	11.02	9.67	6.99	4.42	2.25	1.21	61.26	68.07
STD DEV	0.28	0.41	0.77	0.86	1.03	0.92	0.73	0.68	0.57	0.49	0.40	0.30	0.76	0.62
STD ERROR	0.04	0.06	0.12	0.13	0.16	0.14	0.11	0.11	0.09	0.07	0.06	0.05	0.12	0.10

1/ Evaporation measurements are taken from evaporation pans located at standardized sites (irrigated pastures) with static water levels maintained in the pans by supply tanks. The sites are visited at least weekly to measure evaporation from a U.S. Weather Bureau Class 'A' Pan. Other agrometeorological equipment, (i.e.raingauge, anemometer, ambient air thermometers) is installed at onsite DWR agroclimatic stations, and this data is collected weekly along with pan evaporation. The evaporation may be adjusted during times of high wind or dry periods, which represent non-standard conditions.

APPENDIX H

STORM DRAIN RUN-OFF COEFFICIENT DATA

15.2.2 Rational Method Design

From an engineering viewpoint the design can be divided into two main aspects: runoff predictions and pipe sizing. The rational method, which can be traced back to the mid-nineteenth century, is still probably the most popular method used for the design of storm sewers (Yen and Akan, 1999). Although criticisms have been raised of its adequacy, and several other more advanced methods have been proposed, the rational method, because of its simplicity, is still in continued use for sewer design when high accuracy of runoff rate is not essential.

Using the rational method, the storm runoff peak is estimated by the rational formula $Q=KCiA$ (15.2.1) where the peak runoff rate Q is in ft^3/s (m^3/s), K is 1.0 in U.S. customary units (0.28 for SI units), C is the runoff coefficient (Table 15.2.3), I is the average rainfall intensity in in/hr (mm/hr) from intensity-duration frequency relationships for a specific return period and duration t_c in min, and A is the area of the tributary drainage area in acres (km^2). The duration is taken as the time of the concentration t_c of the drainage area.

Runoff Coefficients for Use in the Rational Method

	Return Period (years)						
Character of Surface	2	5	10	25	50	100	500
Developed							
Asphaltic	0.73	0.77	0.81	0.86	0.90	0.95	1.00
Concrete/roof	0.75	0.80	0.83	0.88	0.92	0.97	1.00
Grass Areas (lawns, parks,etc.)							
Poor condition (grass cover less than 50% of the area)							
Flat, 0-2%	0.32	0.34	0.37	0.40	0.44	0.47	0.58
Average, 2-7%	0.37	0.40	0.43	0.46	0.49	0.53	0.61
Steep, over 7%	0.40	0.43	0.45	0.49	0.52	0.55	0.62
Fair condition (grass cover 50% to 75% of the area)							
Flat, 0-2%	0.25	0.28	0.30	0.34	0.37	0.41	0.53
Average, 2-7%	0.33	0.36	0.38	0.42	0.45	0.49	0.58
Steep, over 7%	0.37	0.40	0.42	0.46	0.49	0.53	0.60
Good condition (grass cover larger than 75% of the area)							
Flat, 0-2%	0.20	0.23	0.25	0.29	0.32	0.36	0.49
Average, 2-7%	0.29	0.32	0.35	0.39	0.42	0.46	0.56
Steep, over 7%	0.34	0.37	0.40	0.44	0.47	0.51	0.58
Undeveloped							
Cultivated land							
Flat, 0-2%	0.31	0.34	0.36	0.40	0.43	0.47	0.57
Average, 2-7%	0.35	0.38	0.41	0.44	0.48	0.51	0.60
Steep, over 7%	0.39	0.42	0.44	0.48	0.51	0.54	0.61
Pasture/range							
Flat, 0-2%	0.25	0.28	0.30	0.34	0.37	0.41	0.53
Average, 2-7%	0.33	0.36	0.38	0.42	0.45	0.49	0.58
Steep, over 7%	0.37	0.40	0.42	0.46	0.49	0.53	0.60
Forest/woodlands							
Flat, 0-2%	0.20	0.25	0.25	0.31	0.35	0.39	0.48
Average, 2-7%	0.31	0.34	0.26	0.40	0.43	0.47	0.56
Steep, over 7%	0.35	0.39	0.41	0.45	0.48	0.52	0.58

Note: The values in the table are the standards used by the City of Austin, Texas.

Source: Chow, Maidment, and Mays (1988).

APPENDIX G

RuAnn Dairy

Nutrient Management Plan - Nutrient Budget

A. Dairy Facility Information

Crop Year: 2016

Dairy Name:	RuAnn Dairy			
Physical Address:	7285 W. Davis Ave			
	Riverdale	CA	93656	
County:	Fresno			
Latitude:	36.53145	Longitude:	-119.973892	
Calculations Based On:	MAX	Herd Population		

B. The following items are included in this report.

1. General Inputs for NMP
2. Manure Production Estimates
3. Crop Weather Data
4. Crop Water Needs
5. Planned Nutrient Application & Removal Record per Field
6. Summary of Nitrogen Ratios per Field
7. Nutrient Management Plan Summary for Farm
8. Nutrient Management Plan Certification

C. Brief Application Description

The RuAnn Dairy utilizes about 335 acres for dairy waste water application and 1155 acres for waste solid application. The crops grown are wheat silage, corn silage, alfalfa, almonds and grapes. Wastewater is applied using flood irrigation. Dry manure is applied using a truck spreader. Some manure is used for bedding. Some dry manure as well as separator manure is exported offsite.

Site specific data was provided by the owner/operator of the above mentioned dairy or a representative of the dairy. This plan is true and accurate based on the information provided at the time of completion. When any changes to the animal population or farm management practices are made, both the Waste Management Plan (WMP) - Storage Calculations and the Nutrient Management Plan (NMP) - Nutrient Budget should be reviewed. Analyses are predicated on best management practices being implemented at the facility. The Storage Calculations and Nutrient Budget are only one part of the whole WMP and NMP, respectively.

RuAnn Dairy

1. General Inputs for WMP & NMP

Input data needed for manure, nutrient & runoff calculations.

Runoff Information

Area Type	Runoff Area (ft^2)	Runoff Curve Number (CN)	S	Storm Runoff Volume (ft3)	Storm Runoff Volume (gal)
Concrete	175,227.50	99.12	0.09	26,976.54	201,784.53
Hard Roof	202,187.10	99.12	0.09	31,127.01	232,830.06
Corral	1,879,700.00	83.01	2.05	103,677.66	775,508.86
Unpaved	681,250.00	76.80	3.02	23,542.13	176,095.10
Paved	0.00	91.82	0.89	0.00	0.00
Total	2,938,364.60			185,323.34	1,386,218.56

Hydrologic Soil Group (HSG) - Antecedent Condition III used for storm runoff estimate.

		Weighted CN	S	P > 0.2*S
24 Hr - 25 Yr Storm Depth (in)	1.95			
Hydrologic Soil Group	A	83.6419	1.9557	True

Herd Information

Herd	Current	Weight (lbs)	Concrete (hrs/day)	Max Capacity
Milking Cows	1,600	1,400.00	18	1,800
Dry Cow	400	1,450.00	0	450
Heifers 15-24 months	833	1,000.00	0	937
Calves: 7-14 months	667	800.00	0	750
Calves: 4-6 months	250	0.00	0	281
Calves: 0 to 3 months	250	0.00	0	281

Max (MC+DC) 2,250.00

Herd increase (%) 12.50 Assumes ratio of MC to DC will stay the same.

Milk Production (lbs milk/cow/day) 70

Does the dairy have freestalls? Yes

Is bedding added to the freestalls? Yes

		How much is used weekly?	Daily Bedding Input (tons/day)	Daily Bedding into Waste System* (kg/day)	Bedding from Manure (tons/day)	Bedding from Manure Used (kg/day)
What type of bedding is used?	Manure	2 tons	0.29	103.68	0.29	259.20
What type of bedding is used?						
What type of bedding is used?						

*Assumes a volume reduction factor of 0.4.

Pond Dimensions & Waste Exports

Pond Dimensions	Pond A Irrigation Pond 3	Pond B Overflow Pond 1	Pond C Irrigation Pond 2	Pond D	Pond E
top width	280.00	600.00	660.00		
top length	220.00	110.00	220.00		
depth	20.00	11.50	20.00		
side slope	3.00	0.50	3.00		
freeboard	1.00	1.00	1.00		
dead storage	1.00	1.00	1.00		

Pond Dimensions	Pond F	Pond G	Pond H	Pond I	Pond J
top width					
top length					
depth					
side slope					
freeboard					
dead storage					

Wastewater & Dry Manure Exports*

Month	Wastewater ac-feet	Corral Manure tons	Separator Manure tons
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November		1000	
December			
Year Tot.	0.00	1000	0

*Based on export records.

Lab Analysis Summary

Sum of All Field Acres 1957

Values based on an average of laboratory analysis.

DRY

Crops	average yield (ton/ac)	TN (lbs/ac)	P (lbs/ac)	K (lbs/ec)	Plant Date	Harvest Date
Wine Grapes	13.00	104.00	19.50	85.80	1-Jan	15-Sep
Almonds	1.25	162.50	27.50	176.25	1-Jan	30-Aug
Alfalfa	8.00	480.00	43.20	336.00	1-Jan	15-Dec
Wheat Silage	15.00	165.00	25.50	124.50	20-Nov	15-Apr
Corn Silage	25.00	200.00	37.50	165.00	5-May	4-Aug

*Must have unique crop names

Wastewater	TN (ppm)	P (ppm)	K (ppm)	EC (µS/cm)	TN (lbs/1000 gallons)	P (lbs/1000 gallons)	K (lbs/1000 gallons)	TDS (lbs/1000 gallons)
1st Quarter	372.00	19.70	140.00	1,970.00	3.11	0.16	1.17	10.52
2nd Quarter	712.00	19.70	57.00	1,330.00	5.94	0.16	0.48	7.11
3rd Quarter	471.00	12.80	88.00	1,740.00	3.93	0.11	0.73	9.30
4th Quarter	86.00	12.60	75.00	1,750.00	0.72	0.11	0.63	9.35
average	410.25	16.20	90.00	1,697.50	3.42	0.14	0.75	9.07

Corral Manure	As Received TN %	P %	K %	% Moisture	TN (lbs/ton)	P (lbs/ton)	K (lbs/ton)
Spring	0.79	0.41	2.71	53.40	15.72	8.23	54.18
Fall	1.84	0.72	3.07	20.80	36.88	14.48	61.48
average	1.32	0.57	2.89	37.10	26.30	11.36	57.83

Separator Manure	As Received TN %	P %	K %	% Moisture	TN (lbs/ton)	P (lbs/ton)	K (lbs/ton)
Spring	0.37	0.06	0.11	77.30	7.34	1.25	2.26
Fall	0.39	0.63	2.80	77.80	7.80	12.65	56.00
average	0.38	0.35	1.46	77.55	7.57	6.95	29.13

Separator Information

Does facility have any solids separator devices?	How many?	Type 1	Type 2	Type 3	Type 4	Type 5
yes	2	Static Inclined Screen	Static Inclined Screen			
Efficiency		0.15	0.15			

From NRCS-CA Standard 632

Solid/Liquid Separators	Total Solids Capture Efficiency	Average Efficiency (%)*
Centrifuge	20-45%	32.5
Dry Scrape	50-90%	70.0
Geotextile Container	50-98%	74.0
Inclined Screen with Drag	10-30%	20.0
Rotating Screen	20-40%	30.0
Screw or Roller Press	30-50%	40.0
Settling Basin	40-65%	52.5
Static Inclined Screen	10-20%	15.0
Vibratory Screen	15-30%	22.5
Weeping Wall	50-85%	67.5

*Average separator efficiency is used, unless farm practices warrant a different value.

Irrigation Pump Information

Pumping capacity for wells, surface water and wastewater sources. Average of fresh water analysis collected to date shown.

Wells, Lifts, Ponds	Nitrogen (lbs/1000 gallons)	EC (umhos/cm)	Pump Type
33S	0.08	380.00	Groundwater
33N	0.12	380.00	Groundwater
27	0.03	340.00	Groundwater
9	0.07	440.00	Groundwater
Canal	0.00	0.00	Surface Water
Pond	6.68	2345.00	Wastewater
0			0

Field Information

Waste Application Fields - Refer to the Planned Application pages for more information.

Field ID	Acres	APN
1 and 2	120	053-005-052
3 and 4	140	053-005-052
5	80	053-018-001
6	100	053-018-001
8	40	053-018-007
9	20	053-018-007
10	60	053-018-007
11	90	053-005-052
15	40	053-061-010
16	40	053-061-010
17	80	053-061-010
18	40	053-061-010
20	40	053-061-010
22	70	053-017-047
24	35	053-017-048
25	35	053-017-047
26	40	053-017-034
27	30	053-017-034
28	40	053-017-034
29	40	053-017-034
30	80	053-017-034
31	80	053-017-034
32	80	053-061-009
33	80	053-061-009
A-1N	40	053-018-009
A-1S	40	053-018-009
A-2	32	053-017-034
A-3	80	053-061-003
A-4	55	053-061-003
A-5	55	053-017-034
A-6	15	053-017-034
36 West	75	053-070-045
36 East	65	053-070-045

Note: Depending on cropping plan, Field B2 and B3 may be planted as a whole field or east and west portions. All variations of each field are listed.

RuAnn Dairy

2. Manure Production Estimates

Manure production based on ASABE Standard D384.2 MAR2005 (Tables 5a, 5b, and 5c). Nutrient losses based on the Agricultural Waste Management Field Handbook.

	lbs/day	kg/day
Milk Production (lbs milk/cow/day)	70	31.75

Herd	Current Herd Size	Weight (kg)	Maximum Herd Size	Total Manure Prod. kg/day		Total Manure Prod. kg/year
Milking Cows	1600	635.03	1,800	86,400.00	Table 5a	31,536,000.00
Dry Cow	400	657.71	450	12,150.00	Table 5a	4,434,750.00
Heifers 15-24 months	833	453.59	937	13,475.86	Table 5a	4,918,687.99
Calves: 7-14 months	667	362.87	750	8,584.29	Table 5a & 5b (average btn heifer-440kg & calf-150kg)	3,133,265.85
Calves: 4-6 months	250		281	1,552.50	Table 5b - calf-150 kg	566,662.50
Calves: 0 to 3 months	250		281	836.72	Assume manure production is 35% of Calf (4-6 month); based on difference of weight in Table 5c.	305,402.34
				122,999.37		44,894,768.68

Herd	Total solids Prod kg/day		Total solids Prod kg/year
Milking Cows	16,020.00	Table 5a	5,847,300.00
Dry Cow	2,205.00	Table 5a	804,825.00
Heifers 15-24 months	3,467.36	Table 5a	1,265,587.31
Calves: 7-14 months	1,913.46	Table 5a & 5b (average btn heifer-440kg & calf-150kg)	698,411.53
Calves: 4-6 months	393.75	Table 5b - calf-150 kg	143,718.75
Calves: 0 to 3 months	137.81	Assume manure prod. is 35% of Calf (4-6 month); based on difference of weight in Table 5c.	50,301.56
Bedding	103.68	Bedding material entering the waste system.	37,843.20
	24,241.06		8,847,987.36

Herd	Nitrogen Prod kg/day		Nitrogen* Prod kg/year
Milking Cows	810.0	Table 5a	206,955.0
Dry Cow	103.5	Table 5a	26,444.3
Heifers 15-24 months	112.5	Table 5a	28,732.3
Calves: 7-14 months	68.7	Table 5a & 5b (average btn heifer-440kg & calf-150kg)	17,542.5
Calves: 4-6 months	17.7	Table 5b - calf-150 kg	4,527.1
Calves: 0 to 3 months	2.2	Assume manure prod. is 35% of Calf (4-6 month); based on difference of weight in Table 5c.	567.7
	1,114.55494		284,768.8

* Includes a 30% reduction in N due to handling losses based on the AWMFH - Ch 11, Table 11.5.

Herd	Phosphorus Prod kg/day		Phosphorus Prod kg/year
Milking Cows	140.40	Table 5a	51,246.00
Dry Cow	22.05	Table 5a & 5b (average btn heifer-440kg & milk cow)	8,048.25
Heifers 15-24 months	18.74	Table 5a	6,841.01
Calves: 7-14 months	10.36	Table 5a & 5b (average btn heifer-440kg & calf-150kg)	3,779.80
Calves: 4-6 months	1.97	Assume manure production is 35% of heifer; based on difference of weight from Table 5c.	718.59
Calves: 0 to 3 months	1.97	Assume manure prod. is 13% of heifers; based on diff. of weight from Table 5c.	718.59
	195.49		71,352.25

Herd	Potassium Prod kg/day		Potassium Prod kg/year
Milking Cows	180.00	Table 5a	65,700.00
Dry Cow	22.95	Assume manure prod. is 51% of lactating cows based on diff. of N excreted from Table 5a.	8,376.75
Heifers 15-24 months	23.43	Assume manure prod. is 25% of lactating cows based on diff. of N excreted from Table 5a.	8,551.27
Calves: 7-14 months	14.63	Assume manure prod. is 19.5% of lactating cows based average N excreted btn heifer & calf.	5,340.79
Calves: 4-6 months	3.94	Assume manure prod. is 14% of lactating cows based on diff of N excreted from Table 5a.	1,437.19
Calves: 0 to 3 months	0.56	Assume manure prod. is 2% of lactating cows based on diff of N excreted from Table 5a.	205.31
	245.51		89,611.31

Waste Stream Partitioning

Herd	Hours on Concrete (hrs/day)	% Manure sent to ponds %	Sent to Ponds: Total Manure* kg/day	Total Solids* kg/day	Nitrogen kg/day	Phosphorus kg/day	Potassium kg/day
Milking Cows	18	75.00	61,465.84	8,680.84	425.25	105.30	135.00
Dry Cow	0	0.00	0.00	0.00	0.00	0.00	0.00
Heifers 15-24 months	0	0.00	0.00	0.00	0.00	0.00	0.00
Calves: 7-14 months	0	0.00	0.00	0.00	0.00	0.00	0.00
Calves: 4-6 months	0	0.00	0.00	0.00	0.00	0.00	0.00
Calves: 0 to 3 months	0	0.00	0.00	0.00	0.00	0.00	0.00
Outside Source**	18	75.00		56.18			
			61,465.84	8,737.02	425.25	105.30	135.00

*Adjustment made for solid separation, assumes negligible nutrient removal with solids.

**For Total Solid Estimation: The addition of bedding is typically associated with the milking cows, so the hours of concrete and % manure sent to pond are the same. Since it has been assumed negligible nutrients are removed with the solids, it is also assumed the addition of solids adds negligible nutrients to the system.

Estimated Wastewater Production - Sent to Ponds Monthly, after any solid separation

	Total Manure Prod		Total solids	Nitrogen*	Phosphorus*	Potassium*	
	Sent to Pond	Sent to Pond	Sent to Pond	Sent to Pond	Sent to Pond	Sent to Pond	
Month	kg/month	ac-ft	kg/month	kg/month	kg/month	kg/month	Month
Jan	1,905,440.96	1.55	270,847.59	13,182.75	3,264.30	4,185.00	Jan
Feb	1,721,043.45	1.40	244,636.53	11,907.00	2,948.40	3,780.00	Feb
Mar	1,905,440.96	1.55	270,847.59	13,182.75	3,264.30	4,185.00	Mar
Apr	1,843,975.13	1.50	262,110.57	12,757.50	3,159.00	4,050.00	Apr
May	1,905,440.96	1.55	270,847.59	13,182.75	3,264.30	4,185.00	May
Jun	1,843,975.13	1.50	262,110.57	12,757.50	3,159.00	4,050.00	Jun
Jul	1,905,440.96	1.55	270,847.59	13,182.75	3,264.30	4,185.00	Jul
Aug	1,905,440.96	1.55	270,847.59	13,182.75	3,264.30	4,185.00	Aug
Sep	1,843,975.13	1.50	262,110.57	12,757.50	3,159.00	4,050.00	Sep
Oct	1,905,440.96	1.55	270,847.59	13,182.75	3,264.30	4,185.00	Oct
Nov	1,843,975.13	1.50	262,110.57	12,757.50	3,159.00	4,050.00	Nov
Dec	1,905,440.96	1.55	270,847.59	13,182.75	3,264.30	4,185.00	Dec
Annual Total	22,435,030.69	18.19	3,189,011.97	155,216.25	38,434.50	49,275.00	Annual Total

*Nutrient amounts into pond is based on the theoretical nutrient productions from the ASABE documentation.

Estimated Solids Production

	Total Solids	Total Solids	Solids Reused	Total Solids**	Total Solids	Total Solids
	Produced (kg/day)	Sent to Pond (kg/day)	for Bedding (kg/day)	Collected (kg/day)	Collected (kg/yr)	Collected (tons/yr)
Total	24,241.06	8,737.02	259.20	15,244.84	5,564,367.38	6,133.56
			Corral Solids	11,889.10	4,339,521.96	4,783.42
			Separator Solids	3,355.74	1,224,845.43	1,350.14

	TN in Solids	P in Solids	K in Solids	TN in Solids	P in Solids	K in Solids	
Herd	kg/day	kg/day	kg/day	tons/yr	tons/yr	tons/yr	
Milking Cows	141.75	35.10	45.00	57.03	14.12	18.11	
Dry Cow	72.45	22.05	22.95	29.15	8.87	9.23	
Heifers 15-24 months	78.72	18.74	23.43	31.67	7.54	9.43	
Calves: 7-14 months	48.06	10.36	14.63	19.34	4.17	5.89	
Calves: 4-6 months	12.40	1.97	3.94	4.99	0.79	1.58	
Calves: 0 to 3 months	1.56	1.97	0.56	0.63	0.79	0.23	
Total	354.94	90.19	110.51	142.80	36.29	44.46	Annual Total

*Nutrient amounts in collected solids (i.e. Dry Manure) is based on the theoretical nutrient productions from the ASABE documentation.

