FINAL

ENVIRONMENTAL IMPACT REPORT FOR THE VIERRA DAIRY EXPANSION PROJECT

CONDITIONAL USE PERMIT CUP20-009

COUNTY OF MERCED
DEPARTMENT OF COMMUNITY AND ECONOMIC DEVELOPMENT

Prepared with the Technical Assistance of:
Environmental Planning Partners, Inc.

SCH # 2021100002
February 2024

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Merced, CA 95340

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1 INTRODUCTION

1.1 CEQA PROCESS

In preparing an Environmental Impact Report (EIR), the California Environmental Quality Act (CEQA) requires public agencies to circulate a Draft EIR (DEIR) for public and agency review and comment. The public agency then uses the comments obtained by this review to modify or correct the EIR for subsequent use in project review and consideration. The document containing the text of any comments received on the DEIR, responses of the lead agency to these comments, and any corrections or amendments to the EIR is termed the Final EIR (FEIR).

The DEIR for the Vierra Dairy Expansion project was circulated locally and with the State Clearinghouse, SCH #2021100002, from June 29, 2023 to August 14, 2023. The comment period was extended to August 24, 2023 to accommodate the review process. The County accepted written comments on the DEIR during this period. This FEIR has been prepared to respond to the comments received on the DEIR for the Vierra Dairy Expansion project.

Section 15132 of the CEQA Guidelines, requires that an FEIR consist of:

- The DEIR (published on June 29, 2023 and incorporated by reference);
- A list of persons, organizations, and public agencies commenting on the DEIR;
- Comments received on the DEIR;
- The response of the Merced County Community and Economic Development Department to significant environmental issues raised in the review and consultation process; and,
- Modifications to the EIR arising from the County's response to comments received on the DEIR.

This "response to comments" document, together with the DEIR for the Vierra Dairy Expansion project and its Appendices, constitutes the FEIR for the project. This document incorporates comments received on the DEIR, as well as responses by the lead agency (Merced County) to these comments. The FEIR is an informational document that must be considered and certified by the lead agency prior to considering approval of the Vierra Dairy Expansion project.

1.2 PURPOSE OF THIS ENVIRONMENTAL IMPACT REPORT

CEQA requires the evaluation of government actions or private activities permitted by government to determine their effects on the environment. When such an action could have a significant effect on the environment, the agency with primary responsibility over the approval of the project (the lead agency) is required to prepare an EIR. As stated in CEQA Guidelines Section 15121:

> An EIR is an informational document which will inform public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. The public agency shall consider the information in the EIR along with other information which may be presented to the agency (*when considering whether to approve a project*).

An EIR is the public document used to meet these requirements. The EIR must disclose: significant adverse environmental impacts that cannot be avoided; growth inducing impacts; effects not found to be significant; and significant cumulative impacts of all past, present, and reasonably foreseeable future projects. For this EIR, an "impact" or "significant impact" is assumed to be an adverse effect on the environment.

This EIR is intended to provide information to the public and to decision makers regarding the potential environmental effects of approval and implementation of the Vierra Dairy Expansion project. Prior to considering approval of this request, the Merced County Planning Commission must certify that this EIR is adequate under CEQA and that they have considered the information therein. If significant environmental effects are identified, the lead agency must adopt "Findings" indicating whether feasible mitigation measures or alternatives exist that can avoid or reduce those effects. "Findings" are described more fully in Section 1.5 below.

1.3 TYPE OF ENVIRONMENTAL IMPACT REPORT

This EIR is being prepared as a "Project" EIR pursuant to Section 15161 of the State CEQA Guidelines. A project EIR is prepared to examine the environmental impacts of a specific development project. According to the CEQA Guidelines, "(t)his type of EIR should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project, including planning, construction, and operation." This EIR is intended to serve as the environmental document for all activities related to the Vierra Dairy Expansion project, including issuance of a Conditional Use Permit and issuance of construction and building permits.

1.4 PUBLIC REVIEW

CEQA provides three opportunities for public and agency participation during the environmental review process. These points are: (1) during the Notice of Preparation (NOP), when the public and agencies are informed that an EIR is to be prepared, and are requested to comment on the scope and contents of the proposed EIR; (2) upon circulation of the DEIR, when the public and agencies can comment on the adequacy of the environmental document; and (3) finally, after circulation of the FEIR, when the public and agencies can evaluate the lead agency's responses to comments submitted on the DEIR.

In accordance with Section 15082(a) of the State CEQA Guidelines, the Notice of Preparation of an EIR was filed with the Office of Planning and Research (OPR) on June 29, 2023. The NOP and Initial Study were circulated to the public, local and state agencies, and other interested parties to solicit comments on the proposed project. Environmental issues and alternatives raised by comments received on the NOP during the 30-day public review period were considered for inclusion in the EIR.

The DEIR for the Vierra Dairy Expansion project was circulated locally and with the State Clearinghouse from June 29, 2023 to August 14, 2023, and the comment period was extended to August 24, 2023. During this time, the DEIR and its Appendices were available for download from the County website at:

https://www.countyofmerced.com/414/Environmental-Documents

Printed copies of the DEIR and its supporting documents were made available at the Merced County Community and Economic Development Department, 2222 'M' Street, Merced, California 95340.

1.5 COUNTY CONSIDERATION OF THE VIERRA DAIRY EXPANSION PROJECT

After the DEIR public circulation period closed, the County prepared responses to all written comments submitted during the comment period. The DEIR, the comments and responses, including any revisions of the DEIR contained therein, constitute the FEIR that the County will evaluate for certification, based on review and consideration of the FEIR and other evidence presented in the public record. County staff will make recommendations to the Planning Commission regarding the adequacy of the FEIR and the merits of the proposed Vierra Dairy Expansion project. The Planning Commission will review the FEIR for adequacy and consider it for certification, pursuant to the requirements of Section 15090 of the State CEQA Guidelines.

Prior to certification of the FEIR, the County will prepare written findings of fact for each significant environmental impact identified in the FEIR, which in turn must be supported by substantial evidence in the administrative record. For each significant impact, the County must make one of the following findings:

- Determine that changes in the project have been made to substantially reduce the magnitude of the impact;
- Determine that the changes to the project are within another agency's jurisdiction, and have been or should be adopted; or,
- Find that specific economic, social, legal, technical, or other considerations make mitigation measures or alternatives infeasible (State CEQA Guidelines Section 15091(a)).

After considering the FEIR in conjunction with making findings, if implementation of the Vierra Dairy Expansion project would result in significant environmental impacts after imposition of feasible mitigation measures, the County may approve the Vierra Dairy Expansion project if the benefits of the project outweigh the unavoidable environmental effects. Under these circumstances, a Statement of Overriding Considerations would be prepared explaining why the County is willing to accept each significant effect (State CEQA Guidelines Section 15093).

1.6 COMMENTS THAT REQUIRE RESPONSES

Section 15088(c) of the State CEQA Guidelines specifies that the focus of the responses to comments shall be on the disposition of significant environmental issues. Responses are not required on comments regarding the merits of the proposed Vierra Dairy Expansion project or on issues not related to environmental impacts. Comments on the merits of the proposed Vierra Dairy Expansion project or other comments that do not raise environmental issues are noted in the responses, and will be reviewed by the Planning Commission before it takes any action on whether to approve the proposed Vierra Dairy Expansion project. When a comment does not directly pertain to the environmental issues analyzed in the DEIR, does not ask a question about the adequacy of the analysis contained in the DEIR, or does not challenge an element of or conclusion of the DEIR, the response will note the comment and provide additional information where possible. The staff report prepared as part of the hearing process will address non-environmental comments and the policies that could be affected.

1.7 MITIGATION MONITORING AND REPORTING PROGRAM

CEQA requires that when a public agency makes findings based on an EIR, the public agency must adopt a Mitigation Monitoring and Reporting Program (MMRP) based on those measures that the agency has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment (PRC Section 21081.6). The reporting or monitoring plan must be designed to ensure compliance with the adopted measures during project implementation (PRC Section 21081.6). The MMRP for this project has been prepared and circulated under separate cover for consideration by the County in conjunction with certification of the FEIR. Copies of the Mitigation Monitoring and Reporting Program, which must be adopted upon approval of the Vierra Dairy Expansion project, are available from the Merced County Community and Economic Development Department at 2222 'M' Street, Merced, California 95340.

2 EXECUTIVE SUMMARY OF THE EIR

2.1 PROJECT SUMMARY

The existing Vierra Dairy is located on 72± acres of an existing farm totaling approximately 695 acres on 17 parcels in unincorporated Merced County. The dairy project site is located on the northwest corner of Williams Avenue and Washington Road in the Hilmar area of the County. Approximately 582 acres of the project site are currently used for the production of crops and application of manure process water. With the recent purchase of surrounding farmland over nine additional parcels, there would be approximately 770± acres of cropland available for wastewater and manure application with the proposed dairy expansion.

Conditional Use Permit CUP20-009 proposes to modify and expand the existing dairy to house 4,170 milk cows, 550 dry cows, and 2,397 support stock. Considering the existing animals at the dairy facility, the proposed expansion would represent an increase of 1,520 animals from existing numbers. The proposed project would include construction of two freestall barns, a hospital milking barn, commodity barn addition, heifer barn, and utility shop. Construction of the proposed facilities would result in the conversion of approximately 15 acres of cropland to active dairy facilities.

For more detailed information about project, see DEIR Chapter 3, *Project Description*.

2.2 SUMMARY OF PROJECT ALTERNATIVES

Section 15126.6 of the California Environmental Quality Act (CEQA) Guidelines requires that an Environmental Impact Report (EIR) describe and comparatively evaluate a range of reasonable alternatives to a project that would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. Thus, the range of alternatives evaluated in the following analysis is dictated by the range of significant impacts identified in the DEIR, and evaluated alternatives are limited to those that would reduce or eliminate identified environmental impacts.

The DEIR identified 21 significant impacts that would occur with implementation of the proposed Vierra Dairy Expansion project, including: the exposure of nearby residents to substantial air pollutant concentrations for toxic air contaminants; adverse odor from project operations; nest disturbance and loss of foraging habitat for Swainson's hawk; loss of foraging and nesting habitat for sensitive and migratory bird species; loss of nesting habitat for tricolored blackbird; impacts to the San Joaquin kit fox and/or American badger; interference with night-active wildlife; substantial adverse change in the significance of historic, archaeological, or paleontological resources; accidental discovery and disturbance of human remains; greenhouse gas (GHG) emissions from project construction and operation; increased fly production and related nuisance effects; degradation of surface water quality from operation of the Vierra Dairy; groundwater contamination from dairy project operations; risk release of pollutants due to project inundation in flood zones; impacts to water quality at off-site locations that receive manure; conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan; land use compatibility with existing off-site residential uses adjacent to the project area; and cumulative impacts to air quality, biological resources, and hydrology and water quality. The environmental analysis concluded that all significant impacts could be reduced to a less-than-significant level with implementation of mitigation measures outlined in the EIR, except for impacts to surface water quality from dairy

expansion operations, groundwater quality from dairy project operations, impacts to water quality at off-site locations that receive manure, conflicts with a water quality control plan, and a significant contribution to cumulative air quality, biological resources, greenhouse gas emissions[1], and water quality impacts. These impacts would remain significant and unavoidable. Accordingly, three alternatives in addition to the required No Project alternative, listed below, were formulated to illustrate the range of projects that could be implemented as an alternative to the proposed Vierra Dairy Expansion project.

- Alternative 1 – No Project Alternative
- Alternative 2 – On-Site Anaerobic Digester Alternative
- Alternative 3 – Dairy Digester Cluster Alternative

Based on the comparative evaluation contained in the DEIR, other than the No Project Alternative, Alternative 3 (Dairy Digester Cluster) would reduce the magnitude of the most impacts as an action alternative. Several of the significant impacts identified for the project would be reduced, but not eliminated, with implementation of Alternative 3. Alternative 3 would be the environmentally superior alternative.

2.3 AREAS OF CONTROVERSY/ISSUES TO BE RESOLVED

The potential areas of controversy and issues to be resolved through the EIR process were derived from analysis conducted during preparation of the Notice of Preparation (NOP) (See Appendix A, *Notice of Preparation and Initial Study*), and review of responses received from public agencies and the public during circulation of the NOP. Responses received from public agencies and the public during circulation of the NOP raised similar environmental concerns previously identified in the NOP. These areas are summarized as follows:

- Short-term construction air quality impacts and long-term air quality impacts from an increase in operational emissions, including generation of odors (see DEIR Chapter 5, *Air Quality and Odors).*
- Potential inconsistency with state and federal air quality attainment requirements (see DEIR Chapter 5, *Air Quality and Odors*).
- Potential loss of foraging and nesting habitat for special-status species (see DEIR Chapter 6, *Biological Resources*).
- Cultural resources impacts from site clearing, grading, and other ground disturbing activities (see DEIR Chapter 7, *Cultural Resources and Tribal Cultural Resources*).
- Greenhouse gas emissions from direct and indirect sources and global warming (see DEIR Chapter 8, *Greenhouse Gas Emissions and Energy Use*).
- Potential inconsistency with the State's climate goals (see DEIR Chapter 8, *Greenhouse Gas Emissions and Energy Use*)
- Potential generation of nuisance insects (see DEIR Chapter 9, *Nuisance Conditions from Insects*).
- Violation of water quality standards, depletion of groundwater, groundwater and surface water contamination, and impacts to water quality at off-site locations (see DEIR Chapter 10, *Hydrology and Water Quality*).

[1] Impacts due to GHG emissions are considered a cumulative impact, since the project would result in a cumulatively considerable contribution to this impact.