**Total solids collected is broken down into corral manure and separator manure so the nutrients can be attributed to its source for application purposes.

3. Crop Weather Data

CIMIS Station: 999 Multiple (15, 39, 86) RuAnn Dairy

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ETo (in)	1.14	1.98	3.68	5.35	7.30	8.15	8.39	7.51	5.57	3.68	1.85	1.07	55.67
Precip (in)	1.95	1.88	1.76	0.88	0.38	0.16	0.06	0.07	0.09	0.55	0.84	1.68	10.30

CROP: Grapes

Plant Date:	1-Mar
End Date:	21-Sep
Days:	204

Kc_{ini}	0.30
Kc_{mid}	0.85
Kc_{end}	0.45

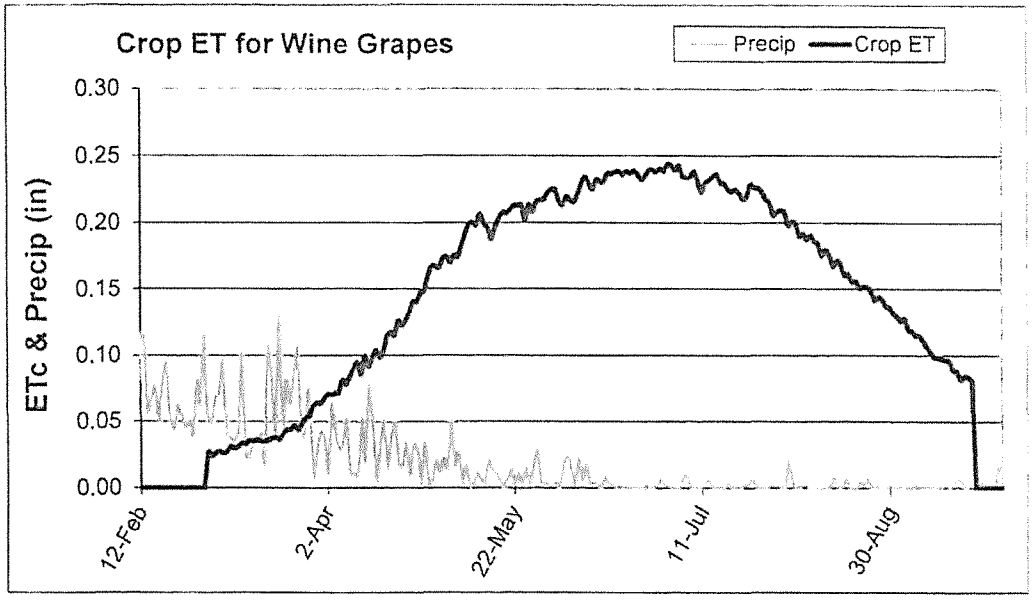
		Start	End
L_{ini}	20	1-Mar	21-Mar
L_{dev}	50	21-Mar	10-May
L_{mid}	75	10-May	24-Jul
L_{late}	60	24-Jul	22-Sep

SUMMER CROP

Grapes ET: **31.97 inches**

Weekly ET During Crop Season

Date	ETo/wk	Kc/wk	ETc/wk
16-Feb	0.00	0.00	0.00
23-Feb	0.00	0.00	0.00
1-Mar	0.26	0.13	0.08
8-Mar	0.69	0.30	0.21
15-Mar	0.82	0.30	0.25
22-Mar	0.91	0.32	0.29
29-Mar	0.99	0.39	0.39
5-Apr	1.10	0.47	0.51
12-Apr	1.19	0.54	0.64
19-Apr	1.26	0.62	0.78
26-Apr	1.38	0.70	0.96
3-May	1.52	0.77	1.18
10-May	1.57	0.84	1.32
17-May	1.64	0.85	1.40
24-May	1.73	0.85	1.47
31-May	1.80	0.85	1.53
7-Jun	1.80	0.85	1.53
14-Jun	1.91	0.85	1.62
21-Jun	1.96	0.85	1.66
Total	33.90		25.37



CIMIS Station #145 - Madera is located in Madera County. Weather data was available from 1999 to 2012. The average daily precipitation and evaporation was determined from the available historical data for this CIMIS station. All weather data is reported in inches.

Reference Data:
Crop Info: http://www.fao.org/docrep/X0490E/x0490e0b.htm
Crop ET: http://itrc.org/etdata/irrsched.htm

3. Crop Weather Data

CIMIS Station: 999 Multiple (15, 39, 86) RuAnn Dairy

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ETo (in)	1.14	1.98	3.68	5.35	7.30	8.15	8.39	7.51	5.57	3.68	1.85	1.07	55.67
Precip (in)	1.95	1.88	1.76	0.88	0.38	0.16	0.06	0.07	0.09	0.55	0.84	1.68	10.30

CROP: Almonds

Plant Date:	15-Feb
End Date:	15-Aug
Days:	182

Kc_{ini}	0.40
Kc_{mid}	0.90
Kc_{end}	0.65

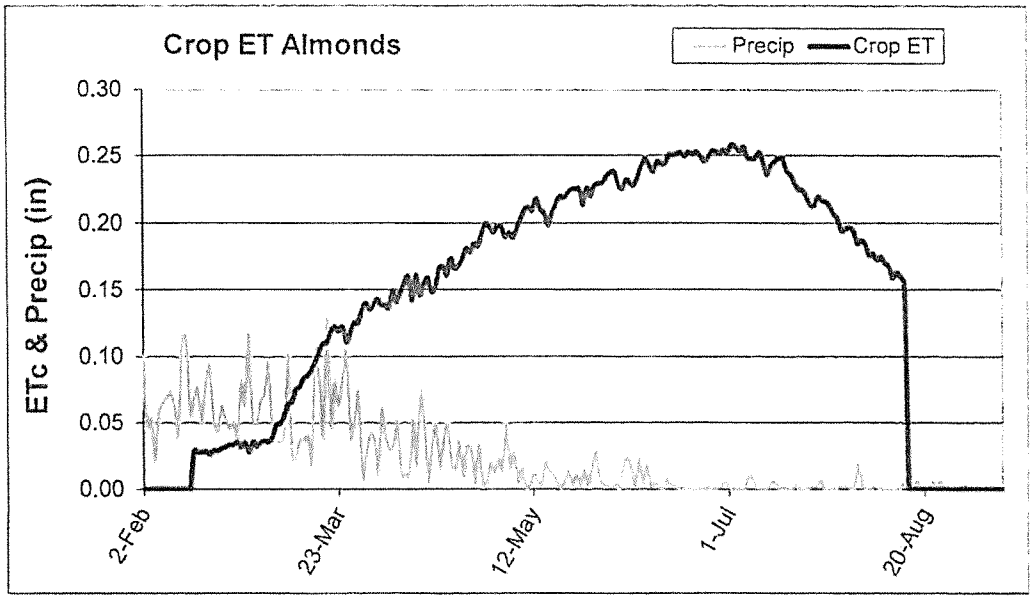
		Start	End
L_{ini}	20	15-Feb	6-Mar
L_{dev}	15	6-Mar	21-Mar
L_{mid}	115	21-Mar	14-Jul
L_{late}	30	14-Jul	13-Aug

SUMMER CROP

Almonds ET: 31.73 inches

Weekly ET During Crop Season

Date	ETo/wk	Kc/wk	ETc/wk
15-Feb	0.29	0.23	0.11
22-Feb	0.54	0.40	0.22
29-Feb	0.59	0.40	0.23
7-Mar	0.69	0.47	0.33
14-Mar	0.82	0.70	0.58
21-Mar	0.91	0.89	0.81
28-Mar	0.99	0.90	0.89
4-Apr	1.10	0.90	0.99
11-Apr	1.19	0.90	1.07
18-Apr	1.26	0.90	1.13
25-Apr	1.38	0.90	1.24
2-May	1.52	0.90	1.37
9-May	1.57	0.90	1.41
16-May	1.64	0.90	1.48
23-May	1.73	0.90	1.56
30-May	1.80	0.90	1.62
6-Jun	1.80	0.90	1.62
13-Jun	1.91	0.90	1.72
20-Jun	1.96	0.90	1.76
27-Jun	1.95	0.90	1.76
4-Jul	1.97	0.90	1.78
11-Jul	1.91	0.90	1.72
18-Jul	1.87	0.87	1.62
25-Jul	1.86	0.81	1.50
1-Aug	1.81	0.75	1.36
8-Aug	1.77	0.69	1.23
15-Aug	0.98	0.65	0.64
22-Aug	0.00	0.65	0.00
Total	36.39		31.73



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Reference Data:
Crop Info: http://www.fao.org/docrep/X0490E/x0490e0b.htm
Crop ET: http://itrc.org/etdata/irrsched.htm

3. Crop Weather Data

CIMIS Station: 999 Multiple (15, 39, 86) RuAnn Dairy

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ETo (in)	1.14	1.98	3.68	5.35	7.30	8.15	8.39	7.51	5.57	3.68	1.85	1.07	55.67
Precip (in)	1.95	1.88	1.76	0.88	0.38	0.16	0.06	0.07	0.09	0.55	0.84	1.68	10.30

CROP: Alfalfa

Plant Date:	1-Jan
End Date:	31-Dec
Days:	365

Kc_{ini}	0.40
Kc_{mid}	0.95
Kc_{end}	0.90

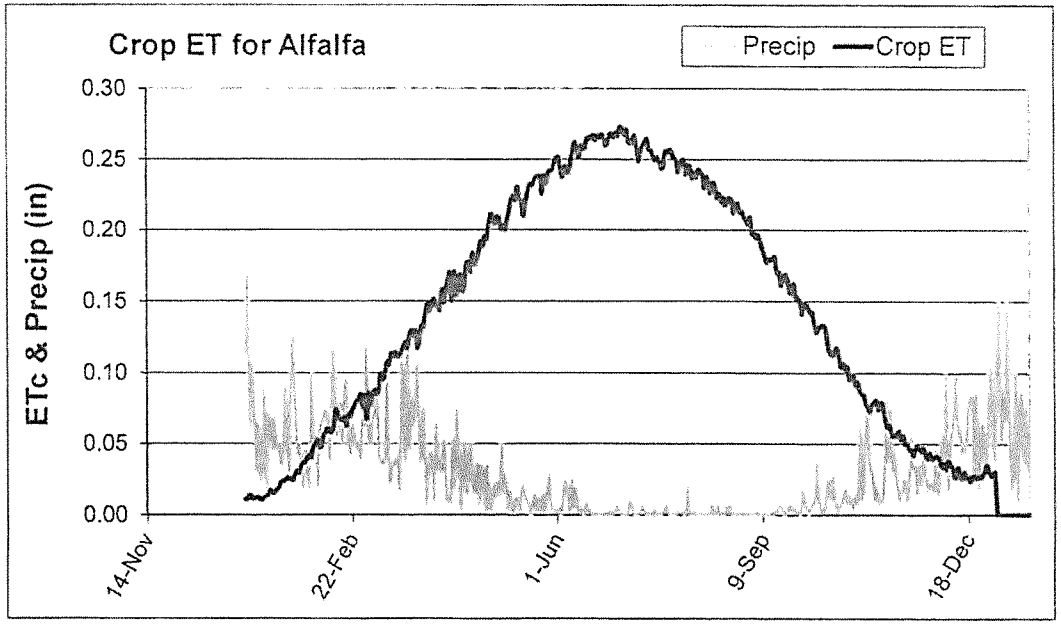
		Start	End
L_{ini}	10	1-Jan	11-Jan
L_{dev}	30	11-Jan	10-Feb
L_{mid}	184	10-Feb	12-Aug
L_{late}	140	12-Aug	30-Dec

Alfalfa ET: 52.13 inches

WINTER CROP

Weekly ET During Crop Season

Date	ETo/wk	Kc/wk	ETc/wk
1-Jan	0.21	0.40	0.08
8-Jan	0.22	0.43	0.09
15-Jan	0.27	0.55	0.15
22-Jan	0.29	0.68	0.20
29-Jan	0.36	0.80	0.29
5-Feb	0.41	0.92	0.38
12-Feb	0.49	0.95	0.46
19-Feb	0.54	0.95	0.51
26-Feb	0.59	0.95	0.56
4-Mar	0.69	0.95	0.66
11-Mar	0.82	0.95	0.78
18-Mar	0.91	0.95	0.86
25-Mar	0.99	0.95	0.94
1-Apr	1.10	0.95	1.04
8-Apr	1.19	0.95	1.13
15-Apr	1.26	0.95	1.19
22-Apr	1.38	0.95	1.31
29-Apr	1.52	0.95	1.45
6-May	1.57	0.95	1.49
13-May	1.64	0.95	1.56
20-May	1.73	0.95	1.64
27-May	1.80	0.95	1.71
3-Jun	1.80	0.95	1.71
10-Jun	1.91	0.95	1.81
17-Jun	1.96	0.95	1.86
24-Jun	1.95	0.95	1.86
1-Jul	1.97	0.95	1.87
8-Jul	1.91	0.95	1.82
15-Jul	1.87	0.95	1.78
22-Jul	1.86	0.95	1.76
29-Jul	1.81	0.95	1.72
5-Aug	1.77	0.95	1.68
12-Aug	1.70	0.95	1.62
19-Aug	1.64	0.95	1.55
Total	42.14		39.55



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Reference Data:

Crop Info: http://www.fao.org/docrep/X0490E/x0490e0b.htm

Crop ET: http://itrc.org/etdata/irrsched.htm

3. Crop Weather Data

CIMIS Station: 999 Multiple (15, 39, 86) RuAnn Dairy

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ETo (in)	1.14	1.98	3.68	5.35	7.30	8.15	8.39	7.51	5.57	3.68	1.85	1.07	55.67
Precip (in)	1.95	1.88	1.76	0.88	0.38	0.16	0.06	0.07	0.09	0.55	0.84	1.68	10.30

CROP: Wheat - Silage

Plant Date:	15-Nov
End Date:	10-Apr
Days:	146

Kc_{ini}	0.70
Kc_{mid}	1.15
Kc_{end}	0.30

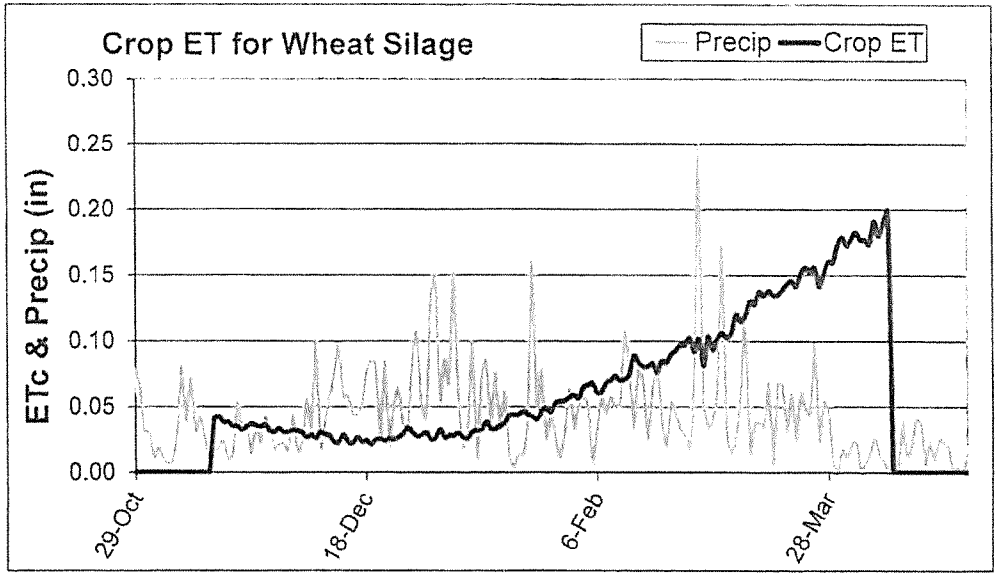
		Start	End
L_{ini}	20	15-Nov	5-Dec
L_{dev}	60	5-Dec	3-Feb
L_{mid}	70	3-Feb	14-Apr
L_{late}	30	14-Apr	14-May

WINTER CROP

Wheat - Silage ET: 10.74 inches

Weekly ET During Crop Season

Date	ETo/wk	Kc/wk	ETc/wk
8-Nov	0.00	0.00	0.00
15-Nov	0.17	0.30	0.12
22-Nov	0.36	0.70	0.25
29-Nov	0.33	0.70	0.23
6-Dec	0.29	0.71	0.20
13-Dec	0.23	0.76	0.18
20-Dec	0.21	0.81	0.17
27-Dec	0.23	0.86	0.20
3-Jan	0.21	0.90	0.20
10-Jan	0.21	0.93	0.20
17-Jan	0.26	0.98	0.26
24-Jan	0.29	1.03	0.31
31-Jan	0.34	1.08	0.38
7-Feb	0.40	1.13	0.46
14-Feb	0.47	1.15	0.54
21-Feb	0.51	1.15	0.59
28-Feb	0.59	1.15	0.67
7-Mar	0.65	1.15	0.74
14-Mar	0.80	1.15	0.92
21-Mar	0.88	1.15	1.01
28-Mar	0.95	1.15	1.09
4-Apr	1.08	1.15	1.24
11-Apr	0.66	1.15	0.76
18-Apr	0.00	1.15	0.00
25-Apr	0.00	1.14	0.00
2-May	0.00	0.98	0.00
9-May	0.00	0.78	0.00
Total	10.11		10.74



CIMIS Station #145 - Madera is located in Madera County. Weather data was available from 1999 to 2012. The average daily precipitation and evaporation was determined from the available historical data for this CIMIS station. All weather data is reported in inches.

Reference Data:
Crop Info: http://www.fao.org/docrep/X0490E/x0490e0b.htm
Crop ET: http://itrc.org/etdata/irrsched.htm

3. Crop Weather Data

CIMIS Station: 999 Multiple (15, 39, 86) RuAnn Dairy

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ETo (in)	1.14	1.98	3.68	5.35	7.30	8.15	8.39	7.51	5.57	3.68	1.85	1.07	55.67
Precip (in)	1.95	1.88	1.76	0.88	0.38	0.16	0.06	0.07	0.09	0.55	0.84	1.68	10.30

CROP: Corn-Silage (early)

Plant Date:	15-Apr
End Date:	4-Aug
Days:	111

Kc_{ini}	0.70
Kc_{mid}	1.05
Kc_{end}	0.95

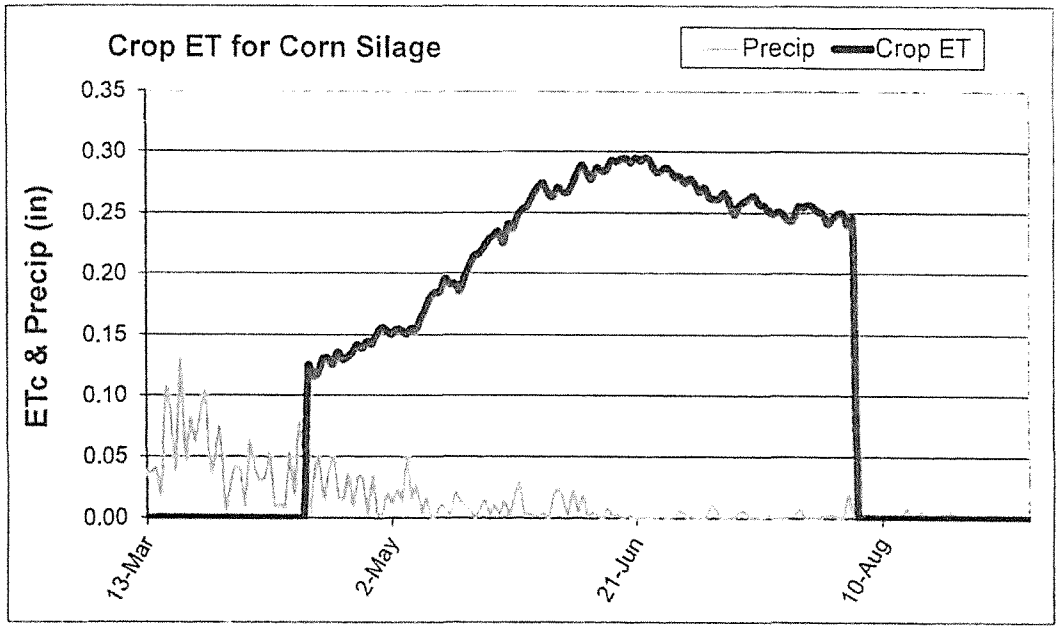
		Start	End
L_{ini}	20	15-Apr	5-May
L_{dev}	30	5-May	4-Jun
L_{mid}	20	4-Jun	24-Jun
L_{late}	10	24-Jun	4-Jul

Corn-Silage (early) **ET: 25.80 inches**

WINTER CROP

Weekly ET During Crop Season

Date	ETo/wk	Kc/wk	ETc/wk
8-Apr	0.00	0.00	0.00
15-Apr	1.26	0.70	0.88
22-Apr	1.38	0.70	0.96
29-Apr	1.52	0.70	1.07
6-May	1.57	0.76	1.19
13-May	1.64	0.84	1.38
20-May	1.73	0.92	1.60
27-May	1.80	1.00	1.81
3-Jun	1.80	1.05	1.89
10-Jun	1.91	1.05	2.00
17-Jun	1.96	1.05	2.06
24-Jun	1.95	1.02	1.99
1-Jul	1.97	0.96	1.89
8-Jul	1.91	0.95	1.82
15-Jul	1.87	0.95	1.78
22-Jul	1.86	0.95	1.76
29-Jul	1.81	0.95	1.72
5-Aug	0.00	0.95	0.00
12-Aug	0.00	0.95	0.00
19-Aug	0.00	0.95	0.00
26-Aug	0.00	0.95	0.00
2-Sep	0.00	0.95	0.00
9-Sep	0.00	0.95	0.00
16-Sep	0.00	0.95	0.00
23-Sep	0.00	0.95	0.00
30-Sep	0.00	0.95	0.00
Total	27.94		25.80



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Reference Data:
Crop Info: http://www.fao.org/docrep/X0490E/x0490e0b.htm
Crop ET: http://itrc.org/etdata/irrsched.htm

RuAnn Dairy

4. Crop Water Needs

Crops	Total Acres per Crop	Ave. Yield (ton/ac)	UC Davis & NRCS estimates Typical N (lb/ton)	Typical P (lb/ton)	Typical K (lb/ton)	Based on Lab Analysis of Yield Samples* Ave. TN %	Ave. P %	Ave. K %	Moisture %	
Grapes	540	13	[illegible]	[illegible]	[illegible]	2.70	0.50	2.20	85.00	Crop 1
Almonds	280	1.25	[illegible]	[illegible]	[illegible]	7.60	1.30	8.30	15.00	Crop 2
Alfalfa	627	8	[illegible]	[illegible]	[illegible]	3.30	0.30	2.33	10.00	Crop 3
Wheat - Silage	510	15	[illegible]	[illegible]	[illegible]	1.57	0.24	1.19	65.00	Crop 4
Corn-Silage (early)	510	25	[illegible]	[illegible]	[illegible]	1.12	0.20	0.86	62.00	Crop 5

*Lab analysis is used before estimates if available.

Crops	Total Acres per Crop	Crop Nutrient Requirement Based on Yield TN (lb/ac)	P (lb/ac)	K (lb/ac)	Crop Nutrient Requirement Based on Yield (includes x1.4 allowable for N) TN (lb/ac)	P (lb/ac)	K (lb/ac)	Allowable Crop Nutrient Requirement Per Year Based on Crop Acreage (includes x1.4 allowable for N) TN (lb/yr)	P (lb/yr)	K (lb/yr)	Allowable Crop I Based on Crop Acr TN (kg/yr)
Wine Grapes	540	105.30	19.50	85.80	147.42	19.50	85.80	79,607	10,530	46,332	36,109
Almonds	280	161.50	27.63	176.38	226.10	27.63	176.38	63,308	7,735	49,385	28,716
Alfalfa	627	475.20	43.20	335.52	665.28	43.20	335.52	417,131	27,086	210,371	189,207
Wheat Silage	510	164.65	25.20	124.95	230.79	25.20	124.95	117,703	12,852	63,725	53,389
Corn Silage	510	212.80	38.00	163.40	297.92	38.00	163.40	151,939	19,380	83,334	68,918
0	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0
	Total	2,078	279	1,596	2,909	279	1,596	1,312,610	124,860	708,770	595,390

Refer to the Crop Weather Pages for more information.

Crop Information	Crop 1	Crop 2	Crop 3	Crop 4	Crop 5					
Crop Cultivated:	Grapes	Almonds	Alfalfa	Wheat - Silage	Corn-Silage (early)					
Crop Water Req (in):	31.97	31.73	52.13	10.74	25.80	0.00	0.00	0.00	0.00	0.00
Irrigation eff. (%):	0.9	0.9	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Crop Req. (in):	35.52	35.26	69.50	14.32	34.40	0.00	0.00	0.00	0.00	0.00

Monthly Crop Water Need Based on ETo Requirement & adjusted for Irrigation Uniformity

Month	Year	Grapes	Almonds	Alfalfa	Wheat - Silage	Corn-Silage (early)					
		(inch)									
January	avg	0.00	0.00	0.00	1.58	0.00					
February	avg	0.00	0.51	0.00	2.93	0.00					
March	avg	1.34	3.01	0.00	5.51	0.00					
April	avg	3.57	5.35	0.00	2.43	2.66					
May	avg	6.80	7.30	0.00	0.00	8.26					
June	avg	7.70	8.15	10.62	0.00	11.32					
July	avg	7.87	8.01	9.49	0.00	10.65					
August	avg	5.84	2.92	6.97	0.00	1.31					
September	avg	2.40	0.00	4.55	0.00	0.00					
October	avg	0.00	0.00	2.26	0.00	0.00					
November	avg	0.00	0.00	1.29	0.76	0.00					
December	avg	0.00	0.00	0.00	1.12	0.00					
	Total	35.52	35.26	35.18	14.32	34.40	0.00	0.00	0.00	0.00	0.00
	Total ac-ft	2.96	2.94	2.93	1.19	2.87	-	-	-	-	-

Planned Nutrient Application & Removal Record

Field ID 1 and 2 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 120 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Alfalfa	480.00	43.20	336.00	8.00	January	December
Loading Rate (∑B) (tons/ac)	480.00	43.20	336.00			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	57,600.00	5,184.00	40,320.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
672.00	792.00	Alfalfa
672.00	792.00	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	33N	2.00	6,517,020	54,308.50	0.12	6.35	0.00	0.00	0.00	0.00	380.00	103.36	Alfalfa
Mar	33N	3.00	9,775,530	81,462.75	0.12	9.52	0.00	0.00	0.00	0.00	380.00	155.04	Alfalfa
Apr	33N	4.00	13,034,040	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
May	33N	4.00	13,034,040	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
Jun	33N	8.00	26,068,080	217,234.00	0.12	25.39	0.00	0.00	0.00	0.00	380.00	413.44	Alfalfa
Jul	33N	10.00	32,585,100	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Aug	33N	10.00	32,585,100	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Sep	33N	7.00	22,809,570	190,079.75	0.12	22.21	0.00	0.00	0.00	0.00	380.00	361.76	Alfalfa
Oct	33N	5.00	16,292,550	135,771.25	0.12	15.87	0.00	0.00	0.00	0.00	380.00	258.40	Alfalfa
					TN Applied	*166.18*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*2739.07*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 1 and 2 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN^2 %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P^2 %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K^2 %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
					TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN^2 (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P^2 (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K^2 (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00							
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN^2 %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P^2 %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K^2 %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 1 and 2 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Alfalfa											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	480.00	43.20	336.00	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	672.00											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	792.00											
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07								
Liquid Fertilizer Applications	0.00	0.00	0.00									
Dry Manure Applications	0.00	0.00	0.00									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	182.18	0.00	0.00	2739.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	0.38 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07
Liquid Fertilizer Applications	0.00	0.00	0.00	NA
Dry Manure Applications	0.00	0.00	0.00	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	182.18	0.00	0.00	2739.07
Total Nutrients Required (lbs/Field)	57,600	5,184	40,320	360,000
Total Nutrients Planned (lbs/Field)	21,861	0	0	328,688

N-Ratio for Field	0.38

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 3 and 4 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 140 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Alfalfa	480.00	43.20	336.00	8.00	January	December
Loading Rate (∑B) (tons/ac)	480.00	43.20	336.00			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	67,200.00	6,048.00	47,040.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
672.00	792.00	Alfalfa
672.00	792.00	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	33N	2.00	7,603,190	54,308.50	0.12	6.35	0.00	0.00	0.00	0.00	380.00	103.36	Alfalfa
Mar	33N	3.00	11,404,785	81,462.75	0.12	9.52	0.00	0.00	0.00	0.00	380.00	155.04	Alfalfa
Apr	33N	4.00	15,206,380	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
May	33N	4.00	15,206,380	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
Jun	33N	8.00	30,412,760	217,234.00	0.12	25.39	0.00	0.00	0.00	0.00	380.00	413.44	Alfalfa
Jul	33N	10.00	38,015,950	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Aug	33N	10.00	38,015,950	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Sep	33N	7.00	26,611,165	190,079.75	0.12	22.21	0.00	0.00	0.00	0.00	380.00	361.76	Alfalfa
Oct	33N	5.00	19,007,975	135,771.25	0.12	15.87	0.00	0.00	0.00	0.00	380.00	258.40	Alfalfa
					TN Applied	*168.18*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*2739.07*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 3 and 4 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

(1) Date (month)	(1) Fertilizer Source	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN^2 %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P^2 %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K^2 %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
					TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

(1) Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN^2 (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P^2 (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K^2 (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00							
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

(1) Date (month)	(1) Fertilizer Source	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN^2 %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P^2 %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K^2 %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00	20	0.00	0	0.00	0	0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 3 and 4 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Alfalfa											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	480.00	43.20	336.00	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	672.00											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	792.00											
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07								
Liquid Fertilizer Applications	0.00	0.00	0.00									
Dry Manure Applications	0.00	0.00	0.00									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	182.18	0.00	0.00	2739.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	0.38 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07
Liquid Fertilizer Applications	0.00	0.00	0.00	NA
Dry Manure Applications	0.00	0.00	0.00	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	182.18	0.00	0.00	2739.07
Total Nutrients Required (lbs/Field)	67,200	6,048	47,040	420,000
Total Nutrients Planned (lbs/Field)	25,505	0	0	383,469

N-Ratio for Field	0.38

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 5 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 80 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wheat Silage	165.00	25.50	124.50	15.00	November	April
Corn Silage	200.00	37.50	165.00	25.00	May	August
Loading Rate (∑B) (tons/ac)	365.00	63.00	289.50			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	29,200.00	5,040.00	23,160.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
231.00	272.25	Wheat Silage
280.00	330.00	Corn Silage
511.00	602.25	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Nov	27	6.00	13,034,040	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Wheat Silage
Nov	Pond	2.25	4,887,765	61,097.06	3.11	189.71	0.16	10.05	1.17	71.40	1970.00	602.83	Wheat Silage
Dec	27	6.00	13,034,040	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Wheat Silage
Jan	27	5.00	10,861,700	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wheat Silage
Feb	27	3.00	6,517,020	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wheat Silage
Apr	27	4.00	8,689,360	108,617.00	0.03	3.35	0.00	0.00	0.00	0.00	340.00	184.96	Corn Silage
Apr	Pond	0.50	1,086,170	13,577.13	5.94	80.69	0.16	2.23	0.48	6.46	1330.00	90.44	Corn Silage
May	27	5.00	10,861,700	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Corn Silage
Jun	27	6.00	13,034,040	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
Jul	27	6.00	13,034,040	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
Jul	27	8.00	17,378,720	217,234.00	0.03	6.71	0.00	0.00	0.00	0.00	340.00	369.92	Corn Silage
Aug	27	8.00	17,378,720	217,234.00	0.03	6.71	0.00	0.00	0.00	0.00	340.00	369.92	Corn Silage
Aug	27	6.00	13,034,040	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
Sep	27	0.50	1,086,170	13,577.13	3.93	53.38	0.11	1.45	0.73	9.97	1740.00	118.32	Corn Silage
Sep	27	6.00	13,034,040	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
					TN Applied	*381.64*	P Applied	*13.73*	K Applied	*87.83*	TDS Applied	*4002.18*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 5 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Date (month)	Fertilizer Source[1]	Volume Applied (gallons)	Volume / Acre (gal/acre) (2) / (A)	Fertilizer Weight (lbs/gal)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4) * (5) / 100	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (4) * (7) / 100	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	460	5.75	11.02	32	20.28		0.00		0.00	Corn Silage
					TN Applied	*20.28*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Application Source	Vol. Applied (tons)	Vol. per Acre (tons/ac) (2) / (A)	Lab Analysis TN^2 (%) - rcvd	N Applied (lb/acre) (3) * (4)	Lab Analysis P^2 (%) - rcvd	P Applied (lb/acre) (3) * (6)	Lab Analysis K^2 (%) - rcvd	K Applied (lb/acre) (3) * (8)	CROP
Dec	sep	160	2.00	0.39	15.60	0.63	25.30	2.80	112.00	Wheat Silage
Apr	corral	160	2.00	0.79	31.44	0.41	16.45	2.71	108.37	Corn Silage
				TN Applied	*47.04*	P Applied	*41.76*	K Applied	*220.37*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Fertilizer Source[1]	Vol. Applied (lbs)	Vol. per Acre (lbs/ac) (2) / (A)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4)	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (6)	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00	0	0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 5 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wheat Silage				Corn Silage							
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	165.00	25.50	124.50	2000.00	200.00	37.50	165.00	2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	231.00				280.00							
Maximum Nitrogen to Apply (Bm') (lbs/ac)	272.25				330.00							
Wastewater & Fresh Water Applications	206.48	10.05	71.40	1527.63	175.16	3.68	16.43	2474.54				
Liquid Fertilizer Applications	0.00	0.00	0.00		20.28	0.00	0.00					
Dry Manure Applications	15.60	25.30	112.00		31.44	16.45	108.37					
Dry Fertilizer Applications	0.00	0.00	0.00		0.00	0.00	0.00					
Atmospheric Deposition	7.00				7.00				0.00			
Nutrients Planned per Crop (lbs/acre)	229.08	35.35	183.40	1527.63	233.88	20.14	124.80	2474.54	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.39 GOOD				1.17 GOOD							

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	381.64	13.73	87.83	4002.18
Liquid Fertilizer Applications	20.28	0.00	0.00	NA
Dry Manure Applications	47.04	41.76	220.37	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	**462.96**	**55.49**	**308.20**	**4002.18**
Total Nutrients Required (lbs/Field)	**29,200**	**5,040**	**23,160**	**240,000**
Total Nutrients Planned (lbs/Field)	**37,037**	**4,439**	**24,656**	**320,174**

N-Ratio for Field	1.27

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 6 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Riverdale CA 93656

Field Size (acres) = (A) 100

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wheat Silage	165.00	25.50	124.50	15.00	November	April
Corn Silage	200.00	37.50	165.00	25.00	May	August
Loading Rate (∑B) (tons/ac)	365.00	63.00	289.50			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	36,500.00	6,300.00	28,950.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
231.00	272.25	Wheat Silage
280.00	330.00	Corn Silage
511.00	602.25	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Dec	27	6.00	16,292,550	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Wheat Silage
Dec	Pond	2.25	6,109,706	61,097.06	3.11	189.71	0.16	10.05	1.17	71.40	1970.00	602.83	Wheat Silage
Jan	27	6.00	16,292,550	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Wheat Silage
Feb	27	5.00	13,577,125	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wheat Silage
Mar	27	3.00	8,146,275	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wheat Silage
Apr	27	4.00	10,861,700	108,617.00	0.03	3.35	0.00	0.00	0.00	0.00	340.00	184.96	Corn Silage
Apr	Pond	0.50	1,357,713	13,577.13	5.94	80.69	0.16	2.23	0.48	6.46	1330.00	90.44	Corn Silage
May	27	5.00	13,577,125	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Corn Silage
Jun	27	6.00	16,292,550	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
Jul	27	6.00	16,292,550	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
Jul	27	8.00	21,723,400	217,234.00	0.03	6.71	0.00	0.00	0.00	0.00	340.00	369.92	Corn Silage
Aug	27	8.00	21,723,400	217,234.00	0.03	6.71	0.00	0.00	0.00	0.00	340.00	369.92	Corn Silage
Aug	27	6.00	16,292,550	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
Aug	Pond	0.50	1,357,713	13,577.13	3.93	53.38	0.11	1.45	0.73	9.97	1740.00	118.32	Corn Silage
Sep	27	6.00	16,292,550	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
					TN Applied	*381.64*	P Applied	*13.73*	K Applied	*87.83*	TDS Applied	*4002.18*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 6 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN^2 %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P^2 %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K^2 %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	750	7.50	11.02	32	26.45		0.00		0.00	Corn Silage
					TN Applied	*26.45*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN^2 (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P^2 (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K^2 (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
Dec	sep	200	2.00	0.39	15.60	0.63	25.30	2.80	112.00	Wheat Silage
Apr	corral	200	2.00	0.79	31.44	0.41	16.45	2.71	108.37	Corn Silage
				TN Applied	*47.04*	P Applied	*41.76*	K Applied	*220.37*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN^2 %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P^2 %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K^2 %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 6 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wheat Silage				Corn Silage							
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	165.00	25.50	124.50	2000.00	200.00	37.50	165.00	2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	231.00				280.00							
Maximum Nitrogen to Apply (Bm') (lbs/ac)	272.25				330.00							
Wastewater & Fresh Water Applications	206.48	10.05	71.40	1527.63	175.16	3.68	16.43	2474.54				
Liquid Fertilizer Applications	0.00	0.00	0.00		26.45	0.00	0.00					
Dry Manure Applications	15.60	25.30	112.00		31.44	16.45	108.37					
Dry Fertilizer Applications	0.00	0.00	0.00		0.00	0.00	0.00					
Atmospheric Deposition	7.00				7.00				0.00			
Nutrients Planned per Crop (lbs/acre)	229.08	35.35	183.40	1527.63	240.05	20.14	124.80	2474.54	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.39 GOOD				1.20 GOOD							

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	381.64	13.73	87.83	4002.18
Liquid Fertilizer Applications	26.45	0.00	0.00	NA
Dry Manure Applications	47.04	41.76	220.37	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	469.13	55.49	308.20	4002.18
Total Nutrients Required (lbs/Field)	36,500	6,300	28,950	300,000
Total Nutrients Planned (lbs/Field)	46,913	5,549	30,820	400,218

N-Ratio for Field	1.29

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 8 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Riverdale CA 93656

Field Size (acres) = (A) 40

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wheat Silage	165.00	25.50	124.50	15.00	November	April
Corn Silage	200.00	37.50	165.00	25.00	May	August
Loading Rate (∑B) (tons/ac)	365.00	63.00	289.50			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	14,600.00	2,520.00	11,580.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
231.00	272.25	Wheat Silage
280.00	330.00	Corn Silage
511.00	602.25	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) / (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) / 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) / 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) / 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 / 325848	CROP
Dec	27	6.00	6,517,020	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Wheat Silage
Jan	Pond	2.25	2,443,883	61,097.06	3.11	189.71	0.16	10.05	1.17	71.40	1970.00	602.83	Wheat Silage
Jan	27	6.00	6,517,020	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Wheat Silage
Feb	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wheat Silage
Mar	27	3.00	3,258,510	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wheat Silage
May	27	4.00	4,344,680	108,617.00	0.03	3.35	0.00	0.00	0.00	0.00	340.00	184.96	Corn Silage
May	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Corn Silage
Jun	Pond	0.50	543,085	13,577.13	5.94	80.69	0.16	2.23	0.48	6.46	1330.00	90.44	Corn Silage
Jun	27	6.00	6,517,020	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
Jul	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Corn Silage
Jul	27	8.00	8,689,360	217,234.00	0.03	6.71	0.00	0.00	0.00	0.00	340.00	369.92	Corn Silage
Aug	27	8.00	8,689,360	217,234.00	0.03	6.71	0.00	0.00	0.00	0.00	340.00	369.92	Corn Silage
Aug	27	6.00	6,517,020	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
Aug	Pond	0.50	543,085	13,577.13	3.93	53.38	0.11	1.45	0.73	9.97	1740.00	118.32	Corn Silage
Sep	27	6.00	6,517,020	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
					TN Applied	*380.81*	P Applied	*13.73*	K Applied	*87.83*	TDS Applied	*3955.94*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 8 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN[2] %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P[2] %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K[2] %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	280	7.00	11.02	32	24.68		0.00		0.00	Corn Silage
					TN Applied	*24.68*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN[2] (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P[2] (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K[2] (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
Dec	sep	80	2.00	0.39	15.60	0.63	25.30	2.80	112.00	Wheat Silage
Apr	corral	80	2.00	0.79	31.44	0.41	16.45	2.71	108.37	Corn Silage
				TN Applied	*47.04*	P Applied	*41.76*	K Applied	*220.37*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN[2] %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P[2] %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K[2] %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 8 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wheat Silage				Corn Silage							
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	165.00	25.50	124.50	2000.00	200.00	37.50	165.00	2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	231.00				280.00							
Maximum Nitrogen to Apply (Bm') (lbs/ac)	272.25				330.00							
Wastewater & Fresh Water Applications	206.48	10.05	71.40	1527.63	174.32	3.68	16.43	2428.30				
Liquid Fertilizer Applications	0.00	0.00	0.00		24.68	0.00	0.00					
Dry Manure Applications	15.60	25.30	112.00		31.44	16.45	108.37					
Dry Fertilizer Applications	0.00	0.00	0.00		0.00	0.00	0.00					
Atmospheric Deposition	7.00				7.00				0.00			
Nutrients Planned per Crop (lbs/acre)	229.08	35.35	183.40	1527.63	237.45	20.14	124.80	2428.30	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.39 GOOD				1.19 GOOD							

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	380.81	13.73	87.83	3955.94
Liquid Fertilizer Applications	24.68	0.00	0.00	NA
Dry Manure Applications	47.04	41.76	220.37	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	**466.53**	**55.49**	**308.20**	**3955.94**
Total Nutrients Required (lbs/Field)	**14,600**	**2,520**	**11,580**	**120,000**
Total Nutrients Planned (lbs/Field)	**18,661**	**2,219**	**12,328**	**158,237**

N-Ratio for Field	1.28

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 9 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 20 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wine Grapes	104.00	19.50	85.80	13.00	January	September
Loading Rate (∑B) (tons/ac)	104.00	19.50	85.80			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	2,080.00	390.00	1,716.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
145.60	171.60	Wine Grapes
145.60	171.60	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	9	1.00	543,085	27,154.25	0.07	1.79	0.00	0.00	0.00	0.00	440.00	59.84	Wine Grapes
Mar	9	2.00	1,086,170	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
Apr	9	2.00	1,086,170	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
May	9	3.00	1,629,255	81,462.75	0.07	5.37	0.00	0.00	0.00	0.00	440.00	179.52	Wine Grapes
Jun	9	4.00	2,172,340	108,617.00	0.07	7.16	0.00	0.00	0.00	0.00	440.00	239.36	Wine Grapes
Jun	27	5.00	2,715,425	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	5.00	2,715,425	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	3.00	1,629,255	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	3.00	1,629,255	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	2.00	1,086,170	54,308.50	0.03	1.68	0.00	0.00	0.00	0.00	340.00	92.48	Wine Grapes
					TN Applied	*36.58*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1550.41*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 9 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN^2 %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P^2 %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K^2 %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	230	11.50	11.02	32	40.55		0.00		0.00	Wine Grapes
					TN Applied	*40.55*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN^2 (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P^2 (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K^2 (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
Mar	corral	60	3.00	0.79	47.16	0.41	24.68	2.71	162.55	Wine Grapes
				TN Applied	*47.16*	P Applied	*24.68*	K Applied	*162.55*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN^2 %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P^2 %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K^2 %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 9 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wine Grapes											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	104.00	19.50	85.80	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	145.60											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	171.60											
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41								
Liquid Fertilizer Applications	40.55	0.00	0.00									
Dry Manure Applications	47.16	24.68	162.55									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	138.30	24.68	162.55	1550.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.33 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41
Liquid Fertilizer Applications	40.55	0.00	0.00	NA
Dry Manure Applications	47.16	24.68	162.55	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	138.30	24.68	162.55	1550.41
Total Nutrients Required (lbs/Field)	2,080	390	1,716	60,000
Total Nutrients Planned (lbs/Field)	2,766	494	3,251	31,008