- Conflict with Merced County Zoning Code and Animal Confinement Ordinance requirements, and land use incompatibility with surrounding residences and communities (see DEIR Chapter 11, *Land Use Compatibility*).
- Potential incompatibility with Merced County planning documents (see DEIR Chapter 11, *Land Use Compatibility*).

2.4 SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Table 2-1 presents a summary of project impacts and proposed mitigation measures that would avoid or minimize potential impacts. The level of significance for each environmental impact is indicated both before and after mitigation. For a detailed discussion of the proposed project impacts and mitigation measures, see Chapters 5 through 11 of the Draft EIR.

Table 2-1 Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Before Mitigation		Summary of Mitigation Measure/Alternative	Level of Significance After Mitigation	
	LS	**PS**		**LS**	**SU**
Air Quality and Odors (EIR Chapter 5)					
Impact AQ-1: Construction-related emissions	LS		**Recommended Measure AQ-1:** The applicant shall provide a Dust Control Plan approved by the SJVAPCD to the County, and implement all measures of applicable SJVAPCD Rules and Regulations.	LS	
Impact AQ-2: Carbon monoxide emissions from operational equipment and increased traffic	LS		**Mitigation Measure AQ-2:** None required.	LS	
Impact AQ-3: Ozone precursor emissions from dairy operations, farm equipment, and increased traffic	LS		**Mitigation Measure AQ-3:** None required.	LS	
Impact AQ-4: PM_{10} and $PM_{2.5}$ emissions from fugitive dust during project operations	LS		**Mitigation Measure AQ-4:** None required.	LS	
Impact AQ-5: Expose nearby residents to substantial pollutant concentrations from the emissions of toxic air contaminants from project construction and operations		PS	**Mitigation Measure AQ-5a:** The onsite residence 13 shall not be occupied by children during construction periods. **Mitigation Measure AQ-5b:** The applicant shall apply SJVAPCD-approved control measures to reduce PM_{10} emissions below SJVAPCD health risk thresholds.	LS	
Impact AQ-6: Expose nearby residents to substantial pollutant concentrations from emissions of criteria air pollutants	LS		**Mitigation Measure AQ-6:** None required.	LS	
Impact AQ-7: Adverse odor from project operations		PS	**Mitigation Measure AQ-7a:** The applicant shall revise the Odor Control Plan to provide additional information to neighbors regarding point of contact for nuisance complaints. **Mitigation Measure AQ-7b:** Implement the nuisance control measures set forth in MM HAZ-1a, which would also act to control odors. **Mitigation Measure AQ-7c:** Implement MM GHG-1 to ensure that the approved digester is operational and would reduce odors.	LS	

Table 2-1 Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Before Mitigation		Summary of Mitigation Measure/Alternative	Level of Significance After Mitigation	
	LS	**PS**		**LS**	**SU**
Impact AQ-8: Health impacts due to Valley Fever	LS		**Recommended Measure AQ-8a:** Implement Recommended Measure AQ-1, which requires receipt of a SJVAPCD approved Dust Control Plan. **Recommended Measure AQ-8b:** Implement the Dust Control Plan, which shall include controls and work practices that reduce workers' exposure. **Recommended Measure AQ-8c:** Provide training and personal protective respiratory equipment to construction workers regarding Valley Fever.	LS	
Impact AQ-9: Health effects as a result of exposure to bioaerosols during dairy operations	LS		**Mitigation Measure AQ-9:** None required.	LS	
Impact AQ-10: Conflict with or obstruct implementation of the applicable air quality plan	LS		**Mitigation Measure AQ-10:** None required.	LS	
Biological Resources (EIR Chapter 6)					
Impact BIO-1: Nest disturbance and loss of foraging habitat for Swainson's hawk		PS	**Mitigation Measure BIO-1a:** *Protocol Surveys*: A qualified biologist shall conduct protocol surveys if work begins between March 1 and August 30. Mitigate for loss of Swainson's hawk nesting habitat. **Mitigation Measure BIO-1b:** *Nest Avoidance*: Implement measures to minimize potential impacts to Swainson's Hawk nests. **Mitigation Measure BIO-1c:** *Foraging Impacts:* The project applicant shall consult with CDFW to determine if mitigation is necessary for the loss of approximately 15 acres of potential Swainson's hawk foraging habitat, and implement measures as required.	LS	

Table 2-1 Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Before Mitigation		Summary of Mitigation Measure/Alternative	Level of Significance After Mitigation	
	LS	**PS**		**LS**	**SU**
Impact BIO-2: Loss of foraging and nesting habitat for sensitive and migratory bird species		PS	**Mitigation Measure BIO-2a:** Implement MM BIO-1a to BIO-1c, if necessary, which includes measures that would benefit other bird species. **Mitigation Measure BIO-2b:** Implement measures to reduce project-related impacts to active bird nests and to reduce the potential for construction activities to interrupt breeding and rearing behaviors of birds.	LS	
Impact BIO-3: Loss of nesting habitat for tricolored blackbird		PS	**Mitigation Measure BIO-3a:** Implement MM BIO-1a to BIO-1c, if necessary, which includes measures that would benefit other bird species. **Mitigation Measure BIO-3b:** Implement measures as set forth in MM BIO-2b, which includes a preconstruction survey if construction is during the breeding season. **Mitigation Measure BIO-3c:** If a TCBB nest colony is discovered during preconstruction surveys, CDFW will be consulted to determine the appropriate actions or required mitigation.	LS	
Impact BIO-4: Impacts to the San Joaquin kit fox and/or American badger		PS	**Mitigation Measure BIO-4:** The project applicant must follow the USFWS guidelines for protection of San Joaquin Kit Fox. Measures include preconstruction surveys for the kit fox and badger, preventative measures to avoid potential impacts to these species, and compulsory action should any animal be encountered.	LS	
Impact BIO-5: Loss and/or degradation of special-status plant species	LS		**Mitigation Measure BIO-5:** None required.	LS	
Impact BIO-6: Loss and/or degradation of riparian and vernal pool habitat or sensitive natural communities; loss or modification of wetlands	LS		**Mitigation Measure BIO-6:** None required.	LS	
Impact BIO-7: Interference with on-site wildlife movement corridors or wildlife nursery sites	LS		**Mitigation Measure BIO-7:** None required.	LS	

Table 2-1 Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Before Mitigation		Summary of Mitigation Measure/Alternative	Level of Significance After Mitigation	
	LS	**PS**		**LS**	**SU**
Impact BIO-8: Potential selenium and heavy metals effects to on-site biological resources	LS		**Mitigation Measure BIO-8:** None required.	LS	
Impact BIO-9: Conflict with local policies or ordinances protecting biological resources	LS		**Mitigation Measure BIO-9:** None required.	LS	
Cultural Resources and Tribal Cultural Resources (EIR Chapter 7)					
Impact CUL-1: Cause a substantial adverse change in the significance of historical, archaeological, or paleontological resource, or a unique geological feature		PS	**Mitigation Measure CUL-1:** The project applicant and construction contractor shall implement a plan to address discovery of unanticipated cultural or paleontological resources. If any features are discovered, work shall be suspended until a qualified archaeologist assesses the discovery and provides consultation with appropriate agencies. Appropriate mitigation shall be implemented as advised.	LS	
Impact CUL-2: Result in the accidental discovery and disturbance of human remains		PS	**Mitigation Measure CUL-2a:** The project applicant and construction contractor shall implement the plan to address discovery of unanticipated cultural resources set forth in MM CUL-1. **Mitigation Measure CUL-2b:** The project applicant and construction contractor shall implement a plan to address discovery of human remains. In the event human remains are discovered, no further disturbance shall occur until the county coroner has made the necessary findings as to the origin and disposition of the remains, and notified the appropriate parties.	LS	
Impact CUL-3: Cause a substantial adverse change in the significance of a tribal cultural resource	LS		**Mitigation Measure CUL-3:** None required.	LS	

Table 2-1 Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Before Mitigation		Summary of Mitigation Measure/Alternative	Level of Significance After Mitigation	
	LS	**PS**		**LS**	**SU**
Greenhouse Gas Emissions and Energy Use (EIR Chapter 8)					
Impact GHG-1: Greenhouse gas emissions from project construction and operation		PS	**Mitigation Measure GHG-1:** The proposed herd expansion shall not occur until the approved manure digester is operational and captured biogas can be sent via pipeline to the central processing plant, and injected into the existing natural gas transmission line. Once operational, the dairy operator shall use the digester to store manure from the existing and proposed herd in order to capture methane for energy use to displace fossil fuel use and reduce GHG emissions from the dairy. The project sponsor shall provide documentation of use of the dairy digester to Merced County prior to herd expansion.	LS	~~SU~~
			Implementation of Alternative 1, No Project, would reduce the magnitude and significance of this effect.	LS	
			Implementation of Alternative 2, On-Site Anaerobic Digester, would decrease the magnitude but not the significance of this effect.	LS	
			Implementation of Alternative 3, Dairy Digester Pipeline Cluster, would decrease the magnitude but not the significance of this effect.	LS	
Impact GHG-2: Wasteful or inefficient consumption of energy	LS		**Mitigation Measure GHG-2:** None required.	LS	
Impact GHG-3: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, or conflict with or obstruct a state or local plan for renewable energy or energy efficiency	LS		**Mitigation Measure GHG-3:** None required.	LS	
Nuisance Conditions from Insects (EIR Chapter 9)					
Impact HAZ-1: Increased fly production and related nuisance effects		PS	**Mitigation Measure HAZ-1a:** The project applicant shall continue to implement operational measures included in the Vector Control Plan. **Mitigation Measure HAZ-1b:** The project applicant shall implement the odor control measures in MM AQ-7a.	LS	

Table 2-1 Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Before Mitigation		Summary of Mitigation Measure/Alternative	Level of Significance After Mitigation	
	LS	**PS**		**LS**	**SU**
Impact HAZ-2: Create significant nuisance conditions due to increased mosquito production	LS		**Mitigation Measure HAZ-2:** None required.	LS	
Hydrology and Water Quality (EIR Chapter 10)					
Impact HYD-1: Degradation of water quality due to storm water runoff during project construction	LS		**Recommended Measure HYD-1:** The project applicant shall Submit permit registration documents for the Construction General Permit Order 2009-0009-DWQ to the SWRCB, and comply with all requirements of the permit.	LS	
Impact HYD-2: Degradation of surface water quality from project operations		PS	**Mitigation Measure HYD-2a:** The project applicant shall provide written agreement with TID to complete annual testing of the Vierra Dairy subsurface drain. **Mitigation Measure HYD-2b:** If testing results completed in HYD-2a do not meet standards, applicant will prepare and implement an Operational Plan to improve drain water quality.		SU
			Implementation of Alternative 1, No Project, would reduce the magnitude and significance of this effect.	LS	
			Implementation of Alternative 2, On-Site Anaerobic Digester, would not change the magnitude or significance of this effect.		SU
			Implementation of Alternative 3, Dairy Digester Pipeline Cluster, would not change the magnitude or significance of this effect.		SU
Impact HYD-3: Groundwater contamination from project operations		PS	**Mitigation Measure HYD-3a:** Based on results of the CVDRMP study, the CVRWQCB should develop and implement a revised Dairy General Order. **Mitigation Measure HYD-3b:** The project applicant shall implement BMPs to prevent contamination of groundwater.		SU

Table 2-1 Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Before Mitigation		Summary of Mitigation Measure/Alternative	Level of Significance After Mitigation	
	LS	PS		LS	SU
			Mitigation Measure HYD-3c: The CVRWQCB should issue interim individual WDRs or other type of discretionary permit for the proposed dairy expansion based on the CVDRMP study. The applicant shall comply with requirements of the NMP/WMP, the individual WDR, and all Merced County ACO requirements not superseded by the conditions of the individual WDR. **Mitigation Measure HYD-3d:** The project applicant shall apply liquid and solid manure to not exceed agronomic rates as set forth in the NMP, and shall confirm agronomic rates with soil testing as described in the NMP. **Mitigation Measure HYD-3e:** The applicant shall comply with the permit requirements to protect surface waters and groundwater from salts in wastewater, to be issued by the CVRWQCB as set forth in Board Resolution R5-2018-0034 and Resolution R5-2020-0057. **Mitigation Measure HYD-3f:** The project applicant shall maintain continued membership in the groundwater monitoring network or install a site-specific groundwater monitoring system. **Mitigation Measure HYD-3g:** The project applicant shall continue groundwater monitoring of the on-site domestic and irrigation wells, and a well monitoring schedule shall be incorporated into the interim individual WDR issued for the facility. **Mitigation Measure HYD-3h:** After monitoring, if groundwater contamination is shown, the project applicant shall implement corrective measures. **Mitigation Measure HYD-3i:** The Department of Community and Economic Development and the DEH shall make a final inspection of the facility to confirm the dairy meets local and state requirements.		