N-Ratio for Field	1.33

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 10 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Riverdale CA 93656

Field Size (acres) = (A) 60

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wine Grapes	104.00	19.50	85.80	13.00	January	September
Loading Rate (∑B) (tons/ac)	104.00	19.50	85.80			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	6,240.00	1,170.00	5,148.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
145.60	171.60	Wine Grapes
145.60	171.60	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	9	1.00	1,629,255	27,154.25	0.07	1.79	0.00	0.00	0.00	0.00	440.00	59.84	Wine Grapes
Mar	9	2.00	3,258,510	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
Apr	9	2.00	3,258,510	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
May	9	3.00	4,887,765	81,462.75	0.07	5.37	0.00	0.00	0.00	0.00	440.00	179.52	Wine Grapes
Jun	9	4.00	6,517,020	108,617.00	0.07	7.16	0.00	0.00	0.00	0.00	440.00	239.36	Wine Grapes
Jun	27	5.00	8,146,275	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	5.00	8,146,275	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	3.00	4,887,765	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	3.00	4,887,765	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	2.00	3,258,510	54,308.50	0.03	1.68	0.00	0.00	0.00	0.00	340.00	92.48	Wine Grapes
					TN Applied	*36.58*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1550.41*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 10 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Date (month)	Fertilizer Source[1]	Volume Applied (gallons)	Volume / Acre (gal/acre) (2) / (A)	Fertilizer Weight (lbs/gal)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4) * (5) / 100	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (4) * (7) / 100	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	700	11.67	11.02	32	41.14	0	0.00	0	0.00	Wine Grapes
					TN Applied	*41.14*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Application Source	Vol. Applied (tons)	Vol. per Acre (tons/ac) (2) / (A)	Lab Analysis TN^2 (%) - rcvd	N Applied (lb/acre) (3) * (4)	Lab Analysis P^2 (%) - rcvd	P Applied (lb/acre) (3) * (6)	Lab Analysis K^2 (%) - rcvd	K Applied (lb/acre) (3) * (8)	CROP
Mar	corral	180	3.00	0.79	47.16	0.41	24.68	2.71	162.55	Wine Grapes
				TN Applied	*47.16*	P Applied	*24.68*	K Applied	*162.55*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Fertilizer Source[1]	Vol. Applied (lbs)	Vol. per Acre (lbs/ac) (2) / (A)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4)	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (6)	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 10 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wine Grapes											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	104.00	19.50	85.80	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	145.60											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	171.60											
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41								
Liquid Fertilizer Applications	41.14	0.00	0.00									
Dry Manure Applications	47.16	24.68	162.55									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	138.88	24.68	162.55	1550.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.34 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41
Liquid Fertilizer Applications	41.14	0.00	0.00	NA
Dry Manure Applications	47.16	24.68	162.55	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	138.88	24.68	162.55	1550.41
Total Nutrients Required (lbs/Field)	6,240	1,170	5,148	180,000
Total Nutrients Planned (lbs/Field)	8,333	1,481	9,753	93,025

N-Ratio for Field	1.34

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 11 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Riverdale CA 93656

Field Size (acres) = (A) 90

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Alfalfa	480.00	43.20	336.00	8.00	January	December
Loading Rate (∑B) (tons/ac)	480.00	43.20	336.00			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	43,200.00	3,888.00	30,240.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
672.00	792.00	Alfalfa
672.00	792.00	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	33N	2.00	4,887,765	54,308.50	0.12	6.35	0.00	0.00	0.00	0.00	380.00	103.36	Alfalfa
Mar	33N	3.00	7,331,648	81,462.75	0.12	9.52	0.00	0.00	0.00	0.00	380.00	155.04	Alfalfa
Apr	33N	4.00	9,775,530	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
May	33N	4.00	9,775,530	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
Jun	33N	8.00	19,551,060	217,234.00	0.12	25.39	0.00	0.00	0.00	0.00	380.00	413.44	Alfalfa
Jul	33N	10.00	24,438,825	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Aug	33N	10.00	24,438,825	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Sep	33N	7.00	17,107,178	190,079.75	0.12	22.21	0.00	0.00	0.00	0.00	380.00	361.76	Alfalfa
Oct	33N	5.00	12,219,413	135,771.25	0.12	15.87	0.00	0.00	0.00	0.00	380.00	258.40	Alfalfa
					TN Applied	*168.18*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*2739.07*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 11 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN[2] %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P[2] %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K[2] %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
					TN Applied	0.00	P Applied	0.00	K Applied	0.00	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN[2] (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P[2] (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K[2] (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00							
				TN Applied	0.00	P Applied	0.00	K Applied	0.00	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN[2] %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P[2] %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K[2] %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	0.00	P Applied	0.00	K Applied	0.00	

Field ID 11 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Alfalfa											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	480.00	43.20	336.00	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	672.00											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	792.00											
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07								
Liquid Fertilizer Applications	0.00	0.00	0.00									
Dry Manure Applications	0.00	0.00	0.00									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	182.18	0.00	0.00	2739.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	0.38 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07
Liquid Fertilizer Applications	0.00	0.00	0.00	NA
Dry Manure Applications	0.00	0.00	0.00	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	**182.18**	**0.00**	**0.00**	**2739.07**
Total Nutrients Required (lbs/Field)	**43,200**	**3,888**	**30,240**	**270,000**
Total Nutrients Planned (lbs/Field)	**16,396**	**0**	**0**	**246,516**

N-Ratio for Field	0.38

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 15 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 40 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wine Grapes	104.00	19.50	85.80	13.00	January	September
Loading Rate (∑B) (tons/ac)	104.00	19.50	85.80			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	4,160.00	780.00	3,432.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
145.60	171.60	Wine Grapes
145.60	171.60	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

Start Date (month)	(1) Liquid Application Source[1]	(2) Liquid Application (ac-in/acre)	(3) Total Volume Applied (gallons)	(4) Volume per Acre (gal/acre) (3)/(A)	(5) Lab Analysis TN[2] (lb/1000 gal)	(6) N Applied (lb/acre) (4) x (5) / 1000	(7) Lab Analysis P[2] (lb/1000 gal)	(8) P Applied (lb/acre) (4) x (7) / 1000	(9) Lab Analysis K[2] (lb/1000 gal)	(10) K Applied (lb/acre) (4) x (9) / 1000	(11) EC[2] (umhos/cm)	(12) Salts Applied (lb/acre) (11)*0.6*(4)*2.72 / 325848	CROP
Feb	9	1.00	1,086,170	27,154.25	0.07	1.79	0.00	0.00	0.00	0.00	440.00	59.84	Wine Grapes
Mar	9	2.00	2,172,340	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
Apr	9	2.00	2,172,340	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
May	9	3.00	3,258,510	81,462.75	0.07	5.37	0.00	0.00	0.00	0.00	440.00	179.52	Wine Grapes
Jun	9	4.00	4,344,680	108,617.00	0.07	7.16	0.00	0.00	0.00	0.00	440.00	239.36	Wine Grapes
Jun	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	3.00	3,258,510	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	3.00	3,258,510	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	2.00	2,172,340	54,308.50	0.03	1.68	0.00	0.00	0.00	0.00	340.00	92.48	Wine Grapes
					TN Applied	*36.58*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1550.41*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 15 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN[2] %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P[2] %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K[2] %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	460	11.50	11.02	32	40.55		0.00		0.00	Wine Grapes
					TN Applied	*40.55*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN[2] (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P[2] (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K[2] (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
Mar	corral	120	3.00	0.79	47.16	0.41	24.68	2.71	162.55	Wine Grapes
				TN Applied	*47.16*	P Applied	*24.68*	K Applied	*162.55*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN[2] %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P[2] %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K[2] %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 15 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wine Grapes											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	104.00	19.50	85.80	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	145.60											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	171.60											
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41								
Liquid Fertilizer Applications	40.55	0.00	0.00									
Dry Manure Applications	47.16	24.68	162.55									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	138.30	24.68	162.55	1550.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.33 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41
Liquid Fertilizer Applications	40.55	0.00	0.00	NA
Dry Manure Applications	47.16	24.68	162.55	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	138.30	24.68	162.55	1550.41
Total Nutrients Required (lbs/Field)	4,160	780	3,432	120,000
Total Nutrients Planned (lbs/Field)	5,532	987	6,502	62,017

N-Ratio for Field	1.33

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 16 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 40 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Almonds	162.50	27.50	176.25	1.25	January	August
Loading Rate (∑B) (tons/ac)	162.50	27.50	176.25			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	6,500.00	1,100.00	7,050.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
227.50	268.13	Almonds
227.50	268.13	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	33N	1.00	1,086,170	27,154.25	0.12	3.17	0.00	0.00	0.00	0.00	380.00	51.68	Almonds
Mar	33N	2.00	2,172,340	54,308.50	0.12	6.35	0.00	0.00	0.00	0.00	380.00	103.36	Almonds
Apr	33N	4.00	4,344,680	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Almonds
May	33N	4.00	4,344,680	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Almonds
Jun	33N	6.00	6,517,020	162,925.50	0.12	19.04	0.00	0.00	0.00	0.00	380.00	310.08	Almonds
Jun	33N	8.00	8,689,360	217,234.00	0.12	25.39	0.00	0.00	0.00	0.00	380.00	413.44	Almonds
Jul	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Almonds
Jul	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Almonds
Aug	27	3.00	3,258,510	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Almonds
					TN Applied	*90.23*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1893.14*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 16 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Date (month)	Fertilizer Source[1]	Volume Applied (gallons)	Volume / Acre (gal/acre) (2) / (A)	Fertilizer Weight (lbs/gal)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4) * (5) / 100	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (4) * (7) / 100	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Aug	UN32	575	14.38	11.02	32	50.69		0.00		0.00	Almonds
Feb	UN32	250	6.25	11.02	32	22.04		0.00		0.00	Almonds
Mar	UN32	250	6.25	11.02	32	22.04		0.00		0.00	Almonds
					TN Applied	*94.77*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Application Source	Vol. Applied (tons)	Vol. per Acre (tons/ac) (2) / (A)	Lab Analysis TN^2 (%) - rcvd	N Applied (lb/acre) (3) * (4)	Lab Analysis P^2 (%) - rcvd	P Applied (lb/acre) (3) * (6)	Lab Analysis K^2 (%) - rcvd	K Applied (lb/acre) (3) * (8)	CROP
Feb	manure	120	3.00	0.37	22.03	0.06	3.75	0.11	6.77	Almonds
				TN Applied	*22.03*	P Applied	*3.75*	K Applied	*6.77*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Fertilizer Source[1]	Vol. Applied (lbs)	Vol. per Acre (lbs/ac) (2) / (A)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4)	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (6)	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 16 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Almonds											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	162.50	27.50	176.25	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	227.50											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	268.13											
Wastewater & Fresh Water Applications	90.23	0.00	0.00	1893.14								
Liquid Fertilizer Applications	94.77	0.00	0.00									
Dry Manure Applications	22.03	3.75	6.77									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	221.04	3.75	6.77	1893.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.36 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	90.23	0.00	0.00	1893.14
Liquid Fertilizer Applications	94.77	0.00	0.00	NA
Dry Manure Applications	22.03	3.75	6.77	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	221.04	3.75	6.77	1893.14
Total Nutrients Required (lbs/Field)	6,500	1,100	7,050	120,000
Total Nutrients Planned (lbs/Field)	8,841	150	271	75,725

N-Ratio for Field	1.36

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 17 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 80 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wine Grapes	104.00	19.50	85.80	13.00	January	September
Loading Rate (∑B) (tons/ac)	104.00	19.50	85.80			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	8,320.00	1,560.00	6,864.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
145.60	171.60	Wine Grapes
145.60	171.60	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) / (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) / 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) / 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) / 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 / 325848	CROP
Feb	9	1.00	2,172,340	27,154.25	0.07	1.79	0.00	0.00	0.00	0.00	440.00	59.84	Wine Grapes
Mar	9	2.00	4,344,680	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
Apr	9	2.00	4,344,680	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
May	9	3.00	6,517,020	81,462.75	0.07	5.37	0.00	0.00	0.00	0.00	440.00	179.52	Wine Grapes
Jun	9	4.00	8,689,360	108,617.00	0.07	7.16	0.00	0.00	0.00	0.00	440.00	239.36	Wine Grapes
Jun	27	5.00	10,861,700	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	5.00	10,861,700	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	3.00	6,517,020	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	3.00	6,517,020	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	2.00	4,344,680	54,308.50	0.03	1.68	0.00	0.00	0.00	0.00	340.00	92.48	Wine Grapes
					TN Applied	*36.58*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1550.41*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 17 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Date (month)	Fertilizer Source[1]	Volume Applied (gallons)	Volume / Acre (gal/acre) (2) / (A)	Fertilizer Weight (lbs/gal)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4) * (5) / 100	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (4) * (7) / 100	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	920	11.50	11.02	32	40.55		0.00		0.00	Wine Grapes
					TN Applied	*40.55*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Application Source	Vol. Applied (tons)	Vol. per Acre (tons/ac) (2) / (A)	Lab Analysis TN^2 (%) - rcvd	N Applied (lb/acre) (3) * (4)	Lab Analysis P^2 (%) - rcvd	P Applied (lb/acre) (3) * (6)	Lab Analysis K^2 (%) - rcvd	K Applied (lb/acre) (3) * (8)	CROP
Mar	corral	240	3.00	0.79	47.16	0.41	24.68	2.71	162.55	Wine Grapes
				TN Applied	*47.16*	P Applied	*24.68*	K Applied	*162.55*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Fertilizer Source[1]	Vol. Applied (lbs)	Vol. per Acre (lbs/ac) (2) / (A)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4)	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (6)	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 17 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wine Grapes											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	104.00	19.50	85.80	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	145.60											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	171.60											
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41								
Liquid Fertilizer Applications	40.55	0.00	0.00									
Dry Manure Applications	47.16	24.68	162.55									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	138.30	24.68	162.55	1550.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.33 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41
Liquid Fertilizer Applications	40.55	0.00	0.00	NA
Dry Manure Applications	47.16	24.68	162.55	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	138.30	24.68	162.55	1550.41
Total Nutrients Required (lbs/Field)	8,320	1,560	6,864	240,000
Total Nutrients Planned (lbs/Field)	11,064	1,974	13,004	124,033

N-Ratio for Field	1.33

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 18 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 40 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wine Grapes	104.00	19.50	85.80	13.00	January	September
Loading Rate (∑B) (tons/ac)	104.00	19.50	85.80			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	4,160.00	780.00	3,432.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
145.60	171.60	Wine Grapes
145.60	171.60	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	9	1.00	1,086,170	27,154.25	0.07	1.79	0.00	0.00	0.00	0.00	440.00	59.84	Wine Grapes
Mar	9	2.00	2,172,340	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
Apr	9	2.00	2,172,340	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
May	9	3.00	3,258,510	81,462.75	0.07	5.37	0.00	0.00	0.00	0.00	440.00	179.52	Wine Grapes
Jun	9	4.00	4,344,680	108,617.00	0.07	7.16	0.00	0.00	0.00	0.00	440.00	239.36	Wine Grapes
Jun	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	3.00	3,258,510	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	3.00	3,258,510	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	2.00	2,172,340	54,308.50	0.03	1.68	0.00	0.00	0.00	0.00	340.00	92.48	Wine Grapes
					TN Applied	*36.58*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1550.41*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 18 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

(1) Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN[2] %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P[2] %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K[2] %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	460	11.50	11.02	32	40.55		0.00		0.00	Wine Grapes
					TN Applied	*40.55*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN[2] (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P[2] (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K[2] (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
Mar	corral	120	3.00	0.79	47.16	0.41	24.68	2.71	162.55	Wine Grapes
				TN Applied	*47.16*	P Applied	*24.68*	K Applied	*162.55*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN[2] %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P[2] %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K[2] %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 18 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wine Grapes											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	104.00	19.50	85.80	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	145.60											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	171.60											
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41								
Liquid Fertilizer Applications	40.55	0.00	0.00									
Dry Manure Applications	47.16	24.68	162.55									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	138.30	24.68	162.55	1550.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.33 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41
Liquid Fertilizer Applications	40.55	0.00	0.00	NA
Dry Manure Applications	47.16	24.68	162.55	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	138.30	24.68	162.55	1550.41
Total Nutrients Required (lbs/Field)	4,160	780	3,432	120,000
Total Nutrients Planned (lbs/Field)	5,532	987	6,502	62,017

N-Ratio for Field	1.33

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 20 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Riverdale CA 93656

Field Size (acres) = (A) 40

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wheat Silage	165.00	25.50	124.50	15.00	November	April
Corn Silage	200.00	37.50	165.00	25.00	May	August
Loading Rate (∑B) (tons/ac)	365.00	63.00	289.50			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	14,600.00	2,520.00	11,580.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
231.00	272.25	Wheat Silage
280.00	330.00	Corn Silage
511.00	602.25	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Dec	27	6.00	6,517,020	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Wheat Silage
Jan	Pond	2.25	2,443,883	61,097.06	3.11	189.71	0.16	10.05	1.17	71.40	1970.00	602.63	Wheat Silage
Jan	27	6.00	6,517,020	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Wheat Silage
Feb	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wheat Silage
Mar	27	3.00	3,258,510	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wheat Silage
May	27	4.00	4,344,680	108,617.00	0.03	3.35	0.00	0.00	0.00	0.00	340.00	184.96	Corn Silage
May	Pond	0.50	543,085	13,577.13	5.94	80.69	0.16	2.23	0.48	6.46	1330.00	90.44	Corn Silage
May	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Corn Silage
Jun	27	6.00	6,517,020	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
Jul	27	6.00	6,517,020	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
Jul	27	8.00	8,689,360	217,234.00	0.03	6.71	0.00	0.00	0.00	0.00	340.00	369.92	Corn Silage
Aug	27	8.00	8,689,360	217,234.00	0.03	6.71	0.00	0.00	0.00	0.00	340.00	369.92	Corn Silage
Aug	27	6.00	6,517,020	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
Sep	27	0.50	543,085	13,577.13	3.93	53.38	0.11	1.45	0.73	9.97	1740.00	118.32	Corn Silage
Sep	27	6.00	6,517,020	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
					TN Applied	*381.64*	P Applied	*13.73*	K Applied	*87.83*	TDS Applied	*4002.18*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 20 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

(1) Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN^2 %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P^2 %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K^2 %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	230	5.75	11.02	32	20.28		0.00		0.00	Corn Silage
					TN Applied	*20.28*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN^2 (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P^2 (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K^2 (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
Dec	sep	80	2.00	0.39	15.60	0.63	25.30	2.80	112.00	Wheat Silage
Apr	corral	80	2.00	0.79	31.44	0.41	16.45	2.71	108.37	Corn Silage
				TN Applied	*47.04*	P Applied	*41.76*	K Applied	*220.37*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN^2 %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P^2 %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K^2 %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 20 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wheat Silage				Corn Silage							
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	165.00	25.50	124.50	2000.00	200.00	37.50	165.00	2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	231.00				280.00							
Maximum Nitrogen to Apply (Bm') (lbs/ac)	272.25				330.00							
Wastewater & Fresh Water Applications	206.48	10.05	71.40	1527.63	175.16	3.68	16.43	2474.54				
Liquid Fertilizer Applications	0.00	0.00	0.00		20.28	0.00	0.00					
Dry Manure Applications	15.60	25.30	112.00		31.44	16.45	108.37					
Dry Fertilizer Applications	0.00	0.00	0.00		0.00	0.00	0.00					
Atmospheric Deposition	7.00				7.00				0.00			
Nutrients Planned per Crop (lbs/acre)	229.08	35.35	183.40	1527.63	233.88	20.14	124.80	2474.54	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.39 GOOD				1.17 GOOD							

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	381.64	13.73	87.83	4002.18
Liquid Fertilizer Applications	20.28	0.00	0.00	NA
Dry Manure Applications	47.04	41.76	220.37	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	462.96	55.49	308.20	4002.18
Total Nutrients Required (lbs/Field)	14,600	2,520	11,580	120,000
Total Nutrients Planned (lbs/Field)	18,518	2,219	12,328	160,087

N-Ratio for Field	1.27

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 22 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 70 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Alfalfa	480.00	43.20	336.00	8.00	January	December
Loading Rate (∑B) (tons/ac)	480.00	43.20	336.00			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	33,600.00	3,024.00	23,520.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
672.00	792.00	Alfalfa
672.00	792.00	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	33N	2.00	3,801,595	54,308.50	0.12	6.35	0.00	0.00	0.00	0.00	380.00	103.36	Alfalfa
Mar	33N	3.00	5,702,393	81,462.75	0.12	9.52	0.00	0.00	0.00	0.00	380.00	155.04	Alfalfa
Apr	33N	4.00	7,603,190	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
May	33N	4.00	7,603,190	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
Jun	33N	8.00	15,206,380	217,234.00	0.12	25.39	0.00	0.00	0.00	0.00	380.00	413.44	Alfalfa
Jul	33N	10.00	19,007,975	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Aug	33N	10.00	19,007,975	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Sep	33N	7.00	13,305,583	190,079.75	0.12	22.21	0.00	0.00	0.00	0.00	380.00	361.76	Alfalfa
Oct	33N	5.00	9,503,988	135,771.25	0.12	15.87	0.00	0.00	0.00	0.00	380.00	258.40	Alfalfa
					TN Applied	*168.18*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*2739.07*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 22 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Date (month)	Fertilizer Source[1]	Volume Applied (gallons)	Volume / Acre (gal/acre) (2) / (A)	Fertilizer Weight (lbs/gal)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4) * (5) / 100	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (4) * (7) / 100	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
					TN Applied	0.00	P Applied	0.00	K Applied	0.00	

Dry Manure Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Application Source	Vol. Applied (tons)	Vol. per Acre (tons/ac) (2) / (A)	Lab Analysis TN^2 (%) - rcvd	N Applied (lb/acre) (3) * (4)	Lab Analysis P^2 (%) - rcvd	P Applied (lb/acre) (3) * (6)	Lab Analysis K^2 (%) - rcvd	K Applied (lb/acre) (3) * (8)	CROP
			0.00							
				TN Applied	0.00	P Applied	0.00	K Applied	0.00	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Fertilizer Source[1]	Vol. Applied (lbs)	Vol. per Acre (lbs/ac) (2) / (A)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4)	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (6)	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	0.00	P Applied	0.00	K Applied	0.00	

Field ID 22 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Alfalfa											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	480.00	43.20	336.00	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	672.00											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	792.00											
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07								
Liquid Fertilizer Applications	0.00	0.00	0.00									
Dry Manure Applications	0.00	0.00	0.00									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	182.18	0.00	0.00	2739.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	0.38 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07
Liquid Fertilizer Applications	0.00	0.00	0.00	NA
Dry Manure Applications	0.00	0.00	0.00	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	182.18	0.00	0.00	2739.07
Total Nutrients Required (lbs/Field)	33,600	3,024	23,520	210,000
Total Nutrients Planned (lbs/Field)	12,753	0	0	191,735

N-Ratio for Field	0.38

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 24 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Riverdale CA 93656

Field Size (acres) = (A) 35

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wine Grapes	104.00	19.50	85.80	13.00	January	September
Loading Rate (∑B) (tons/ac)	104.00	19.50	85.80			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	3,640.00	682.50	3,003.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
145.60	171.60	Wine Grapes
145.60	171.60	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	9	1.00	950,399	27,154.25	0.07	1.79	0.00	0.00	0.00	0.00	440.00	59.84	Wine Grapes
Mar	9	2.00	1,900,798	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
Apr	9	2.00	1,900,798	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
May	9	3.00	2,851,196	81,462.75	0.07	5.37	0.00	0.00	0.00	0.00	440.00	179.52	Wine Grapes
Jun	9	4.00	3,801,595	108,617.00	0.07	7.16	0.00	0.00	0.00	0.00	440.00	239.36	Wine Grapes
Jun	27	5.00	4,751,994	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	5.00	4,751,994	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	3.00	2,851,196	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	3.00	2,851,196	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	2.00	1,900,798	54,308.50	0.03	1.68	0.00	0.00	0.00	0.00	340.00	92.48	Wine Grapes
					TN Applied	*36.58*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1550.41*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 24 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Date (month)	Fertilizer Source[1]	Volume Applied (gallons)	Volume / Acre (gal/acre) (2) / (A)	Fertilizer Weight (lbs/gal)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4) * (5) / 100	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (4) * (7) / 100	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	400	11.43	11.02	32	40.30		0.00		0.00	
					TN Applied	*40.30*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Application Source	Vol. Applied (tons)	Vol. per Acre (tons/ac) (2) / (A)	Lab Analysis TN^2 (%) - rcvd	N Applied (lb/acre) (3) * (4)	Lab Analysis P^2 (%) - rcvd	P Applied (lb/acre) (3) * (6)	Lab Analysis K^2 (%) - rcvd	K Applied (lb/acre) (3) * (8)	CROP
Mar	corral	105	3.00	0.79	47.16	0.41	24.68	2.71	162.55	Wine Grapes
				TN Applied	*47.16*	P Applied	*24.68*	K Applied	*162.55*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Fertilizer Source[1]	Vol. Applied (lbs)	Vol. per Acre (lbs/ac) (2) / (A)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4)	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (6)	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 24 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wine Grapes											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	104.00	19.50	85.80	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	145.60											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	171.60											
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41								
Liquid Fertilizer Applications	0.00	0.00	0.00									
Dry Manure Applications	47.16	24.68	162.55									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	97.74	24.68	162.55	1550.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	0.94 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41
Liquid Fertilizer Applications	40.30	0.00	0.00	NA
Dry Manure Applications	47.16	24.68	162.55	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	138.04	24.68	162.55	1550.41
Total Nutrients Required (lbs/Field)	3,640	683	3,003	105,000
Total Nutrients Planned (lbs/Field)	4,832	864	5,689	54,264

N-Ratio for Field	1.33

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 25 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 35 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wine Grapes	104.00	19.50	85.80	13.00	January	September
Loading Rate (∑B) (tons/ac)	104.00	19.50	85.80			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	3,640.00	682.50	3,003.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
145.60	171.60	Wine Grapes
145.60	171.60	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) / (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) / 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) / 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) / 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 / 325848	CROP
Feb	9	1.00	950,399	27,154.25	0.07	1.79	0.00	0.00	0.00	0.00	440.00	59.84	Wine Grapes
Mar	9	2.00	1,900,798	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
Apr	9	2.00	1,900,798	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
May	9	3.00	2,851,196	81,462.75	0.07	5.37	0.00	0.00	0.00	0.00	440.00	179.52	Wine Grapes
Jun	9	4.00	3,801,595	108,617.00	0.07	7.16	0.00	0.00	0.00	0.00	440.00	239.36	Wine Grapes
Jun	27	5.00	4,751,994	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	5.00	4,751,994	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	3.00	2,851,196	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	3.00	2,851,196	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	2.00	1,900,798	54,308.50	0.03	1.68	0.00	0.00	0.00	0.00	340.00	92.48	Wine Grapes
					TN Applied	*36.58*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1550.41*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 25 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

(1) Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN[2] %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P[2] %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K[2] %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	400	11.43	11.02	32	40.30		0.00		0.00	Wine Grapes
					TN Applied	*40.30*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN[2] (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P[2] (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K[2] (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
Mar	corral	105	3.00	0.79	47.16	0.41	24.68	2.71	162.55	Wine Grapes
				TN Applied	*47.16*	P Applied	*24.68*	K Applied	*162.55*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN[2] %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P[2] %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K[2] %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 25 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wine Grapes											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	104.00	19.50	85.80	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	145.60											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	171.60											
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41								
Liquid Fertilizer Applications	40.30	0.00	0.00									
Dry Manure Applications	47.16	24.68	162.55									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	138.04	24.68	162.55	1550.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.33 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41
Liquid Fertilizer Applications	40.30	0.00	0.00	NA
Dry Manure Applications	47.16	24.68	162.55	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	138.04	24.68	162.55	1550.41
Total Nutrients Required (lbs/Field)	3,640	683	3,003	105,000
Total Nutrients Planned (lbs/Field)	4,832	864	5,689	54,264

N-Ratio for Field	1.33

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 26 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Riverdale CA 93656

Field Size (acres) = (A) 40

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wine Grapes	104.00	19.50	85.80	13.00	January	September
Loading Rate (∑B) (tons/ac)	104.00	19.50	85.80			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	4,160.00	780.00	3,432.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
145.60	171.60	Wine Grapes
145.60	171.60	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	9	1.00	1,086,170	27,154.25	0.07	1.79	0.00	0.00	0.00	0.00	440.00	59.84	Wine Grapes
Mar	9	2.00	2,172,340	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
Apr	9	2.00	2,172,340	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
May	9	3.00	3,258,510	81,462.75	0.07	5.37	0.00	0.00	0.00	0.00	440.00	179.52	Wine Grapes
Jun	9	4.00	4,344,680	108,617.00	0.07	7.16	0.00	0.00	0.00	0.00	440.00	239.36	Wine Grapes
Jun	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	3.00	3,258,510	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	3.00	3,258,510	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	2.00	2,172,340	54,308.50	0.03	1.68	0.00	0.00	0.00	0.00	340.00	92.48	Wine Grapes
					TN Applied	*36.58*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1550.41*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 26 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Date (month)	Fertilizer Source[1]	Volume Applied (gallons)	Volume / Acre (gal/acre) (2) / (A)	Fertilizer Weight (lbs/gal)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4) * (5) / 100	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (4) * (7) / 100	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	460	11.50	11.02	32	40.55		0.00		0.00	Wine Grapes
					TN Applied	*40.55*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Application Source	Vol. Applied (tons)	Vol. per Acre (tons/ac) (2) / (A)	Lab Analysis TN^2 (%) - rcvd	N Applied (lb/acre) (3) * (4)	Lab Analysis P^2 (%) - rcvd	P Applied (lb/acre) (3) * (6)	Lab Analysis K^2 (%) - rcvd	K Applied (lb/acre) (3) * (8)	CROP
Mar	corral	120	3.00	0.79	47.16	0.41	24.68	2.71	162.55	Wine Grapes
				TN Applied	*47.16*	P Applied	*24.68*	K Applied	*162.55*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Fertilizer Source[1]	Vol. Applied (lbs)	Vol. per Acre (lbs/ac) (2) / (A)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4)	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (6)	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 26 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wine Grapes											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	104.00	19.50	85.80	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	145.60											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	171.60											
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41								
Liquid Fertilizer Applications	40.55	0.00	0.00									
Dry Manure Applications	47.16	24.68	162.55									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	138.30	24.68	162.55	1550.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.33 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41
Liquid Fertilizer Applications	40.55	0.00	0.00	NA
Dry Manure Applications	47.16	24.68	162.55	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	138.30	24.68	162.55	1550.41
Total Nutrients Required (lbs/Field)	4,160	780	3,432	120,000
Total Nutrients Planned (lbs/Field)	5,532	987	6,502	62,017

N-Ratio for Field	1.33

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 27 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 30 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wine Grapes	104.00	19.50	85.80	13.00	January	September
Loading Rate (∑B) (tons/ac)	104.00	19.50	85.80			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	3,120.00	585.00	2,574.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
145.60	171.60	Wine Grapes
145.60	171.60	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	9	1.00	814,628	27,154.25	0.07	1.79	0.00	0.00	0.00	0.00	440.00	59.84	Wine Grapes
Mar	9	2.00	1,629,255	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
Apr	9	2.00	1,629,255	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
May	9	3.00	2,443,883	81,462.75	0.07	5.37	0.00	0.00	0.00	0.00	440.00	179.52	Wine Grapes
Jun	9	4.00	3,258,510	108,617.00	0.07	7.16	0.00	0.00	0.00	0.00	440.00	239.35	Wine Grapes
Jun	27	5.00	4,073,138	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	5.00	4,073,138	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	3.00	2,443,883	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	3.00	2,443,883	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	2.00	1,629,255	54,308.50	0.03	1.68	0.00	0.00	0.00	0.00	340.00	92.48	Wine Grapes
					TN Applied	*36.58*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1550.41*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 27 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN^2 %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P^2 %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K^2 %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	340	11.33	11.02	32	39.97		0.00		0.00	Wine Grapes
					TN Applied	*39.97*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN^2 (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P^2 (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K^2 (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
Mar	corral	90	3.00	0.79	47.16	0.41	24.68	2.71	162.55	Wine Grapes
				TN Applied	*47.16*	P Applied	*24.68*	K Applied	*162.55*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN^2 %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P^2 %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K^2 %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 27 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wine Grapes											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	104.00	19.50	85.80	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	145.60											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	171.60											
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41								
Liquid Fertilizer Applications	39.97	0.00	0.00									
Dry Manure Applications	47.16	24.68	162.55									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	137.71	24.68	162.55	1550.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.32 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41
Liquid Fertilizer Applications	39.97	0.00	0.00	NA
Dry Manure Applications	47.16	24.68	162.55	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	137.71	24.68	162.55	1550.41
Total Nutrients Required (lbs/Field)	3,120	585	2,574	90,000
Total Nutrients Planned (lbs/Field)	4,131	740	4,877	46,512

N-Ratio for Field	1.32

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 28 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 40 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wine Grapes	104.00	19.50	85.80	13.00	January	September
Loading Rate (∑B) (tons/ac)	104.00	19.50	85.80			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	4,160.00	780.00	3,432.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
145.60	171.60	Wine Grapes
145.60	171.60	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	9	1.00	1,086,170	27,154.25	0.07	1.79	0.00	0.00	0.00	0.00	440.00	59.84	Wine Grapes
Mar	9	2.00	2,172,340	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
Apr	9	2.00	2,172,340	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
May	9	3.00	3,258,510	81,462.75	0.07	5.37	0.00	0.00	0.00	0.00	440.00	179.52	Wine Grapes
Jun	9	4.00	4,344,680	108,617.00	0.07	7.16	0.00	0.00	0.00	0.00	440.00	239.36	Wine Grapes
Jun	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	3.00	3,258,510	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	3.00	3,258,510	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	2.00	2,172,340	54,308.50	0.03	1.68	0.00	0.00	0.00	0.00	340.00	92.48	Wine Grapes
					TN Applied	*36.58*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1550.41*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 28 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN^2 %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P^2 %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K^2 %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	460	11.50	11.02	32	40.55		0.00		0.00	Wine Grapes
				TN Applied	*40.55*	P Applied	*0.00*	K Applied	*0.00*		

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN^2 (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P^2 (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K^2 (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
Mar	corral	120	3.00	0.79	47.16	0.41	24.68	2.71	162.55	Wine Grapes
				TN Applied	*47.16*	P Applied	*24.68*	K Applied	*162.55*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN^2 %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P^2 %	(7) P Applied (lb/acre) (3) * (5)	(8) Fert. Analysis K^2 %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 28 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wine Grapes											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	104.00	19.50	85.80	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	145.60											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	171.60											
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41								
Liquid Fertilizer Applications	40.55	0.00	0.00									
Dry Manure Applications	47.16	24.68	162.55									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	138.30	24.68	162.55	1550.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.33 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41
Liquid Fertilizer Applications	40.55	0.00	0.00	NA
Dry Manure Applications	47.16	24.68	162.55	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	**138.30**	**24.68**	**162.55**	**1550.41**
Total Nutrients Required (lbs/Field)	**4,160**	**780**	**3,432**	**120,000**
Total Nutrients Planned (lbs/Field)	**5,532**	**987**	**6,502**	**62,017**

N-Ratio for Field	1.33

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 29 **Farm:** RuAnn Dairy **Year** 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 40 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wine Grapes	104.00	19.50	85.80	13.00	January	September
Loading Rate (∑B) (tons/ac)	104.00	19.50	85.80			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	4,160.00	780.00	3,432.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
145.60	171.60	Wine Grapes
145.60	171.60	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

Start Date (month)	(1) Liquid Application Source[1]	(2) Liquid Application (ac-in/acre)	(3) Total Volume Applied (gallons)	(4) Volume per Acre (gal/acre) (3)/(A)	(5) Lab Analysis TN[2] (lb/1000 gal)	(6) N Applied (lb/acre) (4) x (5) 1000	(7) Lab Analysis P[2] (lb/1000 gal)	(8) P Applied (lb/acre) (4) x (7) 1000	(9) Lab Analysis K[2] (lb/1000 gal)	(10) K Applied (lb/acre) (4) x (9) 1000	(11) EC[2] (umhos/cm)	(12) Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	9	1.00	1,086,170	27,154.25	0.07	1.79	0.00	0.00	0.00	0.00	440.00	59.84	Wine Grapes
Mar	9	2.00	2,172,340	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
Apr	9	2.00	2,172,340	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
May	9	3.00	3,258,510	81,462.75	0.07	5.37	0.00	0.00	0.00	0.00	440.00	179.52	Wine Grapes
Jun	9	4.00	4,344,680	108,617.00	0.07	7.16	0.00	0.00	0.00	0.00	440.00	239.36	Wine Grapes
Jun	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	5.00	5,430,850	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	3.00	3,258,510	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	3.00	3,258,510	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	2.00	2,172,340	54,308.50	0.03	1.68	0.00	0.00	0.00	0.00	340.00	92.48	Wine Grapes
					TN Applied	*36.58*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1550.41*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 29 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Date (month)	Fertilizer Source[1]	Volume Applied (gallons)	Volume / Acre (gal/acre) (2) / (A)	Fertilizer Weight (lbs/gal)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4) * (5) / 100	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (4) * (7) / 100	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	460	11.50	11.02	32	40.55		0.00		0.00	Wine Grapes
					TN Applied	*40.55*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Application Source	Vol. Applied (tons)	Vol. per Acre (tons/ac) (2) / (A)	Lab Analysis TN^2 (%) - rcvd	N Applied (lb/acre) (3) * (4)	Lab Analysis P^2 (%) - rcvd	P Applied (lb/acre) (3) * (6)	Lab Analysis K^2 (%) - rcvd	K Applied (lb/acre) (3) * (8)	CROP
Mar	corral	120	3.00	0.79	47.16	0.41	24.68	2.71	162.55	Wine Grapes
				TN Applied	*47.16*	P Applied	*24.68*	K Applied	*162.55*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Fertilizer Source[1]	Vol. Applied (lbs)	Vol. per Acre (lbs/ac) (2) / (A)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4)	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (6)	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 29 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wine Grapes											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	104.00	19.50	85.80	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	145.60											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	171.60											
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41								
Liquid Fertilizer Applications	40.55	0.00	0.00									
Dry Manure Applications	47.16	24.68	162.55									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	138.30	24.68	162.55	1550.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.33 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41
Liquid Fertilizer Applications	40.55	0.00	0.00	NA
Dry Manure Applications	47.16	24.68	162.55	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	**138.30**	**24.68**	**162.55**	**1550.41**
Total Nutrients Required (lbs/Field)	**4,160**	**780**	**3,432**	**120,000**
Total Nutrients Planned (lbs/Field)	**5,532**	**987**	**6,502**	**62,017**

N-Ratio for Field	1.33

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 30 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Riverdale CA 93656

Field Size (acres) = (A) 80

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wine Grapes	104.00	19.50	85.80	13.00	January	September
Loading Rate (∑B) (tons/ac)	104.00	19.50	85.80			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	8,320.00	1,560.00	6,864.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
145.60	171.60	Wine Grapes
145.60	171.60	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	9	1.00	2,172,340	27,154.25	0.07	1.79	0.00	0.00	0.00	0.00	440.00	59.84	Wine Grapes
Mar	9	2.00	4,344,680	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
Apr	9	2.00	4,344,680	54,308.50	0.07	3.58	0.00	0.00	0.00	0.00	440.00	119.68	Wine Grapes
May	9	3.00	6,517,020	81,462.75	0.07	5.37	0.00	0.00	0.00	0.00	440.00	179.52	Wine Grapes
Jun	9	4.00	8,689,360	108,617.00	0.07	7.16	0.00	0.00	0.00	0.00	440.00	239.36	Wine Grapes
Jun	27	5.00	10,861,700	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	5.00	10,861,700	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wine Grapes
Jul	27	3.00	6,517,020	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	3.00	6,517,020	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wine Grapes
Aug	27	2.00	4,344,680	54,308.50	0.03	1.68	0.00	0.00	0.00	0.00	340.00	92.48	Wine Grapes
					TN Applied	*36.58*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1550.41*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 30 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Date (month)	Fertilizer Source[1]	Volume Applied (gallons)	Volume / Acre (gal/acre) (2) / (A)	Fertilizer Weight (lbs/gal)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4) * (5) / 100	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (4) * (7) / 100	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	920	11.50	11.02	32	40.55		0.00		0.00	Wine Grapes
					TN Applied	*40.55*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Application Source	Vol. Applied (tons)	Vol. per Acre (tons/ac) (2) / (A)	Lab Analysis TN^2 (%) - rcvd	N Applied (lb/acre) (3) * (4)	Lab Analysis P^2 (%) - rcvd	P Applied (lb/acre) (3) * (6)	Lab Analysis K^2 (%) - rcvd	K Applied (lb/acre) (3) * (8)	CROP
Mar	corral	240	3.00	0.79	47.16	0.41	24.68	2.71	162.55	Wine Grapes
				TN Applied	*47.16*	P Applied	*24.68*	K Applied	*162.55*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Fertilizer Source[1]	Vol. Applied (lbs)	Vol. per Acre (lbs/ac) (2) / (A)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4)	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (6)	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 30 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wine Grapes											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	104.00	19.50	85.80	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	145.60											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	171.60											
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41								
Liquid Fertilizer Applications	40.55	0.00	0.00									
Dry Manure Applications	47.16	24.68	162.55									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	138.30	24.68	162.55	1550.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.33 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	36.58	0.00	0.00	1550.41
Liquid Fertilizer Applications	40.55	0.00	0.00	NA
Dry Manure Applications	47.16	24.68	162.55	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	138.30	24.68	162.55	1550.41
Total Nutrients Required (lbs/Field)	8,320	1,560	6,864	240,000
Total Nutrients Planned (lbs/Field)	11,064	1,974	13,004	124,033