Table 2-1 Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Before Mitigation		Summary of Mitigation Measure/Alternative	Level of Significance After Mitigation	
	LS	**PS**		**LS**	**SU**
			Mitigation Measure HYD-3j: During construction, all soils that contain manure or process water residue shall be maintained on the project site.		
			Implementation of Alternative 1, No Project, would reduce the magnitude and significance of this effect.	LS	
			Implementation of Alternative 2, On-Site Anaerobic Digester, would potentially increase the magnitude but not the significance of this effect.		SU
			Implementation of Alternative 3, Dairy Digester Pipeline Cluster, would potentially increase the magnitude but not the significance of this effect.		SU
Impact HYD-4: Decrease groundwater supplies	LS		**Mitigation Measure HYD-4:** None required.	LS	
Impact HYD-5: Modification of surface water drainage patterns and an increase in runoff	LS		**Mitigation Measure HYD-5:** None required.	LS	
Impact HYD-6: Risk release of pollutants due to project inundation in flood zones		PS	**Mitigation Measure HYD-6:** Implement flood protection report measures.	LS	
Impact HYD-7: Water supply pathways for pollutant migration	LS		**Mitigation Measure HYD-7:** None required.	LS	
Impact HYD-8: Impacts to water quality at off-site locations as a result of project operations		PS	**Mitigation Measure HYD-8:** The project applicant shall obtain written agreement from the recipients of manure exported off site, and provide the most recent analysis of the dry manure, in writing, to the manure recipient.		SU
			Implementation of Alternative 1, No Project, would reduce the magnitude and significance of this effect.	LS	
			Implementation of Alternative 2, On-Site Anaerobic Digester, would not change the magnitude or significance of this effect.		SU
			Implementation of Alternative 3, Dairy Digester Pipeline Cluster, would not change the magnitude or significance of this effect.		SU
Impact HYD-9: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan		PS	**Mitigation Measure HYD-9a:** Implement MM HYD-3, which requires compliance with Merced County and RWQCB regulations to minimize impacts to surface and groundwater quality.		SU

Table 2-1 Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Before Mitigation		Summary of Mitigation Measure/Alternative	Level of Significance After Mitigation	
	LS	**PS**		**LS**	**SU**
			Mitigation Measure HYD-9b: Implement MM HYD-8, which requires compliance with Merced County and RWQCB regulations to minimize impacts to surface and groundwater quality from manure applied to cropland off site.		
			Implementation of Alternative 1, No Project, would reduce the magnitude and significance of this effect.	LS	
			Implementation of Alternative 2, On-Site Anaerobic Digester, would potentially increase the magnitude but not the significance of this effect.		SU
			Implementation of Alternative 3, Dairy Digester Pipeline Cluster, would potentially increase the magnitude but not the significance of this effect.		SU
Land Use Compatibility (EIR Chapter 11)					
Impact LU-1: Consistency with Merced County Land Use Plans and policies adopted to protect the environment, including setback standards	LS		**Mitigation Measure LU-1:** None required.	LS	
Impact LU-2: Land use compatibility with existing off-site residential uses adjacent to the project area		PS	**Mitigation Measure LU-2a:** Implement the odor control measures set forth in MM AQ-7a. **Mitigation Measure LU-2b:** Implement the nuisance control measures set forth in MM HAZ-1a.	LS	
Cumulative Impacts					
Aesthetics	LS		No cumulatively considerable contribution.	LS	
Agricultural Resources	LS		No cumulatively considerable contribution.	LS	
Air Quality		PS	The project would have a cumulatively considerable contribution.		SU
Biological Resources		PS	The project would have a cumulatively considerable contribution.		SU
Cultural Resources	LS		No cumulatively considerable contribution.	LS	
Geological and Mineral Resources	LS		No cumulatively considerable contribution.	LS	
Greenhouse Gas Emissions			See Impact GHG-1		
Hazards (Nuisance Insects)	LS		No cumulatively considerable contribution.	LS	
Hydrology and Water Quality		PS	The project would have a cumulatively considerable contribution.		SU
Land Use	LS		No cumulatively considerable contribution.	LS	

Table 2-1 Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Before Mitigation		Summary of Mitigation Measure/Alternative	Level of Significance After Mitigation	
	LS	**PS**		**LS**	**SU**
Noise	LS		No cumulatively considerable contribution.	LS	
Population and Housing	LS		No cumulatively considerable contribution.	LS	
Public Services	LS		No cumulatively considerable contribution.	LS	
Recreation	LS		No cumulatively considerable contribution.	LS	
Transportation and Circulation	LS		No cumulatively considerable contribution.	LS	
Utilities and Service Systems	LS		No cumulatively considerable contribution.	LS	
Growth Inducement and Secondary Effects	LS		None required.	LS	
Irreversible Commitment of Resources	LS		None required.	LS	
Potential Environmental Damage from Accidents	LS		None required.	LS	

LS = Less than significant impact; PS = Potentially significant impact with mitigation; SU = Significant and unavoidable impact

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3 PUBLIC COMMENT AND RESPONSE TO COMMENTS

3.1 PUBLIC COMMENTS AND RESPONSES

The California Environmental Quality Act (CEQA) requires public disclosure in an Environmental Impact Report (EIR) of all project environmental effects and encourages public participation throughout the EIR process. As stated in CEQA Guidelines Section 15200, the purposes of public review of environmental documents are:

- sharing expertise;
- disclosing agency analyses;
- checking for accuracy;
- detecting omissions;
- discovering public concerns; and,
- soliciting counter-proposals.

CEQA Guidelines Section 15201 states that "(p)ublic participation is an essential part of the CEQA process." A public review period of no less than 30 days nor longer than 60 days is required for a Draft EIR (DEIR) under CEQA Guidelines Section 15105(a). If a State agency is a lead or responsible agency for the project, the public review period shall be at least 45 days. In this case, a review period extending from June 29, 2023 to August 14, 2023 was established. The comment period was extended to August 24, 2023 to accommodate the review process.

Merced County is the lead agency for this project (i.e., the agency that has primary discretionary approval authority over portions of the project) and will certify the EIR during project consideration. The Central Valley Regional Water Quality Control Board (CVRWQCB) and the San Joaquin Valley Air Pollution Control District (SJVAPCD) are responsible agencies (i.e., agencies that have more limited discretionary approval authority than the lead agency) and will be required to use this EIR in their consideration of the proposed Vierra Dairy Expansion project.

During circulation of the DEIR from June 29, 2023 to August 24, 2023, Merced County received seven comments on the EIR. For every written comment received from the public, agencies, and organizations, Merced County has provided a written response. The comments and responses to comments are included in the following pages.

For comments that advocate that Merced County take a certain action, or where the comment has stated the belief or opinion of the author, the response to the comment notes that Merced County will consider the views of the commenter in the County's deliberation of the Vierra Dairy Expansion project. No other response to such a comment is provided. This is not to diminish the importance of such comments, but rather to ensure that the substance of the comment is debated and considered by the decision-makers of Merced County and not the authors of the EIR.

COMMENTER	DATE	LETTER CODE
Federal Agency Comments		
None received		
State Agency Comments		
Central Valley Regional Water Quality Control Board	8/24/23	A
State Water Resources Control Board	8/17/23	B
California Department of Fish and Wildlife	8/14/23	C
Local and Regional Agency Comments		
San Joaquin Valley Air Pollution Control District	8/16/23	D
Public Utility and Service Provider Comments		
None received		
Citizen / Non-governmental Organizations Comments		
Leadership Counsel for Justice & Accountability	8/24/23	E
Advocates for the Environment	8/28/23	F
Sean Brophy	7/11/23	G

24 August 2023

Tiffany Ho
County of Merced
Dept. of Community and Economic Development
2222 M Street, Merced, CA 95340
(209) 385-7654

CERTIFIED MAIL:
7021-1970-0000-9862-5056

COMMENTS ON DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE VIERRA DAIRY (WDID: 5B24NC00166) EXPANSION PROJECT, 23160 WILLIAMS AVENUE, HILMAR, MERCED COUNTY, (CONDITIONAL USE PERMIT NO. CUP20-009), STATE CLEARING HOUSE NO. 2021100002

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) is a state agency with the statutory responsibility to protect water quality in California's Central Valley. (Wat. Code, § 13000 et seq.) In support of this mission, the Central Valley Water Board regulates discharges of waste, including from dairies, that have the potential to affect surface water and groundwater.

The Central Valley Water Board, in its role as responsible agency, has reviewed the subject Draft Environmental Impact Report (DEIR). Consistent with the Central Valley Water Board's obligations as a responsible agency, this comment letter reviews the scope and content of the environmental information germane to the Board's statutory responsibilities.

Central Valley Water Board Comments:

1. The discussion of the CV-SALTS Nitrate and Salt Control Programs on DEIR page 10-8 should include reference to the subsequent 2020 Basin Plan amendment revisions adopted in Central Valley Water Board Resolution R5-2020-0057. **A-1**

2. The discussion of the Dairy's involvement in the Nitrate Control Program (DEIR, pp. 10-8 to 10-9) should include a brief discussion of the current status of the Management Zone(s) in which the Dairy is participating. **A-2**

3. The lead agency's description of the existing physical environment in the vicinity of the proposed project (i.e., "environmental baseline") with respect to water quality is flawed because that description relies on an overly limited data set, the dairy's 2017 plans for waste management and nutrient application (see DEIR, p. 10-6), rather than more recent and/or more relevant data reflecting physical **A-3**

environmental conditions as they exist(ed) at the time environmental analysis commenced. (See Cal. Code Regs., tit. 14, § 15125(a).)

A-3 cont.

As a general rule, physical environmental conditions should be described as they exist at the time the notice of preparation is published or, if no notice of preparation is published, at the time the environmental analysis begins. (Cal. Code Regs., tit. 14, §§ 15125(a)(1), 15126.2(a); Communities for a Better Env't. *v. South Coast Air Quality Mgmt. Dist.* (2010) 48 Cal.4th 310, 320; Save Our Peninsula Comm. *v. Monterey Cty. Bd. of Supervisors* (2001) 87 Cal.App.4th 89, 125.) A review of the record related to this matter indicates that environmental analysis began sometime in 2020-2021. In determining environmental baseline here, the lead agency should consider additional available data concerning existing conditions, including but not limited to, the dairy's Annual Reports (which summarily document implementation of dairy operations in accordance with the dairy's Waste Management Plan (WMP) and Nutrient Management Plan (NMP)), more recent NMPs and WMPs (it is unclear why 2017 reports are appropriate for establishing baseline when newer NMPs and WMPs are available and discussed in the DEIR (see DEIR, p. 10-23 and Appx. J)), and groundwater monitoring data obtained from the Central Valley Dairy Representative Monitoring Program (CVDRMP) and/or other monitoring wells located at or near the dairy.

Furthermore, the lead agency should exercise caution in using WMPs and NMPs to establish "environmental baseline" because, although WMPs and NMPs may be appropriate sources of information concerning some existing conditions at dairy facilities, they may also contain forward-looking projections (e.g., proposed modifications in a WMP or periodically updated cropping or nutrient export plans in an NMP) that never come to exist. (See Central Valley Water Board Order R5-2013-0122, Provision J.1, and Attachments B and C [specifying required contents and triggers for updates of WMPs and NMPs].) The CEQA Guidelines provide that existing conditions baseline may not include hypothetical conditions, such as conditions that might be allowed under existing permits but that have not occurred. (See Cal. Code Regs., tit. 14, § 15125(a)(3).) The lead agency should ensure that data obtained from NMPs and WMPs are reflective of existing, rather than hypothetical, conditions at the dairy. To the extent possible, determinations of existing conditions based on WMPs and NMPs should be supported by additional data sources confirming that hypothetical, *planned* conditions reflect(ed) actual, existing conditions.

4. Related to Comment #3, DEIR Appendix I, page 17, states,

> *Water quality information was available for six domestic wells and two irrigation wells (see Table 1). Sampling dates are provided for 2011, 2012 and 2020 which relates to the investigation periods used for permit renewals. Concentration of Nitrate as N ranged from 0.969 to 81.7 mg/L, with four measurements detected above the California Title 22 Primary*

A-4

Maximum Contaminant Limit (MCL) of 10 mg/L. Ammonium nitrate was non-detect for the analyzed wells. Electrical Conductance ranged from 0.81 to 1.26 mS/cm, with fourteen detections above the Title 22 Secondary MCL of 0.9 mS/cm. The 2020 Nitrate exceedances are more elevated compared to the 2011 results.

The wells provided in Table 1 *"Historic Domestic and Irrigation Well Water Quality, Vierra Dairy"* (DEIR, Appx. I, p. 18) are not clearly defined as owned by Vierra Dairy (Discharger). The table seems to lack actual site-specific information about current water quality conditions. Also, it appears that the wells from 2011 and 2012 are not the same wells from 2020 in the Table 1 dataset. It is impossible to develop trend analysis with this dataset until a longer period of record is provided for each well used do analyze water quality over time. A more robust, site-specific hydrogeologic numerical or conceptual model or similar method should be developed to study and define water quality impacts from dairy operations. If there is a dataset available that includes well construction information, it should be included in the final EIR, along with the numerical or conceptual hydrogeologic model.

5. The DEIR correctly concludes that the potential for discharge of wastewater to surface water from tile drainage would be a significant impact. (DEIR, pp. 10-28 to 10-29.) The DEIR states as Mitigation Measure HYD-2b that the Central Valley Water Board "should develop a revised Dairy General Order with updated standards." It should be noted that it is uncertain whether this mitigation measure is legally feasible. The Central Valley Water Board does not currently authorize, and does not anticipate authorizing, discharges of dairy wastes to surface waters under any condition, as it is not clear how such discharges could be authorized in accordance with existing state and federal law. **A-5**

6. DEIR Appendix I, pages 5 and 6 - The site specific hydrogeologic model is based on a site hydrogeologic cross-section taken from Dunn 2013 (Figure 3) and uses projected wells nearby or possibly owned by the Discharger but it is unclear if this is the case. A table showing the wells, their location, and well construction details should be provided in the final EIR. **A-6**

7. DEIR page 12 - The Vierra Dairy Site is labeled incorrectly on the "Subbasin Cross-Section Line B-B' (Taken from the Groundwater Sustainability Plan's [GSP] Figure ES-5)." **A-7**

The Central Valley Water Board appreciates Merced County's consideration of its comments on the DEIR.