N-Ratio for Field	1.33

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 31 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 80 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Almonds	162.50	27.50	176.25	1.25	January	August
Loading Rate (∑B) (tons/ac)	162.50	27.50	176.25			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	13,000.00	2,200.00	14,100.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
227.50	268.13	Almonds
227.50	268.13	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	33N	1.00	2,172,340	27,154.25	0.12	3.17	0.00	0.00	0.00	0.00	380.00	51.68	Almonds
Mar	33N	2.00	4,344,680	54,308.50	0.12	6.35	0.00	0.00	0.00	0.00	380.00	103.36	Almonds
Apr	33N	4.00	8,689,360	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Almonds
May	33N	4.00	8,689,360	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Almonds
Jun	33N	6.00	13,034,040	162,925.50	0.12	19.04	0.00	0.00	0.00	0.00	380.00	310.08	Almonds
Jun	33N	8.00	17,378,720	217,234.00	0.12	25.39	0.00	0.00	0.00	0.00	380.00	413.44	Almonds
Jul	27	5.00	10,861,700	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Almonds
Jul	27	5.00	10,861,700	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Almonds
Aug	27	3.00	6,517,020	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Almonds
					TN Applied	*90.23*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1893.14*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 31 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Date (month)	Fertilizer Source[1]	Volume Applied (gallons)	Volume / Acre (gal/acre) (2) / (A)	Fertilizer Weight (lbs/gal)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4) * (5) / 100	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (4) * (7) / 100	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Aug	UN32	1150	14.38	11.02	32	50.69		0.00		0.00	Almonds
Feb	UN32	570	7.13	11.02	32	25.13		0.00		0.00	Almonds
Mar	UN32	570	7.13	11.02	32	25.13		0.00		0.00	Almonds
					TN Applied	*100.94*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Application Source	Vol. Applied (tons)	Vol. per Acre (tons/ac) (2) / (A)	Lab Analysis TN^2 (%) - rcvd	N Applied (lb/acre) (3) * (4)	Lab Analysis P^2 (%) - rcvd	P Applied (lb/acre) (3) * (6)	Lab Analysis K^2 (%) - rcvd	K Applied (lb/acre) (3) * (8)	CROP
Feb	manure	240	3.00	0.37	22.03	0.05	3.75	0.11	6.77	Almonds
				TN Applied	*22.03*	P Applied	*3.75*	K Applied	*6.77*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Fertilizer Source[1]	Vol. Applied (lbs)	Vol. per Acre (lbs/ac) (2) / (A)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4)	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (6)	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 31 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Almonds											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	162.50	27.50	176.25	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	227.50											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	268.13											
Wastewater & Fresh Water Applications	90.23	0.00	0.00	1893.14								
Liquid Fertilizer Applications	100.94	0.00	0.00									
Dry Manure Applications	22.03	3.75	6.77									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	227.21	3.75	6.77	1893.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

N-Ratio per Crop*	1.40 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	90.23	0.00	0.00	1893.14
Liquid Fertilizer Applications	100.94	0.00	0.00	NA
Dry Manure Applications	22.03	3.75	6.77	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	**227.21**	**3.75**	**6.77**	**1893.14**
Total Nutrients Required (lbs/Field)	**13,000**	**2,200**	**14,100**	**240,000**
Total Nutrients Planned (lbs/Field)	**18,177**	**300**	**541**	**151,451**

N-Ratio for Field	1.40

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 32 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 80 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Almonds	162.50	27.50	176.25	1.25	January	August
Loading Rate (∑B) (lons/ac)	162.50	27.50	176.25			
Total Nutrients Required - Whole Field Loading (lons) = ∑B x A	13,000.00	2,200.00	14,100.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
227.50	268.13	Almonds
227.50	268.13	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

Start Date (month)	(1) Liquid Application Source[1]	(2) Liquid Application (ac-in/acre)	(3) Total Volume Applied (gallons)	(4) Volume per Acre (gal/acre) (3)/(A)	(5) Lab Analysis TN[2] (lb/1000 gal)	(6) N Applied (lb/acre) (4) x (5) / 1000	(7) Lab Analysis P[2] (lb/1000 gal)	(8) P Applied (lb/acre) (4) x (7) / 1000	(9) Lab Analysis K[2] (lb/1000 gal)	(10) K Applied (lb/acre) (4) x (9) / 1000	(11) EC[2] (umhos/cm)	(12) Salts Applied (lb/acre) (11)*0.6*(4)*2.72 / 325848	CROP
Feb	33N	1.00	2,172,340	27,154.25	0.12	3.17	0.00	0.00	0.00	0.00	380.00	51.68	Almonds
Mar	33N	2.00	4,344,680	54,308.50	0.12	6.35	0.00	0.00	0.00	0.00	380.00	103.36	Almonds
Apr	33N	4.00	8,689,360	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Almonds
May	33N	4.00	8,689,360	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Almonds
Jun	33N	6.00	13,034,040	162,925.50	0.12	19.04	0.00	0.00	0.00	0.00	380.00	310.08	Almonds
Jun	33N	8.00	17,378,720	217,234.00	0.12	25.39	0.00	0.00	0.00	0.00	380.00	413.44	Almonds
Jul	27	5.00	10,861,700	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Almonds
Jul	27	5.00	10,861,700	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Almonds
Aug	27	3.00	6,517,020	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Almonds
					TN Applied	*90.23*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1893.14*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 32 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN^2 %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P^2 %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K^2 %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Aug	UN32	1150	14.38	11.02	32	50.69		0.00		0.00	Almonds
Feb	UN32	570	7.13	11.02	32	25.13		0.00		0.00	Almonds
Mar	UN32	570	7.13	11.02	32	25.13		0.00		0.00	Almonds
					TN Applied	*100.94*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN^2 (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P^2 (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K^2 (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
Feb	manure	240	3.00	0.37	22.03	0.06	3.75	0.11	6.77	Almonds
				TN Applied	*22.03*	P Applied	*3.75*	K Applied	*6.77*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN^2 %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P^2 %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K^2 %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 32 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Almonds											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	162.50	27.50	176.25	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	227.50											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	268.13											
Wastewater & Fresh Water Applications	90.23	0.00	0.00	1893.14								
Liquid Fertilizer Applications	100.94	0.00	0.00									
Dry Manure Applications	22.03	3.75	6.77									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	227.21	3.75	6.77	1893.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.40 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	90.23	0.00	0.00	1893.14
Liquid Fertilizer Applications	100.94	0.00	0.00	NA
Dry Manure Applications	22.03	3.75	6.77	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	227.21	3.75	6.77	1893.14
Total Nutrients Required (lbs/Field)	13,000	2,200	14,100	240,000
Total Nutrients Planned (lbs/Field)	18,177	300	541	151,451

N-Ratio for Field	1.40

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 33 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 80 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Almonds	162.50	27.50	176.25	1.25	January	August
Loading Rate (∑B) (tons/ac)	162.50	27.50	176.25			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	13,000.00	2,200.00	14,100.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
227.50	268.13	Almonds
227.50	268.13	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	33N	1.00	2,172,340	27,154.25	0.12	3.17	0.00	0.00	0.00	0.00	380.00	51.68	Almonds
Mar	33N	2.00	4,344,680	54,308.50	0.12	6.35	0.00	0.00	0.00	0.00	380.00	103.36	Almonds
Apr	33N	4.00	8,689,360	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Almonds
May	33N	4.00	8,689,360	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Almonds
Jun	33N	6.00	13,034,040	162,925.50	0.12	19.04	0.00	0.00	0.00	0.00	380.00	310.08	Almonds
Jun	33N	8.00	17,378,720	217,234.00	0.12	25.39	0.00	0.00	0.00	0.00	380.00	413.44	Almonds
Jul	27	5.00	10,861,700	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Almonds
Jul	27	5.00	10,861,700	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Almonds
Aug	27	3.00	6,517,020	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Almonds
					TN Applied	*90.23*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*1893.14*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 33 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Date (month)	Fertilizer Source[1]	Volume Applied (gallons)	Volume / Acre (gal/acre) (2) / (A)	Fertilizer Weight (lbs/gal)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4) * (5) / 100	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (4) * (7) / 100	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Aug	UN32	1150	14.38	11.02	32	50.69		0.00		0.00	Almonds
Feb	UN32	570	7.13	11.02	32	25.13		0.00		0.00	Almonds
Mar	UN32	570	7.13	11.02	32	25.13		0.00		0.00	Almonds
					TN Applied	*100.94*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Application Source	Vol. Applied (tons)	Vol. per Acre (tons/ac) (2) / (A)	Lab Analysis TN^2 (%) - rcvd	N Applied (lb/acre) (3) * (4)	Lab Analysis P^2 (%) - rcvd	P Applied (lb/acre) (3) * (6)	Lab Analysis K^2 (%) - rcvd	K Applied (lb/acre) (3) * (8)	CROP
Feb	manure	240	3.00	0.37	22.03	0.06	3.75	0.11	6.77	Almonds
				TN Applied	*22.03*	P Applied	*3.75*	K Applied	*6.77*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Fertilizer Source[1]	Vol. Applied (lbs)	Vol. per Acre (lbs/ac) (2) / (A)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4)	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (6)	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 33 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Almonds											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	162.50	27.50	176.25	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	227.50											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	268.13											
Wastewater & Fresh Water Applications	90.23	0.00	0.00	1893.14								
Liquid Fertilizer Applications	100.94	0.00	0.00									
Dry Manure Applications	22.03	3.75	6.77									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	227.21	3.75	6.77	1893.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.40 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	90.23	0.00	0.00	1893.14
Liquid Fertilizer Applications	100.94	0.00	0.00	NA
Dry Manure Applications	22.03	3.75	6.77	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	**227.21**	**3.75**	**6.77**	**1893.14**
Total Nutrients Required (lbs/Field)	**13,000**	**2,200**	**14,100**	**240,000**
Total Nutrients Planned (lbs/Field)	**18,177**	**300**	**541**	**151,451**

N-Ratio for Field	1.40

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID A-1N Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 40 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Alfalfa	480.00	43.20	336.00	8.00	January	December
Loading Rate (∑B) (tons/ac)	480.00	43.20	336.00			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	19,200.00	1,728.00	13,440.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
672.00	792.00	Alfalfa
672.00	792.00	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	33N	2.00	2,172,340	54,308.50	0.12	6.35	0.00	0.00	0.00	0.00	380.00	103.36	Alfalfa
Mar	33N	3.00	3,258,510	81,462.75	0.12	9.52	0.00	0.00	0.00	0.00	380.00	155.04	Alfalfa
Apr	33N	4.00	4,344,680	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
May	33N	4.00	4,344,680	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
Jun	33N	8.00	8,689,360	217,234.00	0.12	25.39	0.00	0.00	0.00	0.00	380.00	413.44	Alfalfa
Jul	33N	10.00	10,861,700	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Aug	33N	10.00	10,861,700	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Sep	33N	7.00	7,603,190	190,079.75	0.12	22.21	0.00	0.00	0.00	0.00	380.00	361.76	Alfalfa
Oct	33N	5.00	5,430,850	135,771.25	0.12	15.87	0.00	0.00	0.00	0.00	380.00	258.40	Alfalfa
					TN Applied	*166.18*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*2739.07*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID A-1N Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

(1) Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN[2] %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P[2] %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K[2] %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
					TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

(1) Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN[2] (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P[2] (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K[2] (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00							
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

(1) Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN[2] %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P[2] %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K[2] %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID A-1N Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Alfalfa											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	480.00	43.20	336.00	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	672.00											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	792.00											
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07								
Liquid Fertilizer Applications	0.00	0.00	0.00									
Dry Manure Applications	0.00	0.00	0.00									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	182.18	0.00	0.00	2739.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

N-Ratio per Crop*	0.38 GOOD		

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07
Liquid Fertilizer Applications	0.00	0.00	0.00	NA
Dry Manure Applications	0.00	0.00	0.00	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	182.18	0.00	0.00	2739.07
Total Nutrients Required (lbs/Field)	19,200	1,728	13,440	120,000
Total Nutrients Planned (lbs/Field)	7,287	0	0	109,563

N-Ratio for Field	0.38

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID A-1S Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Riverdale CA 93656

Field Size (acres) = (A) 40

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wheat Silage	165.00	25.50	124.50	15.00	November	April
Corn Silage	200.00	37.50	165.00	25.00	May	August
Loading Rate (∑B) (tons/ac)	365.00	63.00	289.50			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	14,600.00	2,520.00	11,580.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
231.00	272.25	Wheat Silage
280.00	330.00	Corn Silage
511.00	602.25	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Dec	33N	4.00	4,344,680	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Wheat Silage
Jan	33N	6.00	6,517,020	162,925.50	0.12	19.04	0.00	0.00	0.00	0.00	380.00	310.08	Wheat Silage
Feb	33N	6.00	6,517,020	162,925.50	0.12	19.04	0.00	0.00	0.00	0.00	380.00	310.08	Wheat Silage
Mar	33N	4.00	4,344,680	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Wheat Silage
Apr	33N	3.00	3,258,510	81,462.75	0.12	9.52	0.00	0.00	0.00	0.00	380.00	155.04	Corn Silage
May	33N	6.00	6,517,020	162,925.50	0.12	19.04	0.00	0.00	0.00	0.00	380.00	310.08	Corn Silage
Jun	33N	8.00	8,689,360	217,234.00	0.12	25.39	0.00	0.00	0.00	0.00	380.00	413.44	Corn Silage
Jul	33N	5.00	5,430,850	135,771.25	0.12	15.87	0.00	0.00	0.00	0.00	380.00	258.40	Corn Silage
Jul	33N	6.00	6,517,020	162,925.50	0.12	19.04	0.00	0.00	0.00	0.00	380.00	310.08	Corn Silage
Aug	33N	6.00	6,517,020	162,925.50	0.12	19.04	0.00	0.00	0.00	0.00	380.00	310.08	Corn Silage
Aug	33N	6.00	6,517,020	162,925.50	0.12	19.04	0.00	0.00	0.00	0.00	380.00	310.08	Corn Silage
Sep	33N	5.00	5,430,850	135,771.25	0.12	15.87	0.00	0.00	0.00	0.00	380.00	258.40	Corn Silage
					TN Applied	*206.26*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*3359.23*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID A-1S Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN^2 %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P^2 %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K^2 %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	230	5.75	11.02	32	20.28		0.00		0.00	Corn Silage
					TN Applied	*20.28*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN^2 (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P^2 (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K^2 (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
Dec	corral	160	4.00	1.84	147.52	0.72	57.94	3.07	245.93	Wheat Silage
Apr	corral	120	3.00	0.79	47.16	0.41	24.68	2.71	162.55	Corn Silage
				TN Applied	*194.68*	P Applied	*82.61*	K Applied	*408.48*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN^2 %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P^2 %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K^2 %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID A-1S Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wheat Silage				Corn Silage							
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	165.00	25.50	124.50	2000.00	200.00	37.50	165.00	2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	231.00				280.00							
Maximum Nitrogen to Apply (Bm') (lbs/ac)	272.25				330.00							
Wastewater & Fresh Water Applications	63.46	0.00	0.00	1033.61	142.79	0.00	0.00	2325.62				
Liquid Fertilizer Applications	0.00	0.00	0.00		20.28	0.00	0.00					
Dry Manure Applications	147.52	57.94	245.93		47.16	24.68	162.55					
Dry Fertilizer Applications	0.00	0.00	0.00		0.00	0.00	0.00					
Atmospheric Deposition	7.00				7.00				0.00			
Nutrients Planned per Crop (lbs/acre)	217.98	57.94	245.93	1033.61	217.23	24.68	162.55	2325.62	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.32 GOOD				1.09 GOOD							

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	206.26	0.00	0.00	3359.23
Liquid Fertilizer Applications	20.28	0.00	0.00	NA
Dry Manure Applications	194.68	82.61	408.48	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	**435.21**	**82.61**	**408.48**	**3359.23**
Total Nutrients Required (lbs/Field)	**14,600**	**2,520**	**11,580**	**120,000**
Total Nutrients Planned (lbs/Field)	**17,409**	**3,305**	**16,339**	**134,369**

N-Ratio for Field	1.19

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID A-2 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Riverdale CA 93656

Field Size (acres) = (A) 32

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Alfalfa	480.00	43.20	336.00	8.00	January	December
Loading Rate (∑B) (tons/ac)	480.00	43.20	336.00			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	15,360.00	1,382.40	10,752.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
672.00	792.00	Alfalfa
672.00	792.00	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) / (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) / 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) / 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) / 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 / 325848	CROP
Feb	33N	2.00	1,737,872	54,308.50	0.12	6.35	0.00	0.00	0.00	0.00	380.00	103.36	Alfalfa
Mar	33N	3.00	2,606,808	81,462.75	0.12	9.52	0.00	0.00	0.00	0.00	380.00	155.04	Alfalfa
Apr	33N	4.00	3,475,744	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
May	33N	4.00	3,475,744	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
Jun	33N	8.00	6,951,488	217,234.00	0.12	25.39	0.00	0.00	0.00	0.00	380.00	413.44	Alfalfa
Jul	33N	10.00	8,689,360	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Aug	33N	10.00	8,689,360	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Sep	33N	7.00	6,082,552	190,079.75	0.12	22.21	0.00	0.00	0.00	0.00	380.00	361.76	Alfalfa
Oct	33N	5.00	4,344,680	135,771.25	0.12	15.87	0.00	0.00	0.00	0.00	380.00	258.40	Alfalfa
					TN Applied	*168.18*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*2739.07*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID A-2 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

(1) Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN^2 %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P^2 %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K^2 %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
					TN Applied	0.00	P Applied	0.00	K Applied	0.00	

Dry Manure Applications

(1) Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN^2 (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P^2 (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K^2 (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00							
				TN Applied	0.00	P Applied	0.00	K Applied	0.00	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

(1) Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN^2 %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P^2 %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K^2 %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	0.00	P Applied	0.00	K Applied	0.00	

Field ID A-2 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Alfalfa											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	480.00	43.20	336.00	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	672.00											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	792.00											
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07								
Liquid Fertilizer Applications	0.00	0.00	0.00									
Dry Manure Applications	0.00	0.00	0.00									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	182.18	0.00	0.00	2739.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	0.38 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07
Liquid Fertilizer Applications	0.00	0.00	0.00	NA
Dry Manure Applications	0.00	0.00	0.00	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	**182.18**	**0.00**	**0.00**	**2739.07**
Total Nutrients Required (lbs/Field)	**15,360**	**1,382**	**10,752**	**96,000**
Total Nutrients Planned (lbs/Field)	**5,830**	**0**	**0**	**87,650**

N-Ratio for Field	0.38

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID A-3 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 80 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wheat Silage	165.00	25.50	124.50	15.00	November	April
Corn Silage	200.00	37.50	165.00	25.00	May	August
Loading Rate (∑B) (tons/ac)	365.00	63.00	289.50			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	29,200.00	5,040.00	23,160.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
231.00	272.25	Wheat Silage
280.00	330.00	Corn Silage
511.00	602.25	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

Start Date (month)	(1) Liquid Application Source[1]	(2) Liquid Application (ac-in/acre)	(3) Total Volume Applied (gallons)	(4) Volume per Acre (gal/acre) (3)/(A)	(5) Lab Analysis TN[2] (lb/1000 gal)	(6) N Applied (lb/acre) (4) x (5) / 1000	(7) Lab Analysis P[2] (lb/1000 gal)	(8) P Applied (lb/acre) (4) x (7) / 1000	(9) Lab Analysis K[2] (lb/1000 gal)	(10) K Applied (lb/acre) (4) x (9) / 1000	(11) EC[2] (umhos/cm)	(12) Salts Applied (lb/acre) (11)*0.6*(4)*2.72 / 325848	CROP
Dec	33S	4.00	8,689,360	108,617.00	0.08	8.61	0.00	0.00	0.00	0.00	380.00	206.72	Wheat Silage
Jan	33S	6.00	13,034,040	162,925.50	0.08	12.92	0.00	0.00	0.00	0.00	380.00	310.08	Wheat Silage
Feb	33S	6.00	13,034,040	162,925.50	0.08	12.92	0.00	0.00	0.00	0.00	380.00	310.08	Wheat Silage
Mar	33S	4.00	8,689,360	108,617.00	0.08	8.61	0.00	0.00	0.00	0.00	380.00	206.72	Wheat Silage
Apr	33S	3.00	6,517,020	81,462.75	0.08	6.46	0.00	0.00	0.00	0.00	380.00	155.04	Corn Silage
May	33S	6.00	13,034,040	162,925.50	0.08	12.92	0.00	0.00	0.00	0.00	380.00	310.08	Corn Silage
Jun	33S	8.00	17,378,720	217,234.00	0.08	17.23	0.00	0.00	0.00	0.00	380.00	413.44	Corn Silage
Jul	33S	5.00	10,861,700	135,771.25	0.08	10.77	0.00	0.00	0.00	0.00	380.00	258.40	Corn Silage
Jul	33S	6.00	13,034,040	162,925.50	0.08	12.92	0.00	0.00	0.00	0.00	380.00	310.08	Corn Silage
Aug	33S	6.00	13,034,040	162,925.50	0.08	12.92	0.00	0.00	0.00	0.00	380.00	310.08	Corn Silage
Aug	33S	6.00	13,034,040	162,925.50	0.08	12.92	0.00	0.00	0.00	0.00	380.00	310.08	Corn Silage
Sep	33S	5.00	10,861,700	135,771.25	0.08	10.77	0.00	0.00	0.00	0.00	380.00	258.40	Corn Silage
					TN Applied	*139.96*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*3359.23*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID A-3 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN^2 %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P^2 %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K^2 %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	500	6.25	11.02	32	22.04		0.00		0.00	Corn Silage
					TN Applied	*22.04*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN^2 (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P^2 (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K^2 (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
Dec	corral	320	4.00	1.84	147.52	0.72	57.94	3.07	245.93	Wheat Silage
Apr	corral	320	4.00	0.79	62.88	0.41	32.90	2.71	216.74	Corn Silage
				TN Applied	*210.40*	P Applied	*90.84*	K Applied	*462.66*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN^2 %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P^2 %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K^2 %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID A-3 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wheat Silage				Corn Silage							
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	165.00	25.50	124.50	2000.00	200.00	37.50	165.00	2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	231.00				280.00							
Maximum Nitrogen to Apply (Bm') (lbs/ac)	272.25				330.00							
Wastewater & Fresh Water Applications	43.06	0.00	0.00	1033.61	96.90	0.00	0.00	2325.62				
Liquid Fertilizer Applications	0.00	0.00	0.00		22.04	0.00	0.00					
Dry Manure Applications	147.52	57.94	245.93		62.88	32.90	216.74					
Dry Fertilizer Applications	0.00	0.00	0.00		0.00	0.00	0.00					
Atmospheric Deposition	7.00				7.00				0.00			
Nutrients Planned per Crop (lbs/acre)	197.58	57.94	245.93	1033.61	188.82	32.90	216.74	2325.62	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.20 GOOD				0.94 GOOD							