If you have any questions, please contact me by phone at (916) 464-4724 or by email at daniel.gamon@waterboards.ca.gov.

Daniel Gamon

Digitally signed by Daniel Gamon
Date: 2023.08.24 14:39:58 -07'00'

Daniel Gamon, PG, CHg
Senior Engineering Geologist
Confined Animal Facilities Unit Chief
Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Drive, Ste. 200
Rancho Cordova, CA 95670

cc: Denise Mullinax, California Dairy Quality Assurance Program 2020 Research Park Drive, Suite 110 Davis, CA 95618

James Garner, Central Valley Dairy Representative Monitoring Program, PO Box 227, Sacramento, CA 95812

Joe Ramos, F&R Ag Services, Inc., 2857 Geer Road, Suite A, Turlock, CA 95382

cc via email: Chris Moskal, State Water Board Office of Chief Counsel

John J. Baum, Central Valley Regional Water Quality Control Board

Scott Hatton, Central Valley Regional Water Quality Control Board

Dale Harvey, Central Valley Regional Water Quality Control Board

Gilberto Corral, Central Valley Regional Water Quality Control Board

Response to Letter A

Commenter California Water Boards, Central Valley Regional Water Quality Control Board
August 24, 2023

A-1 The comment states that the EIR should include reference to 2020 Basin Plan amendment in CVRWQCB R5-2020-0057.

The County acknowledges the CVRWQCB comment. The comment does not raise any concerns regarding the environmental conclusions of the DEIR. Reference to the 2020 Basin Plan amendment in CVRWQCB R5-2020-0057 is hereby included in Section 10.1.2, *California Laws and Regulations,* subsection *Central Valley Salinity Alternatives for Long Term Sustainability and Nitrate Control Program,* of Chapter 10, *Hydrology and Water Quality* (DEIR p. 10-8). This addition is documented in Chapter 4 of this FEIR. The addition of background information would simply expand upon the regulatory setting and would not lead to any change in the determination of level of significance for any environmental conclusions within the EIR.

Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no additional modification of the EIR is necessary.

A-2 The comment states that the EIR should include discussion of the current status of the Management Zones in which the Dairy is participating.

The DEIR includes a description of the Turlock Management Zone in which the dairy is participating (DEIR pp. 10-8 to 10-9). The comment does not raise any concerns regarding the environmental conclusions of the DEIR. The EIR has been revised to include additional discussion regarding the Management Zone in Section 10.1.2, *California Laws and Regulations,* subsection *Central Valley Salinity Alternatives for Long Term Sustainability and Nitrate Control Program,* of Chapter 10, *Hydrology and Water Quality*, as reflected in Chapter 4 of this FEIR. The addition of background information would simply expand upon the regulatory setting and would not lead to any change in the determination of level of significance for any environmental conclusions within the EIR.

Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no additional modification of the EIR is necessary.

A-3 The comment states that the EIR baseline is flawed because the existing conditions Waste Management Plan (WMP) and Nutrient Management Plan (NMP) do not reflect existing conditions. The comment states that the baseline should be based on environmental conditions at the time of environmental analysis. The comment also states that the NMP and WMP should be confirmed as existing actual conditions instead of hypothetical conditions.

The reasoning used to establish the baseline for the Vierra Dairy Expansion project EIR is described is Section 3.7, *Establishing the Proper "Baseline" for the Proposed Dairy Expansion*, of Chapter 3, *Project Description*, of the DEIR (DEIR p. 3-23). Lead agencies should choose the baseline that most meaningfully informs decision-makers and the public of the project's possible impacts. For projects involving ongoing operations and continuations of past activity,

"the established levels of a particular use and the physical impacts thereof are considered to be part of the existing environmental baseline" (*North Coast Rivers Alliance v. Westlands Water Dist.* (2014) 227 Cal.App.4th 832). The existing operations at a dairy are a dynamic and varying set of physical conditions. CEQA allows the lead agency discretion and flexibility to determine what temporal "snapshot" provides the best representation of actual physical conditions (*Communities for a Better Environment v. South Coast Air Quality Management District* (2010) 158 Cal.App.4th 310; *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439). As set forth in the DEIR, the baseline herd used in the Vierra Dairy Expansion EIR is the herd count at the time of Notice of Preparation (NOP) circulation (September 2021), which was 5,597 animals, including 3,200 mature cows.

The NMP and WMP as required by the Waste Discharge Requirements General Order R5-2013-0122 describe the operational requirements for a dairy facility and associated land application areas, and together they serve as the primary tool to prevent groundwater contamination and poor operations. As stated by the CVRWQCB comment, NMPs and WMPs may be appropriate sources of some existing conditions in combination with other data sources. NMPs and WMPs are also updated over time as operations change or as planning documents with forward-looking projections of dairy operations.

According to dairy operators and engineers, in most instances the existing conditions NMP and WMP are near to representative of existing conditions at most dairy farm operations. There are some exceptions in which an operator is housing animals above the permitted limit in that operation year. In these cases, the Annual Report submitted to the CVRWQCB as required by the Dairy General Order combined with the existing conditions NMP/WMP may be a better representation of existing operational conditions. Even still, in these circumstances, using the existing conditions NMP/WMP to establish a baseline for comparison with the proposed project would generally provide a more conservative analysis in the EIR, since the magnitude of impacts assessed using a smaller herd (as included in the NMP/WMP) would generally be greater than those calculated using a larger existing herd and associated operations (as included in the Annual Report).

In the case of the Vierra Dairy, the NMP and WMP prepared for the dairy operations (dated August and November 2017, respectively) were provided by the project applicant as representative of existing conditions on the dairy farm, and were used in the EIR to describe existing conditions for the project and establish a baseline for analysis. As provided by the applicant, the dairy herd of 5,597 animals and associated operations set forth in the existing conditions 2017 NMP and WMP are generally representative of the existing Vierra Dairy Farm operations at the time of circulation of the NOP (September 2021). As the commenter notes, a more recent NMP and WMP have been developed for the facility (both dated August 2020), and these forward-looking 2020 NMP/WMP have been used to represent proposed conditions for the evaluation in the DEIR, as described in Chapter 10, *Hydrology and Water Quality*, of the DEIR (DEIR p. 10-6 and 10-23).

To develop a description of the environmental setting and baseline conditions in both the EIR and the Hydrogeologic Assessment included as Appendix I of the DEIR, the 2017 NMP and WMP were used and cross-referenced with operations on the ground according to the dairy operator, Merced County records, and GIS data; data from the 2020 Annual Report (dated

April 2021) submitted to the CVRWQCB[1], including water quality data collected for the existing domestic and irrigation water wells for the project site; and groundwater monitoring data from nearby monitoring wells sampled under the Central Valley Dairy Representative Monitoring Program (CVDRMP), among other sources of information.

Since Merced County has identified the appropriate baseline as the herd count of 5,597 animals and associated operations at the time of circulation of the NOP, which is most accurately represented by the existing conditions 2017 NMP/WMP provided by the project applicant, and has the discretion to choose this baseline to evaluate project impacts, no changes to the baseline used in the EIR would be required.

Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no changes to the EIR are necessary.

A-4 The comment states that the wells provided in the technical appendix need to be clearly defined and an expanded dataset should be included. The comment states that a more robust, site-specific hydrogeologic numerical or conceptual model should be developed, and well construction information should be included, if available.

The comment does not raise any concerns regarding the environmental conclusions of the DEIR. Additional information regarding wells in Table 1 has been added to DEIR Appendix I, *Hydrogeologic Assessment Summary for CEQA*. This addition is documented in an attachment to Chapter 4 of this FEIR. Language has been added to the appendix to clarify that project site DWR logs were used in the geologic cross-sections. The addition of background information would simply expand upon the environmental setting and would not lead to any change in the determination of level of significance for any environmental conclusions within the EIR.

Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no additional modification of the EIR is necessary.

A-5 The comment notes that the DEIR properly concludes that the discharge of dairy wastewater to surface water from tile drainage would be a significant impact. However, with respect to proposed Mitigation Measure HYD-2b, the comment states that it is not the CVRWQCB's existing practice, nor their anticipated practice, to permit the discharge of dairy wastes exceeding state and federal standards to surface water.

No response to the CVRWQCB's concurrence with the significance conclusion of *Impact HYD-2: Degradation of surface water quality from project operations,* is necessary. In response to that portion of the comment regarding mitigation, Mitigation Measures HYD 2a and HYD-2b are hereby revised to state:

[1] While the number of milk cows and dry cows differ slightly between that provided in the 2020 Annual Report and those in the existing conditions 2017 NMP and WMP, the total number of mature cows are the same.

Mitigation Measure HYD-2a:
Prior to the commencement of operations or expansion of the herd at the proposed dairy facilities, the applicant shall provide to the County a written agreement with the Turlock Irrigation District to complete annual water quality testing of the Vierra Subsurface Drain at Lateral 7 and Faith Home Road. The applicant shall complete water testing at the tile drain outfall for the same parameters required for the project site domestic and irrigation wells under the Dairy General Order. The applicant shall submit testing results to TID and to the CVRWQCB as part of the Annual Report required in accordance with the Dairy General Order.

Mitigation Measure HYD-2b:
~~Implement Mitigation Measure HYD-3j, which states that the CVRWQCB should develop a revised Dairy General Order with updated standards.~~ If testing results required by Mitigation Measure HYD-2a do not meet state or federal standards for discharge to surface waters, the applicant shall prepare an Operational Plan to improve drain water quality. The Plan shall contain drainage water management techniques as appropriate, including water quality measurements of tile drain water to be discharged to TID canals and background canal water at the time of discharge. Measurements shall be no less than semi-annually. The Plan shall be submitted to TID for approval. Once approved, the Plan shall be implemented, and the resulting water quality measurements shall be reported in the dairy's Annual Report to TID and the CVRWQCB in accordance with the Dairy General Order.

As set forth by modified Mitigation Measure HYD-2a, the applicant would be required to annually measure and submit tile drain water quality data to the Turlock Irrigation District (TID) and the CVRWQCB. Implementation of the modification to Mitigation Measure HYD-2a would not change the significance conclusion of the EIR with respect to Impact HYD-2, nor would it require any measures to be implemented outside of the dairy site as assessed in the DEIR. Therefore, no further response or modification of the EIR is necessary to respond.

As set forth by modified Mitigation Measure HYD-2b, the applicant would be required to prepare and implement an Operational Plan to improve tile drain water quality within the tile drain system and as discharged into TID irrigation canals. Implementation of the modification to Mitigation Measure HYD-2b would not change the significance conclusion of the EIR with respect to Impact HYD-2, nor would it require any measures to be implemented outside of the dairy site as assessed in the DEIR. Therefore, no further response or modification of the EIR is necessary to respond.

CEQA Guidelines Section 15088.5 requires a lead agency to recirculate an EIR for further review and comment when significant new information is added to the EIR after public notice is given of the availability of the Draft EIR but before certification of the Final EIR. New information added to an EIR is not "significant" unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect that the project proponent declines to implement. The CEQA Guidelines provide examples of when significant new information is added, such as when a new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented, or when a substantial increase in the severity of an environmental impact would

result unless mitigation is adopted that reduces the impact to a level of insignificance. Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes an insignificant modification in an adequate EIR. In the case of Mitigation Measures HYD-2a and HYD-2b, the measures have been modified to be more protective of the environment than the measures set forth in the DEIR.

Because Merced County will impose this measure on the project upon approval of the Vierra Dairy Expansion, none of the conditions set forth in CEQA Guidelines Section 15088.5 are present, and no recirculation of the EIR would be necessary. The revised mitigation measure would be more effective than the previous version, and there would be no change in the environmental conclusions presented in the DEIR as a result of this comment. Therefore, no further modification of the EIR would be necessary.

A-6 The comment states that the site specific 2013 hydrogeologic model needs additional information, including a table showing wells, their location, and construction details.

See response to comment A-4 above. Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no additional modification of the EIR is necessary.

A-7 The comment states that there is an error on Subbasin Cross-Section Line B-B'

The correction to the DEIR Appendix I, *Hydrogeologic Assessment Summary for CEQA* is documented in the attachment to this FEIR. These revisions fix an error and would not lead to any change in the EIR. Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no additional modification of the EIR is necessary.

State Water Resources Control Board

August 17, 2023

Merced County
Attn: Tiffany Ho
2222 M Street
Merced, CA 95340

MERCED COUNTY (COUNTY), ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE VIERRA DAIRY EXPANSION PROJECT (PROJECT); STATE CLEARINGHOUSE #2021100002

Dear Ms. Tiffany Ho:

Thank you for the opportunity to review the EIR for the proposed Project. The State Water Resources Control Board, Division of Drinking Water (State Water Board, DDW) is responsible for issuing water supply permits pursuant to the Safe Drinking Water Act. The Project is within the jurisdiction of the State Water Board, DDW's Merced District. DDW Merced District may issue a domestic water supply permit to the public water systems serviced with a new or modified source of domestic water supply or new domestic water system components pursuant to Waterworks Standards (Title 22 CCR chapter 16 et. seq.). A public water system requires a new water supply permit if it includes the creation of a new public water system for changes to a water supply source, storage, or treatment and for the operation of new water system components- as specified in the Waterworks Standards.

B-1

Health & Safety Code section 116527(b) requires that any person submitting a permit application for a proposed new public water system must first submit a technical report at least six months before initiating construction of any drinking water related improvements. The technical report must include an examination of the possibility of consolidation with an existing public water system or consolidation of multiple proposed public water systems.

The Applicant may need to apply for a water supply permit for this Project.

The State Water Board, DDW, as a responsible agency under California Environmental Quality Act (CEQA), has the following comments on the County's EIR:

- The Merced County Department of Environmental Health requires a water supply permit from the Division of Drinking Water for the public water system as

a condition of Project approval (PDF page 59). As stated above, the State Water Board permits public water systems. **B-2**

- Please describe the existing water system components that will become part of the new public water system and if any new system components, such as storage tanks or treatment systems will be needed. Reference the location of water system components on Figures 3-4 and 3-6, as applicable.
- The EIR indicates that domestic wells had elevated nitrate and electroconductivity levels (Appendix I, PDF page 22). Please discuss what is known about the domestic well water quality and if there may be a need for treatment.
- Please discuss who will be served by the public water system. Will some of the domestic wells remain private?

If a new water system will be created, once the EIR is certified, please forward the following items in support of the new water system's permit application to the State Water Board, DDW Merced District Office at DWPDIST11@waterboards.ca.gov:

- Copy of the draft and final EIR with the Mitigation Monitoring and Reporting Plan (MMRP).
- Copy of any comment letters received and the lead agency responses as appropriate.
- Copy of the Resolution or Board Minutes adopting the EIR and MMRP; and
- Copy of the date stamped Notice of Determination filed at the Merced County Clerk's Office and the Governor's Office of Planning and Research, State Clearinghouse.

Please contact Lori Schmitz of the State Water Board at (916) 449-5285 or Lori.Schmitz@waterboards.ca.gov, if you have any questions regarding this comment letter.

Sincerely,

Lori Schmitz Digitally signed by Lori Schmitz Date: 2023.08.17 10:20:35 -07'00'

Water Boards

Lori Schmitz

Lori Schmitz
Environmental Scientist
Division of Financial Assistance
Special Project Review Unit
1001 I Street, 16th floor
Sacramento, CA 95814

Cc:

Office of Planning and Research, State Clearinghouse

Shawn Demmers
District Engineer
Merced District

Response to Letter B

Commenter State Water Resources Control Board
August 17, 2023

B-1 The comment states that the State Water Resources Control Board (SWRCB), Division of Drinking Water is responsible for issuing a water supply permit and describes application requirements, including a preliminary technical report prior to be submitted prior to the issuance of a water supply permit.

The County acknowledges the SWRCB comment. The EIR includes a description of the Public Drinking Water Systems permitting in the regulatory framework of Chapter 10, *Hydrology and Water Quality*, of the DEIR. Because the comment does not raise any concerns regarding the content or environmental conclusions of the DEIR, no changes to the DEIR are necessary.

B-2 The comment asks for a description of the existing water system components that will become part of the new public water system and any new components that will be required for new public water system.

The dairy currently employs a staff of approximately 32 workers. With implementation of the proposed project, the number of employees would increase from 32 to approximately 45 workers. Under existing conditions as based on the number of existing employees and operations, it appears that the dairy operation may be required to obtain a Public Water System (PWS) Permit from the State of California State Water Resources Control Board, Division of Drinking Water. The facility would then be required to maintain compliance with that permit as long as 25 or more persons are present at the facility on 60 or more days of the year.

Since the existing number of employees indicates that the Vierra Dairy requires a public water system, and no PWS Permit has been submitted to date, the existing dairy may be in violation of regulatory requirements of the SWRCB. Therefore, the need for a public water system is not a result of the proposed dairy expansion project, and would not be considered part of the project evaluated in this EIR. In order to come into compliance with the requirement to register as a PWS, the County will include a condition of approval of the dairy expansion project that the property owner immediately initiate the process to obtain a permit to operate a public water system facility. The permit application is required to include demonstration that sufficient water is available from the water system's sources and distribution storage facilities to provide adequate water service, and will describe the water system components as requested by the SWRCB. Some of the domestic wells onsite may remain private, and the public water system may serve additional users depending on what the SWRCB permit conditions include.

Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no modification of the EIR is necessary.

B-3 The comment requests a discussion of what is known about the domestic well water quality and if there may be a need for treatment.

As stated in the comment, the EIR indicates that there were domestic wells that had elevated nitrate and electroconductivity levels. See the response to comment B-2 above. Since the need for a public water system is not a result of the proposed dairy expansion project, it would not be considered part of the project evaluated in this EIR. The requested details regarding a need for well water treatment will be included as part of the PWS permit application.

Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no modification of the EIR is necessary.

B-4 The comment requests a discussion of who will be served by the public water system, and whether some wells will remain private.

See the response to comment B-2 above.

Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no modification of the EIR is necessary.

B-5 The commenter requests copies of the Final EIR, the Mitigation Monitoring and Reporting Plan, and all records regarding adoption of the EIR, including the Findings and Statement of Overriding Considerations, and the stamped Notice of Determination.

The County acknowledges the SWRCB comment, and will provide the requested materials. Because the comment does not raise any concerns regarding the content or environmental conclusions of the DEIR, no changes to the DEIR are necessary.

STATE OF CALIFORNIA • NATURAL RESOURCES AGENCY
Gavin Newson, Governor
DEPARTMENT OF FISH AND WILDLIFE
Charlton H. Bonham, Director
Central Region
1234 East Shaw Avenue | Fresno, California 93710 | (559) 243-4005

August 14, 2023

Tiffany Ho, Deputy Director of Planning
Merced County Community and Economic Development Department
2222 M Street
Merced, California 93540
tiffany.ho@countyofmerced.com

Subject: Vierra Dairy Expansion Project (Project)
Conditional Use Permit No. CUP20-009
Draft Environmental Impact Report (DEIR)
State Clearinghouse No. 2021100002

Dear Tiffany Ho:

The California Department of Fish and Wildlife (CDFW) received a DEIR from Merced County Community and Economic Development Department for the above-referenced Project pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

C-1

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under Fish and Game Code.

After reviewing the provided CEQA document, CDFW has determined that the mitigation measures as currently documented in the DEIR are sufficient for mitigation of impacts to listed species. Please keep in mind that not observing CDFW's recommended no-disturbance buffers during the bird nesting season could result in inadvertent take of listed species under the California Endangered Species Act (CESA) should an Incidental Take Permit (ITP) for those species not be acquired. Should listed species be detected during surveys, consultation with CDFW is warranted to discuss how to implement the Project and avoid take, or if avoidance is not feasible, to acquire

[1]CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

an ITP, pursuant to Fish and Game Code Section, 2081 subdivision (b), prior to any ground disturbing activities.

C-1 cont.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to CNDDB. The CNDDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

FILING FEES

If it is determined that the Project has the potential to impact biological resources, an assessment of filing fees will be necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089).

CDFW appreciates the opportunity to comment on the Project to assist Merced County Community and Economic Development Department in identifying and mitigating the Project's impacts on biological resources.

More information on survey and monitoring protocols for sensitive species can be found at CDFW's website (https://www.wildlife.ca.gov/Conservation/Survey-Protocols). If you have any questions, please contact Jim Vang, Senior Environmental Scientist (Specialist), at the address provided on this letterhead, by telephone at (559) 580-3203, or by electronic mail at Jim.Vang@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Julie Vance
FA83F09FE08945A...

Julie A. Vance
Regional Manager

Response to Letter C

Commenter California Department of Fish and Wildlife (CDFW)
August 14, 2023

C-1 The comment states that the CDFW has determined that the mitigation measures in the DEIR are adequate to mitigate impacts to listed species. The comment also requests the report of any special-status species detected during project surveys, and the payment of filing fees, as necessary.

The County acknowledges the CDFW comment. Because the comment does not raise any concerns regarding the content or environmental conclusions of the DEIR, no changes to the DEIR are necessary.

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

August 16, 2023

Tiffany Ho
County of Merced
Community and Economic Development Department
2222 “M” Street
Merced, CA 95340

Project: Draft Environmental Impact Report for the Vierra Dairy Expansion Project

District CEQA Reference No: 20230647

Dear Ms. Ho:

The San Joaquin Valley Air Pollution Control District (District) has reviewed the Draft Environmental Impact Report (DEIR) from the County of Merced (County) for the Vierra Dairy Expansion Project. Per the DEIR, the project consists of the expansion of an existing dairy facility from a herd size of 5,597 cattle to 7,117 cattle by adding 1,520 milk cows as well as the construction of two freestall barns, a hospital milking barn, commodity barn, a heifer barn, and a utility shop (Project). The Project is located on the northwest corner of Williams Avenue and Washington Road near Hilmar, CA.

The District offers the following comments regarding the Project:

1) Project Related Emissions

Based on information in the DEIR, Project specific annual criteria pollutant emissions from construction and operation are not expected to exceed any of the significance thresholds as identified in the District’s Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI): https://www.valleyair.org/transportation/GAMAQI.pdf.

D-1

1a) Construction Emissions

The District recommends, to further reduce impacts from construction-related diesel exhaust emissions, the Project should utilize the cleanest available off-road construction equipment, including the latest tier equipment.

Samir Sheikh
Executive Director/Air Pollution Control Officer

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

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

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

www.valleyair.org www.healthyairliving.com

2) District Rules and Regulations

D-2

The District issues permits for many types of air pollution sources, and regulates some activities that do not require permits. A project subject to District rules and regulations would reduce its impacts on air quality through compliance with the District's regulatory framework. In general, a regulation is a collection of individual rules, each of which deals with a specific topic. As an example, Regulation II (Permits) includes District Rule 2010 (Permits Required), Rule 2201 (New and Modified Stationary Source Review), Rule 2520 (Federally Mandated Operating Permits), and several other rules pertaining to District permitting requirements and processes.

The list of rules below is neither exhaustive nor exclusive. Current District rules can be found online at: www.valleyair.org/rules/1ruleslist.htm. To identify other District rules or regulations that apply to future projects, or to obtain information about District permit requirements, the project proponents are strongly encouraged to contact the District's Small Business Assistance (SBA) Office at (209) 557-6446.

2a) District Rules 2010 and 2201 - Air Quality Permitting for Stationary Sources

Stationary Source emissions include any building, structure, facility, or installation which emits or may emit any affected pollutant directly or as a fugitive emission. District Rule 2010 (Permits Required) requires operators of emission sources to obtain an Authority to Construct (ATC) and Permit to Operate (PTO) from the District. District Rule 2201 (New and Modified Stationary Source Review) requires that new and modified stationary sources of emissions mitigate their emissions using Best Available Control Technology (BACT).

This Project is subject to District Rule 2010 (Permits Required) and Rule 2201 (New and Modified Stationary Source Review) and requires District permits. Towards this end, the District has received an ATC application for the Project (N-1193209)

2b) District Rule 9510 - Indirect Source Review (ISR)

Per District Rule 9510 section 4.4.3, a development project on a facility whose primary functions are subject to District Rule 2201 or District Rule 2010 are exempt from the requirements of the rule. The District has reviewed the information provided and has determined that the primary functions of this Project are subject to District Rule 2201 (New and Modified Stationary Source Review Rule) or District Rule 2010 (Permits Required). As a result, District Rule 9510 requirements and related fees do not apply to the Project referenced above.

2c) District Rule 4002 (National Emissions Standards for Hazardous Air Pollutants) **D-2 cont.**

The Project will be subject to District Rule 4002 since the Project will include demolition, renovation, and removal of existing structures. To protect the public from uncontrolled emissions of asbestos, this rule requires a thorough inspection for asbestos to be conducted before any regulated facility is demolished or renovated. Any asbestos present must be handled in accordance with established work practice standards and disposal requirements.

Information on how to comply with District Rule 4002 can be found online at: http://www.valleyair.org/busind/comply/asbestosbultn.htm.

2d) District Rule 4601 (Architectural Coatings)

The Project may be subject to District Rule 4601 since it may utilize architectural coatings. Architectural coatings are paints, varnishes, sealers, or stains that are applied to structures, portable buildings, pavements or curbs. The purpose of this rule is to limit VOC emissions from architectural coatings. In addition, this rule specifies architectural coatings storage, cleanup and labeling requirements. Additional information on how to comply with District Rule 4601 requirements can be found online at: http://www.valleyair.org/rules/currntrules/r4601.pdf

2e) District Regulation VIII (Fugitive PM10 Prohibitions)

The project proponent may be required to submit a Construction Notification Form or submit and receive approval of a Dust Control Plan prior to commencing any earthmoving activities as described in Regulation VIII, specifically Rule 8021 – *Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities.*

Should the project result in at least 1-acre in size, the project proponent shall provide written notification to the District at least 48 hours prior to the project proponents intent to commence any earthmoving activities pursuant to District Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities). Also, should the project result in the disturbance of 5-acres or more, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials, the project proponent shall submit to the District a Dust Control Plan pursuant to District Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities). For additional information regarding the written notification or Dust Control Plan requirements, please contact District Compliance staff at (559) 230-5950.

The application for both the Construction Notification and Dust Control Plan can be found online at:
https://www.valleyair.org/busind/comply/PM10/forms/DCP-Form.docx

Information about District Regulation VIII can be found online at:
http://www.valleyair.org/busind/comply/pm10/compliance_pm10.htm

D-2 cont.

2f) Other District Rules and Regulations

The Project may also be subject to the following District rules: Rule 4102 (Nuisance) and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations).

The following rules are specific to confined animal operations:

- Rule 4102 (Nuisance) – This rule applies to any source operation that emits or may emit air contaminants or other materials. In the event that the Project or construction of the Project creates a public nuisance, it could be in violation and be subject to District enforcement action.

- Rule 4550 (Conservation Management Practices) – The purpose of this rule is to limit fugitive dust emissions from agricultural operation sites. These sites include areas of crop production, animal feeding operations and unpaved roads/equipment areas. The District's CMP handbook can be found online at the District's website at: http://www.valleyair.org/farmpermits/updates/cmp_handbook.pdf.