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	139.96	0.00	0.00	3359.23
Liquid Fertilizer Applications	22.04	0.00	0.00	NA
Dry Manure Applications	210.40	90.84	462.66	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	386.40	90.84	462.66	3359.23
Total Nutrients Required (lbs/Field)	29,200	5,040	23,160	240,000
Total Nutrients Planned (lbs/Field)	30,912	7,267	37,013	268,738

N-Ratio for Field	1.06

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID A-4 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 55 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wheat Silage	165.00	25.50	124.50	15.00	November	April
Corn Silage	200.00	37.50	165.00	25.00	May	August
Loading Rate (∑B) (tons/ac)	365.00	63.00	289.50			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	20,075.00	3,465.00	15,922.50			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
231.00	272.25	Wheat Silage
280.00	330.00	Corn Silage
511.00	602.25	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

Start Date (month)	(1) Liquid Application Source[1]	(2) Liquid Application (ac-in/acre)	(3) Total Volume Applied (gallons)	(4) Volume per Acre (gal/acre) (3)/(A)	(5) Lab Analysis TN[2] (lb/1000 gal)	(6) N Applied (lb/acre) (4) x (5) / 1000	(7) Lab Analysis P[2] (lb/1000 gal)	(8) P Applied (lb/acre) (4) x (7) / 1000	(9) Lab Analysis K[2] (lb/1000 gal)	(10) K Applied (lb/acre) (4) x (9) / 1000	(11) EC[2] (umhos/cm)	(12) Salts Applied (lb/acre) (11)*0.6*(4)*2.72 / 325848	CROP
Dec	33S	4.00	5,973,935	108,617.00	0.08	8.61	0.00	0.00	0.00	0.00	380.00	206.72	Wheat Silage
Jan	33S	6.00	8,960,903	162,925.50	0.08	12.92	0.00	0.00	0.00	0.00	380.00	310.08	Wheat Silage
Feb	33S	6.00	8,960,903	162,925.50	0.08	12.92	0.00	0.00	0.00	0.00	380.00	310.08	Wheat Silage
Mar	33S	4.00	5,973,935	108,617.00	0.08	8.61	0.00	0.00	0.00	0.00	380.00	206.72	Wheat Silage
Apr	33S	3.00	4,480,451	81,462.75	0.08	6.46	0.00	0.00	0.00	0.00	380.00	155.04	Corn Silage
May	33S	6.00	8,960,903	162,925.50	0.08	12.92	0.00	0.00	0.00	0.00	380.00	310.08	Corn Silage
Jun	33S	8.00	11,947,870	217,234.00	0.08	17.23	0.00	0.00	0.00	0.00	380.00	413.44	Corn Silage
Jul	33S	5.00	7,467,419	135,771.25	0.08	10.77	0.00	0.00	0.00	0.00	380.00	258.40	Corn Silage
Jul	33S	6.00	8,960,903	162,925.50	0.08	12.92	0.00	0.00	0.00	0.00	380.00	310.08	Corn Silage
Aug	33S	6.00	8,960,903	162,925.50	0.08	12.92	0.00	0.00	0.00	0.00	380.00	310.08	Corn Silage
Aug	33S	6.00	8,960,903	162,925.50	0.08	12.92	0.00	0.00	0.00	0.00	380.00	310.08	Corn Silage
Sep	33S	5.00	7,467,419	135,771.25	0.08	10.77	0.00	0.00	0.00	0.00	380.00	258.40	Corn Silage
					TN Applied	*139.96*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*3359.23*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID A-4 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN[2] %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P[2] %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K[2] %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	350	6.36	11.02	32	22.44		0.00		0.00	Corn Silage
					TN Applied	*22.44*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN[2] (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P[2] (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K[2] (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
Dec	corral	220	4.00	1.84	147.52	0.72	57.94	3.07	245.93	Wheat Silage
Apr	corral	220	4.00	0.79	62.88	0.41	32.90	2.71	216.74	Corn Silage
				TN Applied	*210.40*	P Applied	*90.84*	K Applied	*462.66*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN[2] %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P[2] %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K[2] %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID A-4 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wheat Silage				Corn Silage							
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	165.00	25.50	124.50	2000.00	200.00	37.50	165.00	2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	231.00				280.00							
Maximum Nitrogen to Apply (Bm') (lbs/ac)	272.25				330.00							
Wastewater & Fresh Water Applications	43.06	0.00	0.00	1033.61	96.90	0.00	0.00	2325.62				
Liquid Fertilizer Applications	0.00	0.00	0.00		22.44	0.00	0.00					
Dry Manure Applications	147.52	57.94	245.93		62.88	32.90	216.74					
Dry Fertilizer Applications	0.00	0.00	0.00		0.00	0.00	0.00					
Atmospheric Deposition	7.00				7.00				0.00			
Nutrients Planned per Crop (lbs/acre)	197.58	57.94	245.93	1033.61	189.22	32.90	216.74	2325.62	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.20 GOOD				0.95 GOOD							

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	139.96	0.00	0.00	3359.23
Liquid Fertilizer Applications	22.44	0.00	0.00	NA
Dry Manure Applications	210.40	90.84	462.66	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	386.80	90.84	462.66	3359.23
Total Nutrients Required (lbs/Field)	20,075	3,465	15,923	165,000
Total Nutrients Planned (lbs/Field)	21,274	4,996	25,447	184,758

N-Ratio for Field	1.06

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID A-5 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Riverdale CA 93656

Field Size (acres) = (A) 55

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Alfalfa	480.00	43.20	336.00	8.00	January	December
Loading Rate (∑B) (tons/ac)	480.00	43.20	336.00			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	26,400.00	2,376.00	18,480.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
672.00	792.00	Alfalfa
672.00	792.00	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

Start Date (month)	(1) Liquid Application Source[1]	(2) Liquid Application (ac-in/acre)	(3) Total Volume Applied (gallons)	(4) Volume per Acre (gal/acre) (3)/(A)	(5) Lab Analysis TN[2] (lb/1000 gal)	(6) N Applied (lb/acre) (4) x (5) / 1000	(7) Lab Analysis P[2] (lb/1000 gal)	(8) P Applied (lb/acre) (4) x (7) / 1000	(9) Lab Analysis K[2] (lb/1000 gal)	(10) K Applied (lb/acre) (4) x (9) / 1000	(11) EC[2] (umhos/cm)	(12) Salts Applied (lb/acre) (11)*0.6*(4)*2.72 / 325848	CROP
Feb	33N	2.00	2,986,968	54,308.50	0.12	6.35	0.00	0.00	0.00	0.00	380.00	103.36	Alfalfa
Mar	33N	3.00	4,480,451	81,462.75	0.12	9.52	0.00	0.00	0.00	0.00	380.00	155.04	Alfalfa
Apr	33N	4.00	5,973,935	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
May	33N	4.00	5,973,935	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
Jun	33N	8.00	11,947,870	217,234.00	0.12	25.39	0.00	0.00	0.00	0.00	380.00	413.44	Alfalfa
Jul	33N	10.00	14,934,838	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Aug	33N	10.00	14,934,838	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Sep	33N	7.00	10,454,386	190,079.75	0.12	22.21	0.00	0.00	0.00	0.00	380.00	361.76	Alfalfa
Oct	33N	5.00	7,467,419	135,771.25	0.12	15.87	0.00	0.00	0.00	0.00	380.00	258.40	Alfalfa
					TN Applied	*168.18*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*2739.07*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter). dry manures (biannually) and fresh water (annual) for the farm.

Field ID A-5 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Date (month)	Fertilizer Source[1]	Volume Applied (gallons)	Volume / Acre (gal/acre) (2) / (A)	Fertilizer Weight (lbs/gal)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4) * (5) / 100	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (4) * (7) / 100	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
					TN Applied	0.00	P Applied	0.00	K Applied	0.00	

Dry Manure Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Application Source	Vol. Applied (tons)	Vol. per Acre (tons/ac) (2) / (A)	Lab Analysis TN^2 (%) - rcvd	N Applied (lb/acre) (3) * (4)	Lab Analysis P^2 (%) - rcvd	P Applied (lb/acre) (3) * (6)	Lab Analysis K^2 (%) - rcvd	K Applied (lb/acre) (3) * (8)	CROP
			0.00							
				TN Applied	0.00	P Applied	0.00	K Applied	0.00	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Fertilizer Source[1]	Vol. Applied (lbs)	Vol. per Acre (lbs/ac) (2) / (A)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4)	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (6)	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	0.00	P Applied	0.00	K Applied	0.00	

Field ID A-5 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Alfalfa											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	480.00	43.20	336.00	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	672.00											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	792.00											
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07								
Liquid Fertilizer Applications	0.00	0.00	0.00									
Dry Manure Applications	0.00	0.00	0.00									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	182.18	0.00	0.00	2739.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	0.38 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07
Liquid Fertilizer Applications	0.00	0.00	0.00	NA
Dry Manure Applications	0.00	0.00	0.00	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	182.18	0.00	0.00	2739.07
Total Nutrients Required (lbs/Field)	26,400	2,376	18,480	165,000
Total Nutrients Planned (lbs/Field)	10,020	0	0	150,649

N-Ratio for Field	0.38

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID A-6 Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Riverdale CA 93656

Field Size (acres) = (A) 15

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Alfalfa	480.00	43.20	336.00	8.00	January	December
Loading Rate (∑B) (tons/ac)	480.00	43.20	336.00			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	7,200.00	648.00	5,040.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
672.00	792.00	Alfalfa
672.00	792.00	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	33N	2.00	814,628	54,308.50	0.12	6.35	0.00	0.00	0.00	0.00	380.00	103.36	Alfalfa
Mar	33N	3.00	1,221,941	81,462.75	0.12	9.52	0.00	0.00	0.00	0.00	380.00	155.04	Alfalfa
Apr	33N	4.00	1,629,255	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
May	33N	4.00	1,629,255	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
Jun	33N	8.00	3,258,510	217,234.00	0.12	25.39	0.00	0.00	0.00	0.00	380.00	413.44	Alfalfa
Jul	33N	10.00	4,073,138	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Aug	33N	10.00	4,073,138	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Sep	33N	7.00	2,851,196	190,079.75	0.12	22.21	0.00	0.00	0.00	0.00	380.00	361.76	Alfalfa
Oct	33N	5.00	2,036,569	135,771.25	0.12	15.87	0.00	0.00	0.00	0.00	380.00	258.40	Alfalfa
					TN Applied	*168.18*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*2739.07*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID A-6 Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN[2] %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P[2] %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K[2] %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
					TN Applied	0.00	P Applied	0.00	K Applied	0.00	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN[2] (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P[2] (%) - rcvd	(7) P Applied (lb/acre) (3) * (6)	(8) Lab Analysis K[2] (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00							
				TN Applied	0.00	P Applied	0.00	K Applied	0.00	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN[2] %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P[2] %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K[2] %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	0.00	P Applied	0.00	K Applied	0.00	

Field ID A-6 Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Alfalfa											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	480.00	43.20	336.00	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	672.00											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	792.00											
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07								
Liquid Fertilizer Applications	0.00	0.00	0.00									
Dry Manure Applications	0.00	0.00	0.00									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	182.18	0.00	0.00	2739.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	0.38 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07
Liquid Fertilizer Applications	0.00	0.00	0.00	NA
Dry Manure Applications	0.00	0.00	0.00	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	182.18	0.00	0.00	2739.07
Total Nutrients Required (lbs/Field)	7,200	648	5,040	45,000
Total Nutrients Planned (lbs/Field)	2,733	0	0	41,086

N-Ratio for Field	0.38

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 36 West Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 75 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Wheat Silage	165.00	25.50	124.50	15.00	November	April
Corn Silage	200.00	37.50	165.00	25.00	May	August
Loading Rate (∑B) (tons/ac)	365.00	63.00	289.50			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	27,375.00	4,725.00	21,712.50			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
231.00	272.25	Wheat Silage
280.00	330.00	Corn Silage
511.00	602.25	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Dec	27	6.00	12,219,413	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Wheat Silage
Jan	Pond	2.25	4,582,280	61,097.06	3.11	189.71	0.16	10.05	1.17	71.40	1970.00	602.83	Wheat Silage
Jan	27	6.00	12,219,413	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Wheat Silage
Feb	27	5.00	10,182,844	135,771.25	0.03	4.19	0.00	0.00	0.00	0.00	340.00	231.20	Wheat Silage
Mar	27	3.00	6,109,706	81,462.75	0.03	2.52	0.00	0.00	0.00	0.00	340.00	138.72	Wheat Silage
May	27	4.00	8,146,275	108,617.00	0.03	3.35	0.00	0.00	0.00	0.00	340.00	184.96	Corn Silage
May	27	4.00	8,146,275	108,617.00	0.03	3.35	0.00	0.00	0.00	0.00	340.00	184.96	Corn Silage
Jun	27	6.00	12,219,413	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
Jun	27	6.00	12,219,413	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
Jul	Pond	0.50	1,018,284	13,577.13	5.94	80.69	0.16	2.23	0.48	6.46	1330.00	90.44	Corn Silage
Jul	27	9.00	18,329,119	244,388.25	0.03	7.55	0.00	0.00	0.00	0.00	340.00	416.16	Corn Silage
Aug	27	8.00	16,292,550	217,234.00	0.03	6.71	0.00	0.00	0.00	0.00	340.00	369.92	Corn Silage
Aug	27	6.00	12,219,413	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
Sep	27	0.50	1,018,284	13,577.13	3.93	53.38	0.11	1.45	0.73	9.97	1740.00	118.32	Corn Silage
Sep	27	6.00	12,219,413	162,925.50	0.03	5.03	0.00	0.00	0.00	0.00	340.00	277.44	Corn Silage
					TN Applied	*381.64*	P Applied	*13.73*	K Applied	*87.83*	TDS Applied	*4002.18*	

[1]Enter liquid application source (i.e., Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 36 West Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Volume Applied (gallons)	(3) Volume / Acre (gal/acre) (2) / (A)	(4) Fertilizer Weight (lbs/gal)	(5) Fert. Analysis TN^2 %	(6) N Applied (lb/acre) (3) * (4) * (5) / 100	(7) Fert. Analysis P^2 %	(8) P Applied (lb/acre) (3) * (4) * (7) / 100	(9) Fert. Analysis K^2 %	(10) K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
Mar	UN32	500	6.67	11.02	32	23.51		0.00		0.00	Corn Silage
					TN Applied	*23.51*	P Applied	*0.00*	K Applied	*0.00*	

Dry Manure Applications

Date (month)	(1) Application Source	(2) Vol. Applied (tons)	(3) Vol. per Acre (tons/ac) (2) / (A)	(4) Lab Analysis TN^2 (%) - rcvd	(5) N Applied (lb/acre) (3) * (4)	(6) Lab Analysis P^2 (%) - rcvd	(7) P Applied (lb/acre) (3) * (5)	(8) Lab Analysis K^2 (%) - rcvd	(9) K Applied (lb/acre) (3) * (8)	CROP
Dec	Sep	150	2.00	0.39	15.60	0.63	25.30	2.80	112.00	Wheat Silage
Apr	corral	150	2.00	0.79	31.44	0.41	16.45	2.71	108.37	Corn Silage
				TN Applied	*47.04*	P Applied	*41.76*	K Applied	*220.37*	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

Date (month)	(1) Fertilizer Source[1]	(2) Vol. Applied (lbs)	(3) Vol. per Acre (lbs/ac) (2) / (A)	(4) Fert. Analysis TN^2 %	(5) N Applied (lb/acre) (3) * (4)	(6) Fert. Analysis P^2 %	(7) P Applied (lb/acre) (3) * (6)	(8) Fert. Analysis K^2 %	(9) K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	*0.00*	P Applied	*0.00*	K Applied	*0.00*	

Field ID 36 West Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Wheat Silage				Corn Silage							
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	165.00	25.50	124.50	2000.00	200.00	37.50	165.00	2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	231.00				280.00							
Maximum Nitrogen to Apply (Bm') (lbs/ac)	272.25				330.00							
Wastewater & Fresh Water Applications	206.48	10.05	71.40	1527.63	175.16	3.68	16.43	2474.54				
Liquid Fertilizer Applications	0.00	0.00	0.00		23.51	0.00	0.00					
Dry Manure Applications	15.60	25.30	112.00		31.44	16.45	108.37					
Dry Fertilizer Applications	0.00	0.00	0.00		0.00	0.00	0.00					
Atmospheric Deposition	7.00				7.00				0.00			
Nutrients Planned per Crop (lbs/acre)	229.08	35.35	183.40	1527.63	237.11	20.14	124.80	2474.54	0.00	0.00	0.00	0.00
N-Ratio per Crop*	1.39 GOOD				1.19 GOOD							

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	381.64	13.73	87.83	4002.18
Liquid Fertilizer Applications	23.51	0.00	0.00	NA
Dry Manure Applications	47.04	41.76	220.37	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	466.19	55.49	308.20	4002.18
Total Nutrients Required (lbs/Field)	27,375	4,725	21,713	225,000
Total Nutrients Planned (lbs/Field)	34,965	4,161	23,115	300,163

N-Ratio for Field	1.28

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

Planned Nutrient Application & Removal Record

Field ID 36 East Farm: RuAnn Dairy Year 2016

Address: 7285 W. Davis Ave

Field Size (acres) = (A) 65 Riverdale CA 93656

CROP	Required Nutrient Loading (lb/acre) = (B) Based on average yields for farm and crop analysis.			Average Yield (ton/ac)	Anticipated Plant Date	Anticipated Harvest Date
	N	P	K			
Alfalfa	480.00	43.20	336.00	8.00	January	December
Loading Rate (∑B) (tons/ac)	480.00	43.20	336.00			
Total Nutrients Required - Whole Field Loading (tons) = ∑B x A	31,200.00	2,808.00	21,840.00			

Allowable N Applied per crop (Bc') (lbs/ac)	Maximum* N Applied per crop (Bm') (lbs/ac)	
N	N	CROP
672.00	792.00	Alfalfa
672.00	792.00	

Bc' = B x 1.4 for N Bm' = B x 1.65 for N

*Additional sampling is required to justify using the Maximum application schedule.

Wastewater & Fresh Water Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Start Date (month)	Liquid Application Source[1]	Liquid Application (ac-in/acre)	Total Volume Applied (gallons)	Volume per Acre (gal/acre) (3) (A)	Lab Analysis TN[2] (lb/1000 gal)	N Applied (lb/acre) (4) x (5) 1000	Lab Analysis P[2] (lb/1000 gal)	P Applied (lb/acre) (4) x (7) 1000	Lab Analysis K[2] (lb/1000 gal)	K Applied (lb/acre) (4) x (9) 1000	EC[2] (umhos/cm)	Salts Applied (lb/acre) (11)*0.6*(4)*2.72 325848	CROP
Feb	33N	2.00	3,530,053	54,308.50	0.12	6.35	0.00	0.00	0.00	0.00	380.00	103.36	Alfalfa
Mar	33N	3.00	5,295,079	81,462.75	0.12	9.52	0.00	0.00	0.00	0.00	380.00	155.04	Alfalfa
Apr	33N	4.00	7,060,105	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
May	33N	4.00	7,060,105	108,617.00	0.12	12.69	0.00	0.00	0.00	0.00	380.00	206.72	Alfalfa
Jun	33N	8.00	14,120,210	217,234.00	0.12	25.39	0.00	0.00	0.00	0.00	380.00	413.44	Alfalfa
Jul	33N	10.00	17,650,263	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Aug	33N	10.00	17,650,263	271,542.50	0.12	31.73	0.00	0.00	0.00	0.00	380.00	516.80	Alfalfa
Sep	33N	7.00	12,355,184	190,079.75	0.12	22.21	0.00	0.00	0.00	0.00	380.00	361.76	Alfalfa
Oct	33N	5.00	8,825,131	135,771.25	0.12	15.87	0.00	0.00	0.00	0.00	380.00	258.40	Alfalfa
					TN Applied	*166.18*	P Applied	*0.00*	K Applied	*0.00*	TDS Applied	*2739.07*	

[1]Enter liquid application source (i.e.. Lagoon/Storage Pond ID, commercial fertilizer, well.) [2]Uses average analysis for wastewater (by quarter), dry manures (biannually) and fresh water (annual) for the farm.

Field ID 36 East Farm RuAnn Dairy Year 2016

Liquid Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Date (month)	Fertilizer Source[1]	Volume Applied (gallons)	Volume / Acre (gal/acre) (2) / (A)	Fertilizer Weight (lbs/gal)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4) * (5) / 100	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (4) * (7) / 100	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (4) * (9) / 100	CROP
					TN Applied	0.00	P Applied	0.00	K Applied	0.00	

Dry Manure Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Application Source	Vol. Applied (tons)	Vol. per Acre (tons/ac) (2) / (A)	Lab Analysis TN^2 (%) - rcvd	N Applied (lb/acre) (3) * (4)	Lab Analysis P^2 (%) - rcvd	P Applied (lb/acre) (3) * (6)	Lab Analysis K^2 (%) - rcvd	K Applied (lb/acre) (3) * (8)	CROP
			0.00							
				TN Applied	0.00	P Applied	0.00	K Applied	0.00	

rcvd = Lab analysis are reports "as received" format.