- Rule 4570 (Confined Animal Facilities) – District Rule 4570 was adopted by the District's Governing Board on June 15, 2006. Dairies with greater than or equal to 500 milk cows are subject to the requirements of District Rule 4570. Therefore, a Rule 4570 application shall also be submitted to the District.

3) District Comment Letter

D-3

The District recommends that a copy of the District's comments be provided to the Project proponent.

If you have any questions or require further information, please contact Matt Crow by e-mail at Matt.Crow@valleyair.org or by phone at (559) 230-5931.

Sincerely,

Brian Clements
Director of Permit Services

Mark Montelongo
Program Manager

Response to Letter D

Commenter San Joaquin Valley Air Pollution Control District
August 16, 2023

D-1 The comment states that based on information in the DEIR, the project is not expected to exceed any significance thresholds. The comment recommends the use of cleanest available off-road equipment during construction.

The County acknowledges the SJVAPCD comment. A copy of the SJVAPCD comment letter has been provided to the project applicant for review of recommendations. Because the comment does not raise any concerns regarding the content or environmental conclusions of the DEIR, no changes to the DEIR are necessary.

D-2 The comment summarizes District Rules applicable to the project.

The County acknowledges the SJVAPCD comment. The DEIR Chapter 5, *Air Quality and Odors*, includes discussion of SJVAPCD Rules and Regulations (DEIR pp. 5-5 to 5-8), and includes recommended measures to ensure the project applicant obtains all necessary permits from the Air District (DEIR p. 5-22). Because the comment does not raise any concerns regarding the content or environmental conclusions of the DEIR, no changes to the DEIR are necessary.

D-3 The comment recommends that a copy of the SJVAPCD's comments be provided to the project proponent.

All comments on the DEIR have been provided to the project applicant. Because the comment does not raise any concerns regarding the content or environmental conclusions of the DEIR, no changes to the DEIR are necessary.

Merced County Board of Supervisors
2222 M St
Merced, CA 95340

Cc: Tiffany Ho

Submitted electronically via email to: publiccomments@countyofmerced.com, tiffany.ho@countyofmerced.com

August 24, 2023

Re: Vierra Dairy Expansion Draft Environmental Impact Report

Dear Ms. Ho and Merced County Board of Supervisors,

Leadership Counsel for Justice & Accountability (LCJA) submits these comments in partnership with Central Valley Defenders for Clean Air and Water (Defenders). Defenders consists of residents of the San Joaquin Valley, including Merced County residents, living near and / or facing impacts from concentrated animal feeding operations. LCJA is a not-for-profit organization that works in the San Joaquin and Eastern Coachella Valleys alongside the most impacted communities to advocate for sound policy and to eradicate injustice to secure equal access to opportunity regardless of wealth, race, income, and place. LCJA works in partnership with community members living in several Merced County communities, who are very concerned about the significant impacts that the proposed expansion would have on the environment and on human health in Merced County. E-1

We are writing to provide comments regarding the legal deficiencies in the Vierra Dairy Expansion Draft Environmental Impact Report (DEIR). Through these comments we raise the following legal and informational deficiencies with the DEIR for the proposed expansion: we object to the proposed project due to its inconsistency with regional air, groundwater, and environmental justice policy; and we urge the County not to grant the requested Conditional Use Permit.

I. Legal Background

CEQA requires that an agency analyze the potential environmental impacts of its proposed actions in an EIR except in certain limited circumstances. *See, e.g.,* Pub. Res. Code § 21100. The EIR is the very heart of CEQA. *Dunn-Edwards v. BAAQMD* (1992) 9 Cal.App.4th 644, 652. "The foremost principle in interpreting CEQA is that the Legislature intended the act to be read so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language." *Communities. for a Better Env. v. Cal. Res. Agency* (2002) 103 Cal. App.4th 98, 109. E-2

CEQA has two primary purposes. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project. 14 Cal. Code Regs. (C.C.R.) § 15002(a)(1). "Its purpose is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. Thus, the EIR 'protects not only the environment

but also informed self-government.'" *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553, 564. The EIR has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return." *Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs.* (2001) 91 Cal. App. 4th 1344, 1354; *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.

E-2 cont.

Second, CEQA requires public agencies to avoid or reduce environmental damage when "feasible" by requiring "environmentally superior" alternatives and all feasible mitigation measures. 14 C.C.R. § 15002(a)(2) and (3); s*ee also Berkeley Jets*, 91 Cal.App.4th at 1354; *Citizens of Goleta Valley*, 52 Cal.3d at p. 564. The EIR serves to provide agencies and the public with information about the environmental impacts of a proposed project and to "identify ways that environmental damage can be avoided or significantly reduced." 14 C.C.R.. §15002(a)(2). If the project will have a significant effect on the environment, the agency may approve the project only if it finds that it has "eliminated or substantially lessened all significant effects on the environment where feasible" and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns." Pub. Res. Code § 21081; 14 C.C.R § 15092(b)(2)(A) & (B).

II. The DEIR Is Incorrectly Tiered from the Animal Confinement Ordinance (ACO) and General Plan EIRs

The DEIR incorrectly concludes that Merced County's Animal Confinement Ordinance (ACO) and General Plan EIRs adopted mitigation measures, evaluated baseline environmental conditions, and analyzed cumulative impacts that apply to this project. Thus, as explained below, tiering the DEIR to the ACO and General Plan does not comply with CEQA.

A. The ACO Does Not Impose Valid Mitigation Measures–It Merely Sets Forth Requirements in the Merced County Municipal Code

The ACO cannot outline mitigation measures because it is simply a list of local baseline legal requirements for animal confinement facilities. Under CEQA, a mitigation measure must modify the project in a way that will avoid, minimize, rectify, reduce, eliminate, or compensate for the impact. 14 C.C.R. § 15370. A baseline legal obligation is not a mitigation measure because it is already *required* to be a part of the project as proposed. As a local requirement, the actions outlined by the ACO are already a part of the original project as proposed and are therefore not mitigation measures. Mitigation measures must propose something additional to the project as proposed in order to address its impacts.

E-3

B. The General Plan EIR Does Not Accurately Describe Baseline Conditions or Cumulative Impacts

The Merced County General Plan EIR was certified in 2013, making its assessment of baseline environmental conditions and any discussion of cumulative impacts outdated. Under CEQA, the baseline "normally" consists of "the physical environmental conditions in the vicinity of the project, as they exist at the time . . . environmental analysis is commenced . . . ." 14 C.C.R. § 15125(a). The General Plan's assessment of the baseline environmental conditions is outdated and inaccurate. For example, the General Plan EIR was written and adopted prior to the passage of the Sustainable Groundwater Management Act and the Central Valley Water Board's acceptance of a regional Salt and Nitrate Management Plan, meaning it lacks the technical analysis and modeling of groundwater levels and quality now available in the Turlock Subbasin Groundwater Sustainability Plan (GSP) and Central Valley Salinity Alternatives for

E-4

Long-Term Sustainability (CV-SALTS) plans.

Furthermore, groundwater levels have severely declined since the General Plan EIR's 2013 adoption date. The project site is located in a critically overdrafted subbasin which is currently enduring its second period of drought since the EIR was drafted. Additionally, the Merced County General Plan EIR was adopted before the California Air Resources Board approved the state's Short-Lived Climate Pollution Strategy in 2017, which requires a 40% reduction in methane emissions by 2030, meaning it does not adequately describe the baseline environmental conditions of the region in light of state climate goals, nor can it provide any cumulative analysis of the implications of widespread dairy expansions throughout the region on reaching this state climate goal. Lastly, the General Plan EIR was adopted prior to the 2019 Central Valley Representative Dairy Monitoring Report. Thus, the General Plan EIR's description of baseline conditions is not based on current groundwater quality monitoring, and any discussion of cumulative impacts from regional herd size growth trends is not based on accurate groundwater quality monitoring data. **E-4 cont.**

Merced County's Animal Confinement Ordinance Revision which was certified in 2002 as a mitigation and assessment measure also inaccurately addresses mitigation measures regarding cumulative impacts. The use of existing local regulation under ACO EIR does not properly serve as a mitigation measure but rather provides a baseline requirement for the project. Furthermore, ACO regulations do not account for concerns relating to odor pollution the project will bring upon surrounding communities and residences. **E-5**

According to the significant and cumulative impacts the expansion would propose, the DEIR must consider a full assessment of mitigation measures. For example, the project should calculate how many more acre feet of water the project will be proposing and ensure that there will be no impact to SGMA goals. Furthermore, the project should also assess the impacts on PM 2.5, ammonia, and complete appropriate action to achieve compliance under the Clean Air Act. This is especially important as Merced County is not in attainment with the standards listed under the act. **E-6**

III. Areas of Controversy/Issues to be Resolved

The DEIR fails to identify several areas of controversy relating to the project's incompatibility with local planning documents, state climate goals, and state and federal air quality attainment requirements. First, according to our analysis (since the analysis provided in the DEIR was insufficient)[1], the project would increase annual groundwater demand at the project site by at least a conservatively estimated 48,640 gallons per day or 17,753,600 gallons per year for the herd's drinking water alone. This directly conflicts with the demand reduction goals in the Turlock Subbasin Groundwater Sustainability Plan, and sets the high priority subbasin up for failure and noncompliance with SGMA. Additionally, the DEIR fails to address how the herd size expansion will impact adherence to SB 1383 methane reduction goals and other state climate goals identified in CARB's Scoping Plan. Additionally, the DEIR fails to identify compliance with salts accumulation and nitrate groundwater pollution reduction goals as required by CV SALTS. **E-7**

IV. The Project Objectives Are Impermissibly Narrow

The project objectives are so narrow as to preclude any reasonable alternative other than the project as proposed by the proponent. An EIR must contain a statement of the project objectives. 14 C.C.R. § **E-8**

[1] See section XI(c)(i) of this letter.

15124. The lead agency must then use this statement to help it, among other things, develop a reasonable range of alternatives to the proposed project to evaluate in the EIR. *Id*. "As our Supreme Court has explained, "[t]he process of selecting the alternatives to be included in the EIR begins with the establishment of project objectives by the lead agency. 'A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings . . . .'" *We Advoc. Through Env't Rev. v. Cnty. of Siskiyou* (2022) 78 Cal. App. 5th 683, 691 (quoting *In re Bay-Delta etc.* (2008) 43 Cal. 4th 1143, 1163). **E-8 cont.**

Here, the project objectives include: "[t]o fully use land and facilities currently owned and operated by the project applicant"; "[t]o use all available land (which is not otherwise used for the dairy) for the production of feed for the herd.]"; "[t]o maintain a modern, efficient, and competitive dairy operation that operates in full compliance with applicable county, state, and federal laws and regulations"; and "[t]o provide year-round employment opportunities, at competitive wages, for Merced County residents. Unlike other agricultural operations, which provide only seasonal employment, dairies provide year-round employment." DEIR 3-11.

These objectives are, in essence, defined as pursuing the proposed project itself. For example, the project must include "land and facilities owned and operated by the project applicant," which severely limits any range of reasonable alternatives to the project. By limiting the project objective in this manner: "the County ensured that the results of its alternatives analysis would be a foregone conclusion. It also, as a result, transformed the EIR's alternatives section—often described as part of the 'core of the EIR' [citation omitted]—into an empty formality." *We Advoc. Through Env't Rev.*, 78 Cal. App. at 692. Indeed, the DEIR's narrow definitions of the project objectives is prejudicial. For instance, the DEIR rejects the "no project" alternative based on its speculation that not expanding the dairy would be less profitable and would not provide "year round" employment—even though the DEIR acknowledges that the project will only add 13 jobs. DEIR 13-9. The other alternatives are rejected for similar reasons due to the narrowly defined project objections. Courts have rejected substantially similar DEIRs with flawed project objectives because they "prejudicially prevented informed decision making and public participation." *We Advoc. Through Env't Rev.*, 78 Cal. App. at 694.

V. The DEIR Does Not Adequately Evaluate and Mitigate the Project's Significant Impacts on Air Quality and Odors

A. The DEIR Fails to Analyze and Require Enforceable Mitigation for the Significant Cumulative VOC and NOx Emissions and Impacts Impacts

The proposed project would be a major source of emissions of VOC as noted in the DEIR. DEIR 5-24 to 5-27; VOCs (also referred to as reactive organic gases [ROG]) are a precursor to ozone (smog) formation. The San Joaquin Valley, including Merced County, have been designated as Extreme Nonattainment for EPA's 2008 8-hour ozone standard and 2012 8-hour ozone standard. The San Joaquin Valley is also Severe Nonattainment for the state 1- hour ozone standard. Emissions of added VOCs into the atmosphere from the project would make a bad situation even worse. **E-9**

The annual emissions of VOCs are below the SJVAPCD threshold of significance of 10 tons per year. However, the cumulative effect of additional and significant VOC emissions would worsen the local ozone (smog) concentration. In addition to VOC, the project would emit significant amounts of NOx. NOx, like VOCs, is a precursor to ozone formation and would also contribute to increasing the ozone concentration. The annual emissions of NOx are below the SJVAPCD threshold of significance of 10 tons per year. However, the cumulative effect of this additional NOx would worsen the local ozone (smog)

concentration. These increased emissions are especially significant given that Merced County is currently considering several additional dairy expansions. (Based on Merced County's website, the County has approved or is considering at least 10 dairy expansions or new dairies.)[2]

E-9 cont.

Given the significant and cumulative impacts of VOC and NOx emissions, the County must complete a full analysis of the cumulative impacts and appropriate mitigation measures. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects." Cal. Code Regs. tit. 14 § 15130. The Draft EIR fails to do this and is thus inconsistent with the requirements of CEQA.

B. The DEIR Fails to Analyze and Mitigate Ammonia as a PM2.5 Precursor

The DEIR does not accurately evaluate the impacts of ammonia as a PM 2.5 precursor. The DEIR summarily dismisses the role of ammonia in PM 2.5 formation, relying on the SJVAPCD's faulty conclusions that ammonia is not a significant PM 2.5 precursor (despite ammonium nitrate contributing about 40% of of the San Joaquin Valley's PM 2.5[3]) and CARB's erroneous decision not to require ammonia control measures in the State Implementation Plan. (DEIR 5-28)

E-10

Ammonia reacts with nitric oxide in the atmosphere to form ammonium nitrate, which accounts for a significant portion of PM2.5 in the San Joaquin Valley. For example, ammonia nitrate comprises 38 percent of the PM2.5 mass on an annual average basis in Bakersfield, and 61 percent on high PM2.5 days.[4] The CARB estimates that ammonia contributes 5.2 $\mu g/m^3$(micrograms per cubic meter) per year to the Valley's PM2.5 nonattainment.[5] Recent research estimates that 1,690 people die in California annually from agricultural ammonia emissions.[6] The lack of an Air District significance threshold does not obviate the need to analyze ammonia emissions as a PM2.5 precursor. Similarly, EPA recently found, through its analysis of the San Joaquin Valley's PM2.5 State Implementation Plan, that the weight of evidence is insufficient to establish that ammonia does not contribute significantly to PM 2.5 levels above the NAAQS in the SJV…and that it is appropriate to retain the statutory presumption that ammonia must be regulated as a precursor for the 2012 annual PM 2.5 NAAQS in the SJV. Thus, the DEIR should evaluate ammonia as a PM2.5 precursor pollutant for project-level emissions.

C. The DEIR Fails to analyze NOx Emissions from Nitrogen Applied to Soil

The DEIR fails to evaluate and disclose the full extent of NOx emissions from the project. NOx

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[2] https://www.countyofmerced.com/414/Environmental-Documents (last accessed on August, 20, 2023).
[3] California Air Resources Board, Staff Report: Proposed SIP Revision for the 15 ug/m Annual PM2.5 Standard for the San Joaquin Valley, at pg 1, available at https://ww2.arb.ca.gov/sites/default/files/2021-08/SJV%2015%20ug%20SIP%20Revision%20Staff%20Report%20FINAL.pdf
[4] 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards at 3-2 to 3-3, available at https://www.valleyair.org/pmplans/documents/2018/pm-plan-adopted/03.pdf.
[5] 2018 PM2.5 Plan, App. G, 3, available at https://www.valleyair.org/pmplans/documents/2018/pm-plan-adopted/G.pdf.
[6] Domingo, N. G. G., Balasubramanian, S., Thakrar, S. K., Clark, M. A., Adams, P. J., Marshall, J. D., Muller, N. Z., Pandis, S. N., Polasky, S., Robinson, A. L., Tessum, C. W., Tilman, D., Tschofen, P., & Hill, J. D. (2021), *Air quality–related health damages of food*, Proceedings of the National Academy of Sciences (Vol. 118, Issue 20, p. e2013637118) available at https://doi.org/10.1073/pnas.2013637118.

emissions from nitrogen applied to soil have not been adequately assessed in the DEIR. The DEIR, instead, summarily concludes that a statewide assessment of the impacts of soil NOx emission on air quality is still lacking. (DEIR 5-25) In fact, one study found that NOx emissions from the use of fertilizers on cropland could actually increase total NOx in the San Joaquin Valley NOx inventory by over 50%.[7] A more recent study came to similar conclusions finding that soil may be responsible for 40% of total California NOx emissions based on July 2018 data.[8] The EIR must accurately analyze and disclose the impact of NOx emissions from fields both on the dairy and offsite

E-11

D. The DEIR Fails to Analyze Ammonia and Nitrous Oxide Emissions Increases from the Planned Anaerobic Digester, and Fails to Analyze NOx, VOC, and PM2.5 Emissions from Combusting Biogas On-site.

E-12

The DEIR lists an anaerobic digester as a potential mitigation measure (e.g. DEIR 2-6). However, the DEIR fails to analyze the impact of a planned anaerobic digester as part of the project, including increased ammonia emissions and air pollutant emissions from the combustion of biogas in an on-site engine. This is especially concerning given the fact that Vierra Dairy is already included as a participating dairy in the Hillmar Biogas Cluster Project.[9]

The DEIR's failure to analyze emissions from an on-site digester constitutes both a failure to accurately assess project impacts and impermissible piecemealing. "CEQA forbids 'piecemeal' review of the significant environmental impacts of a project." *Berkeley Keep Jets Over the Bay Comm. v. Bd. of Port Comm'rs* (2001) 91 Cal. App. 4th 1344, 1358. The County cannot allow "environmental considerations [to] become submerged by chopping a large project into many little ones—each with a minimal potential impact on the environment—which cumulatively may have disastrous consequences." *Bozung v. Loc. Agency Formation Com.* (1975) 13 Cal. 3d 263, 283.

Michael Holly analyzed the use of an anaerobic digester and concluded that the digester alters the form of nitrogen in the digestate compared to undigested manure by increasing ammoniacal nitrogen.[10] Holly measured the resulting change in emissions and found that ammonia emissions increased by 88 percent compared to undigested manure. By piecemealing the environmental analysis, the DEIR ignores this significant increase in ammonia from not just the expansion of the herd, but also the change to the existing herd's manure from the digester as a result of producing biogas.

Even with application of existing law by the Air District, the combustion of biogas at the dairy will produce significant NOx, VOC, and PM2.5 emissions. The following example illustrates how electricity generation from manure emits far more pollution per megawatt of electricity produced.[11]

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[7] *See* M. Almaraz, E. Bai, C. Wang, J. Trousdell, S. Conley, I. Faloona, B. Z. Houlton, *Agriculture is a major source of NOx pollution in California.* Sci. Adv. 4, (2018) available at https://www.science.org/doi/pdf/10.1126/sciadv.aao3477.

[8] Tong Sha, Xiaoyan Ma, Huanxin Zhang, Nathan Janechek, Yanyu Wang, Yi Wang, Lorena Castro García, G. Darrel Jenerette, and Jun Wang, "Impacts of Soil NOx Emission on O3 Air Quality in Rural California," *Environmental Science & Technology* 2021 *55* (10), 7113-7122 (available at: https://pubs.acs.org/doi/10.1021/acs.est.0c06834).

[9] *Hilmar Biogas Cluster Project Initial Study / Mitigated Negative Declaration (2021), available at: https://web2.co.merced.ca.us/pdfs/env_docs/initial_studies/Hilmar_Biogas_ISMND_July2021.pdf*

[10] *See* Michael A. Holly et al., *Greenhouse gas and ammonia emissions from digested and separated dairy manure during storage and after land application Agriculture*, Ecosystems & Environment (2017).

[11] Attach. 13, Digester v. Avenal Comparison; Attach. 14, SJVAPCD, Notice of Final Determination of Compliance, Avenal Power Center, 3, 27 (Dec. 17, 2010). Producing 1.059 megawatts and emitting 4.58

The Lakeview Dairy Biogas project in Kern County uses two internal combustion engines to produce over 1,000 kW of electricity on-site.[12] The Lakeview project, as permitted by the Air District with required pollution control technology, still emits 4.58 tons/year of NOx, 1.98 tons/year of PM2.5, and 3.18 tons/year of VOC after the imposition of Best Available Control Technology as required by the State Implementation Plan.[13]Compared to a natural gas combined cycle plant in Avenal, also permitted by the Air District, the Lakeview digester project produces much higher levels of NOx, sulfur oxides (SOx), and VOC emissions per unit of electricity generated.[14] However, unlike the natural gas plant, the Air District did not require the Lakeview Dairy Biogas operation to purchase emission reduction credits for the air pollution emitted.[15]

E-12 cont.

Accordingly, the DEIR must analyze the increase in NOx, VOC, and PM2.5 emissions from combusting the biogas on-site. The DEIR must also analyze the increase in ammonia and nitrous oxide from a digester. Excluding the digester from the project does not conform with CEQA's mandate of disclosing all potentially significant environmental impacts and reasonable alternatives to the project and constitutes illegal piecemealing.

G. The DEIR's Ambient Air Pollution Analysis and Health Risk Assessment do not Analyze Health Impacts in Accordance with the California Supreme Court's Decision in *Sierra Club v. County of Fresno.*

The DEIR's lack of analysis regarding the connection between the project's substantial air emissions and human health impacts falls far short of CEQA's standards. Under CEQA, the DEIR must contain a detailed discussion of the likely health effects of the proposed project's air quality impacts. *Sierra Club v. Cnty. of Fresno* (2018) 6 Cal. 5th 502, 519. An EIR's discussion of the health impacts of a project was insufficient when it provided "only a general description of symptoms that are associated with exposure to the ozone, particulate matter, carbon monoxide, and nitrogen oxide, and the discussion of health impacts regarding each type of pollutant [was] at most a few sentences of general information." *Id*. at 1164. Specifically, the Court faulted the agency for "fail[ing] to indicate the concentrations at which such pollutants would trigger the identified symptoms." *Id.* at 1164. The court emphasized that to "allow the public to make an informed decision," "CEQA instead requires that the EIR have made a reasonable effort to discuss relevant specifics regarding the connection between two segments of information already contained in the EIR, the general health effects associated with a particular pollutant and the estimated amount of that pollutant the project will likely produce." *Id.* at 1165.

E-13

The DEIR fails to comply with the California Supreme Court's dictates in *Sierra Club*. There is extensive information in the scientific literature regarding the health impacts of air emissions from concentrated

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tons/year of NOx, the Lakeview turbine generates far more NOx per megawatt hour than the Avenal Power Plant which produces 600 megawatts and emits 99.42 tons/year of NOx.

[12] SJVAPCD, Notice of Preliminary Decision – Authority to Construct (Mar. 22, 2016), http://www.valleyair.org/notiCes/Docs/2016/03-22-16_(S-1143770)/S-1143770.pdf; CalEPA & Cal. Air Res. Bd., LCFS Tier 2 Pathway App. B0104 (certified TBD), https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/fuelpathways/comments/tier2/b0104_summary.pdf.

[13] SJVAPCD, Notice of Preliminary Decision, supra n. 10, at 14.

[14] Attach. 13, Digester v. Avenal Comparison; Attach. 14, SJVAPCD, Notice of Final Determination of Compliance, Avenal Power Center, 3, 27 (Dec. 17, 2010). Producing 1.059 megawatts and emitting 4.58 tons/year of NOx, the Lakeview turbine generates 0.17 percent of the electricity while the engines powering the turbine emit 4.6 percent of the NOx pollution.

[15] Attach. 15, SJVAPCD, Notice of Preliminary Decision – Authority to Construct 14 (Mar. 22, 2016). 9

animal feeding operations (CAFOs), as discussed in detail below. Instead of reviewing the scientific studies on air emissions from CAFOs, including the concentrations of pollutants known to cause harm to health, the DEIR throws up its hands, contending that "SJVAPCD currently does not have a methodology that would provide Lead Agencies and CEQA practitioners with a consistent, reliable, and meaningful analysis to correlate specific health impacts that may result from a proposed project's mass emissions." DEIR 5-27. As a result of this erroneous conclusion, the DEIR contains only the most conclusory, nonspecific statements about health impacts from the project's air pollution. Similarly, while the DEIR admits that "it has been well documented that there are adverse respiratory effects from exposure in agricultural occupations," the DEIR concludes it can say no more because "there is a lack of commonly accepted epidemiological models to forecast health impacts from dairies and other concentrated animal facilities." 5-14. This is incorrect and ignores the prevailing scientific literature showing that health impacts from CAFOs can be objectively analyzed and predicted.

E-13 cont.

Indeed, the DEIR's cursory remarks about health impacts in the DEIR and the Health Risk Assessment (Appendix G) fail to comply with CEQA similar to the EIR in *Sierra Club*. The DEIR could have, but did not, inform the public and decision-makers about the numerous health impacts that will be exacerbated by the project's increase air pollution, including:

1. <u>The disproportionate health impacts on dairy workers and agricultural workers</u>. The DEIR acknowledges the potential health impacts on outdoor workers of several pollutants (DEIR 5-13) yet fails to assess the extent to which those impacts disproportionately fall on Latinx workers who make up the majority of dairy and agricultural works in the San Joaquin Valley. In order to be consistent with both environmental and civil rights laws, the DEIR must assess the extent that impacts fall disproportionately on protected groups and ensure that the project does not disproportionately harm members of protected groups. The DEIR has failed to do so.

E-14

2. <u>Health impacts from ammonia.</u> The DEIR acknowledges that the project will increase ammonia emissions, yet the DEIR does not meaningfully discuss the significant health impacts from this massive increase in emissions. Significantly, the DEIR only considers incremental increases in ammonia emissions due to the expansion rather than the actual ammonia emissions associated with the expanded operation which represents the actual impact on nearby receptors. The DEIR must analyze total ammonia emissions given significant health impacts and establish adequate mitigation measures to address those impacts.

E-15

3. <u>Failure to disclose health impacts from hydrogen sulfide.</u> The DEIR acknowledge that that the project will increase hydrogen sulfide emissions (DEIR 5-31), yet the Health Risk Assessment (Appendix G) fails to analyze hydrogen sulfide because it concludes, despite the increase in manure production associated with the expansion, that there will be no increase in H2S emission (Appendix G 4-4). Thus, the DEIR contradicts itself in a manner that is prejudicial to the public and the decision-makers by failing to discuss the health impacts of hydrogen sulfide increases caused by the project.