Dry Commercial Fertilizer Applications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Date (month)	Fertilizer Source[1]	Vol. Applied (lbs)	Vol. per Acre (lbs/ac) (2) / (A)	Fert. Analysis TN^2 %	N Applied (lb/acre) (3) * (4)	Fert. Analysis P^2 %	P Applied (lb/acre) (3) * (6)	Fert. Analysis K^2 %	K Applied (lb/acre) (3) * (8)	CROP
			0.00		0.00		0.00		0.00	
				TN Applied	0.00	P Applied	0.00	K Applied	0.00	

Field ID 36 East Farm RuAnn Dairy Year 2016

Nutrient Application & Removal Summary

Crop Application Summary

	Alfalfa											
	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)	N (lb/acre)	P (lb/acre)	K (lb/acre)	TDS (lb/acre)
Required Nutrients (B) (lbs/ac)	480.00	43.20	336.00	2000.00				2000.00				2000.00
Allowable to Apply (Bc') (lbs/ac)	672.00											
Maximum Nitrogen to Apply (Bm') (lbs/ac)	792.00											
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07								
Liquid Fertilizer Applications	0.00	0.00	0.00									
Dry Manure Applications	0.00	0.00	0.00									
Dry Fertilizer Applications	0.00	0.00	0.00									
Atmospheric Deposition	14.00				0.00				0.00			
Nutrients Planned per Crop (lbs/acre)	182.18	0.00	0.00	2739.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-Ratio per Crop*	0.38 GOOD											

* Ratings: Excessive = N-ratio > 1.65; Acceptable = 1.4 < N-ratio > 1.65; Good = N-ratio < 1.4. If N-ratio >1.4, mid-season tissue is required prior to applying additional nitrogen which will exceed the Allowable N Applied (Bc').

Whole Field Application Summary

Planned Nutrient Inputs from All Sources

Field Inputs	N Applied (lb/acre)	P Applied (lb/acre)	K Applied (lb/acre)	TDS Applied (lb/acre)
Wastewater & Fresh Water Applications	168.18	0.00	0.00	2739.07
Liquid Fertilizer Applications	0.00	0.00	0.00	NA
Dry Manure Applications	0.00	0.00	0.00	
Dry Fertilizer Applications	0.00	0.00	0.00	
Atmospheric Deposition	14.00			
Total Nutrients Planned (lbs/acre)	182.18	0.00	0.00	2739.07
Total Nutrients Required (lbs/Field)	31,200	2,808	21,840	195,000
Total Nutrients Planned (lbs/Field)	11,842	0	0	178,039

N-Ratio for Field	0.38

N-Ratio = Based on nutrients required verses nutrients planned. Target ratio is 1.4. Maximum N-Ratio is 1.65. Mid-Season tissue sampling is required to justify using the Maximum Nitrogen application schedule. Refer to the MRP in the Dairy General Order for more information.

RuAnn Dairy

6. Summary of Nitrogen Ratios Per Field

Refer to the *Planned Nutrient Application & Removal Record* for more information about an individual field.

Field	Crop 1	N-Ratio 1	Crop 2	N-Ratio 2	Crop 3	N-Ratio 3	Overall N-Ratio
1 and 2	Alfalfa	0.38					0.38
3 and 4	Alfalfa	0.38					0.38
5	Wheat Silage	1.39	Corn Silage	1.17			1.27
6	Wheat Silage	1.39	Corn Silage	1.20			1.29
8	Wheat Silage	1.39	Corn Silage	1.19			1.28
9	Wine Grapes	1.33					1.33
10	Wine Grapes	1.34					1.34
11	Alfalfa	0.38					0.38
15	Wine Grapes	1.33					1.33
16	Almonds	1.36					1.36
17	Wine Grapes	1.33					1.33
18	Wine Grapes	1.33					1.33
20	Wheat Silage	1.39	Corn Silage	1.17			1.27
22	Alfalfa	0.38					0.38
24	Wine Grapes	0.94					1.33
25	Wine Grapes	1.33					1.33
26	Wine Grapes	1.33					1.33
27	Wine Grapes	1.32					1.32
28	Wine Grapes	1.33					1.33
29	Wine Grapes	1.33					1.33
30	Wine Grapes	1.33					1.33
31	Almonds	1.40					1.40
32	Almonds	1.40					1.40
33	Almonds	1.40					1.40
A-1N	Alfalfa	0.38					0.38
A-1S	Wheat Silage	1.32	Corn Silage	1.09			1.19
A-2	Alfalfa	0.38					0.38
A-3	Wheat Silage	1.20	Corn Silage	0.94			1.06
A-4	Wheat Silage	1.20	Corn Silage	0.95			1.06
A-5	Alfalfa	0.38					0.38
A-6	Alfalfa	0.38					0.38
36 West	Wheat Silage	1.39	Corn Silage	1.19			1.28
36 East	Alfalfa	0.38					0.38

N-Ratio is the ratio of nitrogen removed based on harvest data and nitrogen planned or applied to the crop.

* These fields have an overall planned N-ratio over 1.4, which means nutrient applications to one or more crops are expected to exceed the 1.4 N-Ratio. During a crop season, if the nitrogen application is expected to exceed the Allowable N Applied per crop (Bc'), a mid-season tissue sample should be analyzed to verify that the crop needs additional nitrogen. It is the responsibility of the owner or operator to track nutrient applications and to collect a mid-season tissue when necessary. However, nitrogen application should never exceed the Maximum* N Applied per crop (Bm'). Contact a Certified Crop Advisor (CCA) if you have questions about the analysis and crop needs.

RuAnn Dairy Crop Year: 2016

Nutrient Management Plan - Nutrient Budget Summary

Based on: MAX Herd Population

Waste Volume Production & Use

	Volume Produced[1]	Potential Volume Utilized by Crops[2]	Exports[3]
Wastewater (ac-ft)	77	91	0
Corral Solids Collected (tons/yr)	4,783	3,650	1000
Separator Solids Collected (tons/yr)	1,350	1,510	0
Dry Manure used for bedding annually (tons/yr)			104

Nutrient Sources

Dairy Nutrients	TN	P	K
Gross Wastewater	342,190	84,733	108,632
Gross Manure	285,610	72,570	88,925
Net Wastewater (after losses)	86,459	3,414	18,967
Net Manure (after losses)	136,027	63,701	315,967
Net Available	222,486	67,115	334,934

Other Nutrients	TN	P	K
Irrigation Sources	196,964	-	-
Commercial Fertilizer	61,553	-	-
Atmospheric Deposition	27,398		
Exports[3]	26,300	11,355	57,833
Crop Nutrient Requirements	589,602	77,446	453,999

Whole Farm Nitrogen Ratio

	Total Nitrogen Available	Total Nitrogen Required	Balance[4]
Farm Balance	482,101	589,602	-107,501
		Nitrogen Ratio	0.82

Nutrient Balance is:

Sufficient

☑ No adjustments or modifications are necessary for nutrient balance at this time. Whole farm nitrogen balance is below 1.65.

Insufficient

☐ Retrofitting Plan & Schedule to improve nutrient balance is needed. Whole farm nitrogen balance is above 1.65.

RuAnn Dairy

NOTES:

[1]Annual Volume and Nutrient Production are calculated values based on the herd size, water production and runoff areas. The wastewater volume shown is the total volume entering the storage ponds annually, which includes process wastewater, milk barn water, runoff and rainfall. Additional details of wastewater production are in the Waste Management Plan. Solids collected volume is the total of all solids produced annually, which includes dairy manure solids, bedding materials, and separated solids. Refer to Section 2. Manure Production Estimates.

[2]Annual Volume and Nutrient Usage is based on average laboratory analysis of waste products and typical application practices. Potential nutrient utilization of wastewater and dry manure may exceed the volume produced, which indicates the potential addition of other nutrient sources may be needed to meet crop requirements. Refer to Section 5: Waste Application to Crops.

[3]Exports of wastewater and solids are based on dairy records. Dry manure may be stored for multiple years prior to exporting resulting in a volume exported greater than that produced in a single year. Refer to Section 1: General Inputs for WMP & NMP.

[4]Balance is the difference between the nitrogen required to grow the intended crops and nutrients available to grow those crops. A negative balance reflects the lack of available nutrients for the crops.

*All dates are estimated based on historical records provided by the owner/operator of the facility. Due to agriculture's dependency on weather, actual dates of plant, harvest and application events may vary as much as 15 days before or after the intended date.

*Any application planned for Nov, Dec, Jan or Feb will be subject to weather and soil conditions at time of application. No waste application should occur when soil is saturated. It is the discretion of the owner/operator to determine if conditions are favorable for an application event prior to application.

*Fresh water applications are based on an average year of available surface water. When available, surface water will be used before groundwater.

*Total Nutrients Required = Nutrients required by crop based on average yield and harvested tissue analysis. No multiplication factor included.

*Total Allowable Nuttrients = Nutrients required by crop times the 1.4.

*Total Maximum Nutrients = Nutrients required by crop times the 1.65. A mid-season tissue sample should be collected and analyzed to ensure crop needs the extra nutrients.

*Total Nutrients Planned = Summation of the nutrients to be applied based on proposed plans, includes all sources.

*Year NA means that this plan can be used for multiple years. A similar form can be used to record the actual annual applications.

RuAnn Dairy

Nutrient Management Plan - Nutrient Budget Certification

A. Dairy Facility Information

Dairy Name: RuAnn Dairy

Physical Address: 7285 W. Davis Ave

Riverdale CA 93656

County: Fresno

Calculations Based On: MAX Herd Population

Whole Farm Nitrogen Ratio	0.82

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. R5-2013-0122 and that I prepared the Nutrient Budget plan.

Certified Crop Advisor # 17275

TITLE/QUALIFICATIONS OF CERTIFIED NUTRIENT MANAGEMENT SPECIALIST

Louis R. Oliveira 7/12/16

SIGNATURE OF TRAINED PROFESSIONAL DATE

Louis R. Oliveira

PRINT OR TYPE NAME

267 N. Fulton Fresno, CA 93701

BUSINESS MAILING ADDRESS

559-268-9755

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.

Patt Mad

SIGNATURE OF OWNER OF FACILITY

PATRICK MADDOX

PRINT OR TYPE NAME

6/7/17

DATE

Patt Mad

SIGNATURE OF OPERATOR OF FACILITY

PATRICK MADDOX

PRINT OR TYPE NAME

6/7/17

DATE

APPENDIX H

Appendix H
Pest and Vector Complaint Register

Date of Complaint	Complaint Recipient	Action Taken To Determine Cause of Pest Complaint	Action Taken To Resolve The Pest Problem	Results of the Action	Additional Action, If Any, Required To Eliminate The Pest Problem From Re-Occuring

Appendix H
Pest Control Methods Record

Frequency: Minimum On A Quarterly Basis
When Potential For Infestation is High (Broken Water Line, Manure Build-Up at Fenceline, Vegetative Growth Near Ponds etc.)

Inspection Areas: Corrals, Retention Ponds, Settling Basins, Milk Barns, Watering Areas, Calf Areas, Fresstalls, Flush Lanes, Shades, Feed Storage Areas, Feeding Areas

Date	Pest Control Methods Used

APPENDIX I

Soil Sampling & Analysis Plan

For

Ruann Dairy

Fresno County, California

This Sampling & Analysis Plan was developed as defined in Attachment C of the California RWQCB Order No. R5-2007-0035: Waste Discharge Requirements General Order for Existing Milk Cow Dairies and Section 869 3E. of Fresno County zoning.

Prepared By:
JMLord, Inc.
Agricultural Scientists
Consulting Engineers
267 N. Fulton
Fresno, CA 93701

Sampling & Analysis Plan

For Existing Milk Cow Dairies Under the Waste Discharge Requirements
General Order No. R5-2007-0035 and Section 869 3E. Fresno County zoning

Facility Name:	Ruann Dairy
Address:	7285 W. Davis Ave Riverdale, CA 93656
Location:	Located on W. Davis Ave Between Polk Ave and Chateau Fresno in Fresno Co.

Professional Certification of Sampling & Analysis Plan

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

Name Louis Richard Oliveira

Address 14253 Lacey Blvd Hanford, CA 93230

Phone (559) 994-0033

List Certification/Registration Information:

Certified Crop Advisor # 17275

Louis Oliveira 9/19/16

Signature: **Date:**

Owner and/or Operator Certification of Sampling & Analysis Plan

"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."

Owner Name	**Operator Name**
Owner Signature	**Operator Signature**
Date	**Date**

Sampling Plan & Analysis

This is the Sampling and Analysis Plan for Ruann Dairy as required in Section II and Technical Standard I of Attachment C of the Dairy General Order and Section 869 3E. for Fresno County zoning ordinance. All required sampling and analysis will be conducted as defined within this document and in the Monitoring and Reporting Program (MRP) of the Dairy General Order and Fresno County zoning. The sampling plan will be modified whenever changes to the Monitoring and Reporting Programs (MRP) of the Dairy General Order and Fresno County zoning occur or when new best management practices become available.

It is suggested, but not required at this time, that all agronomic samples be taken to a laboratory that participates in a proficiency program, such as but not limited to the National Association of Proficiency Testing (NAPT), Manure Analysis Proficiency (MAP), or Accredited Laboratory Program (ALP).

This plan reflects the minimum sampling required by the Dairy General Order. Any additional sampling should be done as defined in this plan. This plan should be updated when farm practices are modified and sampling requirements change. Any additional constituents added by Fresno County zoning will be added to the laboratory analysis as information becomes available.

Soil sampling will not be conducted inside corrals/pens or manure storage areas. The earth is hard packed or paved in these areas to protect the under-lying native soil from concentrated nutrient migration; any piercing of this hard packed soil should be avoided.

JMlord Inc. shall provide trained personnel or training to Ruann dairy personnel for soil sampling. JMLord Inc. or an affiliated and approved laboratory will conduct the soil analysis. Soil samples will take place pre-planting for each crop unless best management procedures direct a different time. Ruann dairy is responsible for sampling the soil or can appoint JMLord to conduct the sampling. All fields covered under the dairy general order for Ruann dairy which receive manure and/or process wastewater shall be tested during their 5 year rotation (see Table below). The fields should be tested based on similar farming practices and related crop type.

Soil Sampling Frequency

Required Sampling Frequency	Required Analysis	
	In Field Measurement	Laboratory Analysis*
Once every 5 years from each land application area. Must begin sampling in 2016.	None Required	soluble phosphorus

Recommended Sampling Frequency	Recommended Analysis	
	In Field Measurement	Laboratory Analysis*
Spring pre-plant for each crop.	None Required	0 to 1 foot: NO_3-N, OM 1 to 2 foot: NO_3-N
Fall pre-plant for each crop.	None Required	0 to 1 foot: EC, NO_3-N, H_2PO_4, K, OM 1 to 2 foot: NO_3-N 2 to 3 foot: NO_3-N

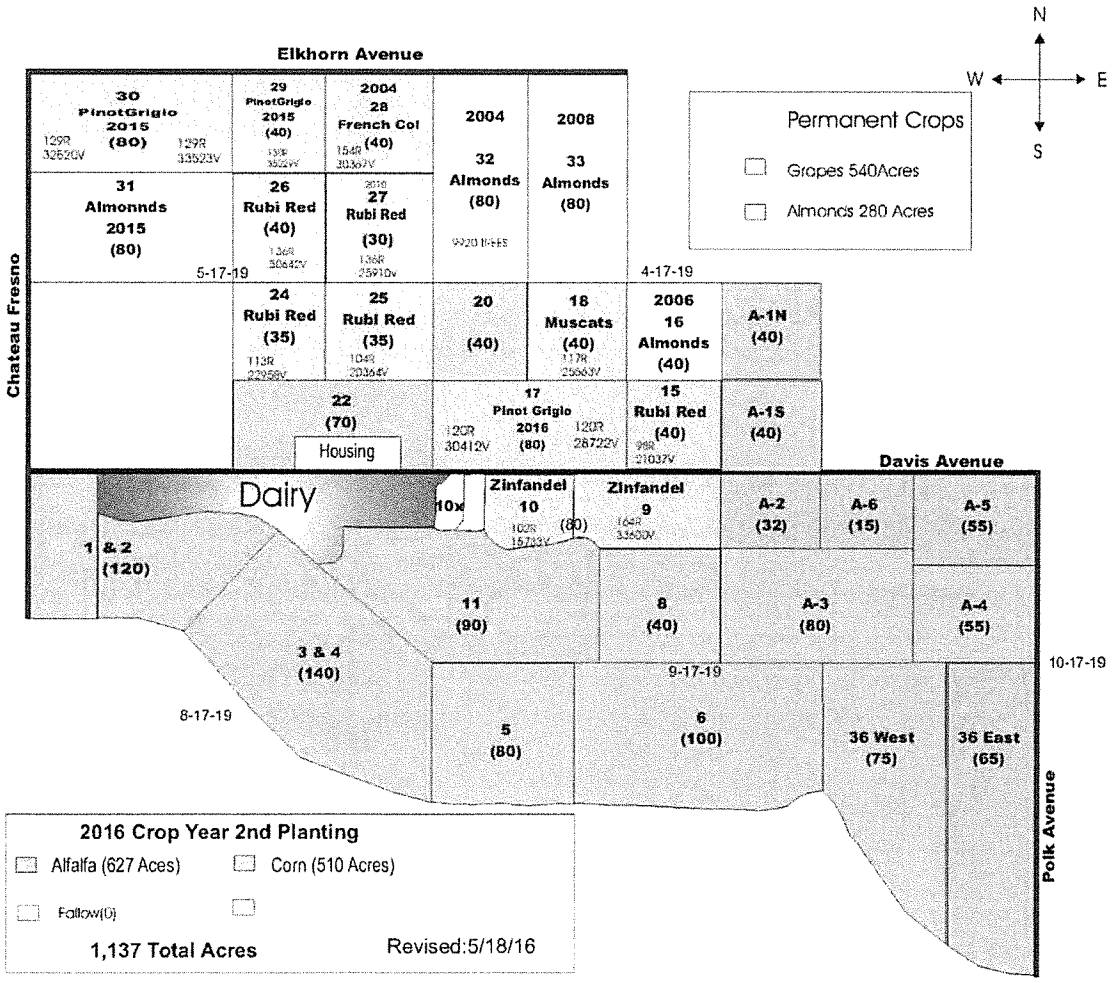
Soil Sample Collection Protocol

1. Identify where and how the sample will be collected.
   - Identify the best sampling pattern which will result in the most representative sample of the field, soil type, or history.
   - Frequently used patterns to cover a whole field are the W, V, X or Z patterns. Samples are collected in the pattern of the letters. It may not be appropriate to use the same pattern on all fields due the field size and shape.
   - If precision agricultural tools are being used, multiple samples per field may be needed based on the precision zones. Contact your agronomist or crop advisor to define these zones.
   - Dischargers with **less** than 400 acres of land application areas should collect a composite soil sample for every 40 acres of land application areas as recommended by the Regional Water Quality Control Board. Dischargers with **more** than 400 acres of land application areas should collect a composite soil sample for every 80 acres of land application areas as recommended by the Regional Water Quality Control Board.
2. Obtain equipment needed to collect the soil sample. This will include a sample bag, permanent marker, bucket, soil probe or auger and sampling forms. Multiple buckets will be needed if more than one depth is being collected.
3. Label sample bag with the following information: sample ID, facility name, date, time sample was collected, the number of sub-samples collected and the depth of the sample. Record the same information on the sample record form. Be sure to

describe or sketch where the sub-samples were collected. Field maps can be used to identify sample locations.

4. Collect a minimum of 10 sub-samples per depth of soil and place into bucket. For sampling by depth, separate buckets should be used for each depth.
5. Mix sub-samples thoroughly in each bucket.
6. Fill a 1 quart bag or half of a brown paper lunch sack with the soil.
7. Complete a Chain of Custody form for all samples collected. This may be completed by the laboratory. Check with your laboratory prior to sampling.
8. Deliver samples to laboratory as soon as possible; preferably within 24 hours.
9. Request the appropriate analysis for the sampling event, as described above or in the MRP section of the Dairy General Order.
10. Upon receipt of the test results, store the laboratory analysis, chain of custody and any field documentation should be stored on site for a minimum of five years.

RuAnn Farm Map



Field Sampling Guideline

Sample number	Included fields	acres
1	1	71
2	2	44
3	3	70
4	4	70
5	5	80
6	6A	50
7	6B	50
8	8	40
9	9 and 10	80
10	A-2 and A-6	47
11	A-5	55
12	36W	75
13	36E	65
14	A-1S	40
15	A-1N	40
16	15 and 18	80
17	16	40
18	20	40
19	22	70
20	24 and 25	70
21	26 and 27	70
22	28 and 29	80
23	30	80
24	31	80
25	32	80
26	33	80
27	11	77

The following is a list of additional sources where more information about sampling and analysis of water, wastewater, manure, soil and plant tissue.

University of California – Agriculture & Natural Resources Publications
http://anrcatalog.ucdavis.edu/

University of Wisconsin-Extension Publications
http://learningstore.uwex.edu/

NC Cooperative Extension - Publications for Animal Agriculture
http://www.ces.ncsu.edu/Publications/animalagriculture.php

Manure handling and application records.
http://manure.ucdavis.edu/

Western Fertilizer Handbook
Author: CPHA; **Copyright:** 2002; **Edition:** 9th; **Publisher:** Interstate

JMLORD, INC.

2671 N. FULTON, FRESNO, CA 93705-3610
PHONE (559) 268-9755 FAX: (559) 486-6504
WWW.JMLORDINC.COM

CHAIN OF CUSTODY

Client Name: _____

Facility Name: _____

Sampled By: NAME _____ Initials: _____
(Please Print)

Lab ID For Lab Use	Sample Identification	Samples Taken Date	Time	Sample Type	Analysis Requested

Comments: _____

Relinquished By: _____ Date: _____ Time: _____

Recieved By: _____ Date: _____ Time: _____

Sample Type: S = soil, P = plant material, WW = wastewater, M = Manure, I = irrigation or fresh water

APPENDIX J

Central Valley Dairy Representative Monitoring Program

For the benefit of dairy producers and water quality across our valley

August 26, 2016

Mr. Patrick Maddox
RuAnn Dairy
7285 W. Davis Avenue
Riverdale, CA 93656

Dear Mr. Maddox,

The purpose of this letter is to inform you of RuAnn Dairy's status in the Central Valley Dairy Representative Monitoring Program.

Our records indicate that RuAnn Dairy, located at 7285 W. Davis Avenue, Riverdale, CA, is in good standing with the program as of August 26, 2016.

Please feel free to contact me with any questions.

Sincerely,

J.P. Cativiela
CVDRMP Program Manager

APPENDIX K