E-16

VI. The DEIR Fails to Analyze and Properly Mitigate the Significant Odor Impacts

E-17

The DEIR does not adequately analyze or mitigate the project's significant odor impacts. The most immediate, and significant impact that will affect residents living near the project will be odors. The dairy already has approximately 5,597 animals that include milk cows, heifers, calves, etc. The dairy proposes

to house an additional 1,520 animals. The additional 1,520 animals and the manure that will be generated will increase the frequency and intensity of odors in the unincorporated community of Hilmar that is located approximately 2.50 miles to the East-Northeast.

The DEIR relies on the number of odor complaints the dairy has received to assess the magnitude of the impacts. *See, e.g.,* DEIR 5-19. However, the number of formal complaints does not accurately capture the odor problem, as this methodology relies on community members to go through administrative steps to formally lodge complaints. Many Merced County residents are unaware of the process to lodge formal complaints; thus depending on formally filed complaints may drastically underestimate the existing impact.

E-17 cont.

The approach used by Merced County in controlling odors is to stipulate a setback of 0.5 mile from urban areas (unless properties within the 0.5 mile distance provide written permission for the project to proceed). This approach relies on the dispersion/dilution as a means to control odors (DEIR 5-9). However, the dispersion/dilution is strongly dependent on atmospheric conditions. For example, under low wind speeds during inversion conditions, odors are not effectively diluted, can travel many miles, and can persist for hours.

Again, Merced County Code requires a 0.5 mile setback from dairy facilities, and cites with the exception outlined in Merced County Code 18.64.040(B)(2) when the owner of the residence provides written permission for the setback violation. *Id.* But no information in the DEIR explains why this exception in the Merced County Code excuses the setback violation here. Furthermore, this exception does not protect the right of tenants to be shielded from severe odor impacts.

In addition, the DEIR asserts that unlike other pollutants, odors do not have a generally accepted method of measurement and its offensiveness varies among individuals. DEIR 5-8. This is not true. Odor can be reliably measured using an olfactometer. Odor intensity is reported in terms of dilution to threshold (DT). *Id.* Field olfactometer can be used to determine the concentration of odors objectively by a trained user. *Id*

While the individuals differ on their perception of odors, the intensity of odor measurements are routinely used by many counties to control odors. For example, El Dorado County enacted Ordinance 5110 that limits odors to no more than 7 DT at the property fence line. Yolo County, City of Denver and other locations have promulgated odor regulations with quantitative odor limits. These regulations were aimed at controlling cannabis odors, however, this principle can be applied to any source of odors. *Id.* Thus, the DEIR failed to examine feasible mitigation measures to control odors.

Furthermore, the DEIR does not analyze health impacts from odor, and thus falls short of CEQA's mandate to analyze and mitigate the project's significant impacts. The DEIR goes so far as to claim that "no scientific studies have validated adverse health effects from dairy odors, though they can be a source of great nuisance." DEIR 5-16. That is incorrect. There are dozens of scientific studies analyzing the health impacts from exposures to odors from CAFOs. For example, one study shows that impacts to odors produce physical reactions such as headache, nausea, stress, as well as disturbance of leisure activities or sleeping.[16] Several other studies discuss the health impacts of odors emanating from CAFOs:

- There is an established connection between odor and the prevalence of "asthma symptoms and

[16] M.T. Piccardo et al., *Odor emissions: A public health concern for health risk perception,* Environmental Research (2022).

nasal allergies. . . .”[17]

- “Malodor is one of the predominant concerns [from emissions from CAFOs], and there is evidence that psychophysiologic changes may occur as a result of exposure to malodorous compounds . . . Research over the last decades has shown that microbial exposures, especially endotoxin exposure, are related to deleterious respiratory health effects, of which cross-shift lung function decline and accelerated decline over time are the most pronounced effects.” There is correlation between nuisance odors and potential health effects, especially “on susceptible subgroups, especially asthmatic children and the elderly, since these exposures have been shown to be related to respiratory health effects among workers in CAFOs.” *Id.*
- The mental health of CAFO neighbors suffer, mainly because of noxious odors and stress. CAFOs also contribute to the growth of antibiotic-resistant bacteria, which have the potential to harm populations nationwide.[18]

E-17 cont.

In sum, the DEIR has failed to analyze and mitigate the project’s air quality and odor impacts.

VII. The DEIR’s Analysis Regarding Greenhouse Gas Emissions is Incomplete, Inaccurate, Inconsistent, and Confusing.

A. The DEIR Makes inaccurate Statements As To The Fate of Dairy Manure With Respect to Nitrous Oxide Emissions

E-18

The DEIR’s introductory discussion of Nitrous Oxide (N_2O) emissions from soil management is inaccurate. The DEIR states that “[a]ctivities at animal confinement facilities would have little effect on N_2O emissions from agricultural fields since all new and expanding facilities are assumed to be developed on existing cultivated land, animal wastes used as fertilizer would replace all or a portion of existing synthetic fertilizers used . . . .” DEIR 8-13. This statement is incorrect in general terms, and incorrect in the context of the Vierra Dairy expansion as well. Land cultivated for crops for human consumption cannot be fertilized with untreated manure.[19] Thus it is inaccurate to say that animal wastes used as fertilizer would replace all or a portion of existing synthetic fertilizer to the extent that land cultivated for crops for human consumption are currently fertilized, and that fertilizer cannot be replaced by untreated manure.

The DEIR must be amended to note the significant impacts of increased animal waste on N_2O emissions and be amended to fully analyze the impacts of increased manure on N_2O emissions, both onsite and offsite.

B. The DEIR Analyses of GHG Emissions is Not Supported by Substantial Evidence

E-19

The DEIR, through the “Direct Emissions” analysis, does not accurately account for all GHG emissions likely to occur on the dairy, likely to occur for dairy operations broadly, and likely to occur from the installation and use of a digester. Additionally, the analysis does not provide sufficient information as to how it calculates GHG emissions in general.

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[17] Dick Heederik et al., *Health Effects of Airborne Exposures from Concentrated Animal Feeding Operations*, Environmental Health Perspectives (2007); see also Schulze et al, *Effects on pulmonary health of neighboring residents of concentrated animal feeding operations: exposure assessed using optimized estimation technique*, Environ Occup Health (2011).

[18] Katie G McElroy *Environmental health effects of concentrated animal feeding operations: implications for nurses***,** Adm Q (2010).

[19] SRMR at 12.

The Direct Emissions analysis is similarly incomplete and undercounts likely GHG emissions from the proposed Vierra Dairy expansion. The DEIR states that it relies on an emissions calculator from the Air District to estimate emissions (DEIR 8-19). However, the DEIR omits the underlying source of emissions factors used in the calculator and simply presents one page of tables generating data based on those unsupported emissions factors. *Id*. The DEIR thus fails as an informational document and precludes public participation and precludes public participation by excluding necessary information from its summary conclusions related to both baseline and projected greenhouse gas emissions. The EIR needs to disclose the source of those emissions factors to enable the public to understand and provide meaningful comment on the emissions estimates.

E-19 cont.

Furthermore, the Direct Emissions analysis undercounts N_2O emissions from the dairy. First of all, the Direct Emissions estimate discloses some N_2O emissions from milk cows and dry cows but claims zero N_2O emissions from the support stock. Appendix F-3. The DEIR's Direct Emissions analysis excludes all N20 emissions without explanation or substantial evidence from all sources at the project, except solid manure storage from milk and dry cows. Nitrous oxide emissions have a very significant and powerful climate impact with a global warming potential of about 265 times more powerful than CO2 (DEIR 8-12). The U.S. EPA produces an annual Inventory of U.S. Greenhouse Gas Emissions and Sinks which includes estimates of greenhouse gas emissions from manure management.[20] Chapter 5 of the most recent EPA GHG Inventory explains how nitrous oxide is emitted from manure management, including through the process of nitrification and denitrification.[21] The DEIR itself states that between 9 and 53 percent (mean 30 percent) of GHG emissions from dairies are from N_2O emissions (DEIR 8-18) Yet, with respect to Vierra, nitrous oxide only accounts for about 5 percent of the dairy's GHG emissions. Appendix F-3. It is unclear what - if anything - accounts for this discrepancy.

The DEIR fails to analyze all N_2O emissions and thus cannot establish necessary mitigation measures to mitigate for such emissions, fails as an informational document and precludes public participation by excluding the source of emissions factors and the emissions of N_2O.

Furthermore, the DEIR does not account for full lifecycle GHG emissions from the dairy including from the production and storage of feed as well as the export of product. Similarly, the DEIR does not account for the impacts that will result from exporting manure to other fields, including the greenhouse gas emissions from the application of manure to fields beyond the dairy. This omission implicates an undercount of greenhouse gas emissions from the transport and application of manure.

Finally, the DEIR fails to consider the greenhouse gas impacts of the potential digester. Specifically, the DEIR fails to assess the increased nitrous oxide emissions from digester operations. The Holly analysis discussed above found that digestestate produced much more additional nitrous oxide than undigested manure.[22] As discussed previously, the DEIR's piecemealing precludes the analysis and mitigation of increased nitrous oxide emissions from a digester and understates the project's climate impact. A revised EIR must disclose such climate impacts.

E-20

The DEIR fails to fully, accurately, and clearly analyze greenhouse gas emissions from the proposed

[20] *See* Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2020 ("EPA GHG Inventory", available at https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks, and Chapter 5: Agriculture is attached as Exh. 3.

[21] EPA GHG Inventory, Chapter 5: Agriculture at 5-11 to 5-13.

[22] *See* Michael A. Holly et al., *Greenhouse gas and ammonia emissions from digested and separated dairy manure during storage and after land application Agriculture*, Ecosystems & Environment (2017).

Vierra expansion. As such it fails as an informational document and fails to assess the extent to which emissions can be lessened through project alternatives or mitigation measures.

E. The Proposed Expansion is In Fact Inconsistent With State Plans and Goals to Reduce Short Lived Climate Pollution from Livestock Operations

The DEIR states that the proposed expansion is not inconsistent with any plans or policies, however the DEIR itself discusses the state's goal of reducing short lived climate pollutants generally, and short lived climate pollutants from dairies specifically. By increasing methane emissions and other GHG emissions from this dairy and the dairy sector generally, the proposed Vierra expansion is absolutely in conflict with state plans and goals. **E-21**

G. The EIR Fails to Analyze and Require Feasible Mitigation for the Project's Climate Impacts

The DEIR finds that the project's climate impact is significant, but fails to analyze and require any feasible mitigation for that impact. *See* DEIR at 8-21. The DEIR proposes two mitigation measures. The first, mitigation measure GHG-1a, requires compliance with the air quality provisions of the ACO and the Air District's rules. *Id*. As described earlier, the ACO requires compliance with the Air District's rules so these provisions are redundant and, in any case, no air district rules limit GHGs. The EIR in a conclusory manner, without the support of substantial evidence, claims those measures would also reduce GHG emissions, but the DEIR provides no evidence, analysis, or evaluation of the applicable rules that would support that conclusion. For instance, no Air District rules require a dairy to limit bovine enteric emissions, limit soil NOx emissions, or limit methane from liquid manure storage lagoons.[23] In addition, those Air District rules are already required by law and thus cannot constitute mitigation under CEQA. **E-22**

The second, mitigation measure GHG-1b, does not require any specific mitigation but rather calls on the project sponsor to make good faith efforts to obtain funding for a manure digester consistent with Alternative 3. *Id.*

Because the County as the lead agency has the duty to require any feasible project alternative, and the DEIR has not found alternative 3 to be feasible without external funding, the language in the mitigation measure plainly allows the project proponent to determine whether or not to implement any of the three alternatives. Instead of including mandatory mitigation measures, the DEIR mixes and confuses mitigation measures with potential alternatives and in doing so fails to (a) establish mitigation measures, and (b) analyze the project as a whole to include the mitigation measures. The County has a duty to analyze and require feasible mitigation measures for the project's climate impact and the DEIR has failed to do so. Additionally, the DEIR plainly constitutes piecemealing, by failing to analyze the impacts of requiring an anaerobic digester even though the Vierra is already included as a participating diary in the Hilmare Biogas Cluster Project (See the the Hillmar Biogas Cluster Project Initial Study / Mitigated Negative Declaration, pg 2-2).

H. The DEIR's Alternatives Analysis Confuses Mitigation Measure With Project Alternatives

[23] Rule 4570 allows a dairy operator to choose certain measures from a menu of options, one of which is an anaerobic digester. But the rule does not require such digester installation and operation. *See* Rule 4570.

The DEIR is inconsistent throughout with respect to mitigation measures for GHG emissions and project alternatives. The DEIR includes three alternative mitigation measures for greenhouse gas emissions but fails to analyze them as part of the project and instead analyzes them - and rejects them - as project alternatives. Initially, the DEIR states that it will implement alternative 3 if feasible to do so. On the one hand, this loophole eliminates the measures as true mitigation measures, and, on the other, the DEIR fails to analyze the project with the proposed mitigation measures as required by CEQA. Finally,the DEIR pivots back to assessing the mitigation measures not as mitigation measures but as project alternatives. As noted above, the DEIR must assess mitigation measures as part of the project. **E-23**

VIII. The DEIR Fails to Provide Adequate Mitigation Measures for Insects

The DEIR describes the significance of the environmental impact that the project would have with regards to the additional generation of flies, however it fails to prescribe mitigation measures. As already noted in section II(A) of this letter, the ACO and Vector Control Plan are sets of local baseline requirements with which the project *must* comply, meaning that it does not outline mitigation measures. Mitigation measures must be additional changes or additions to the project that would mitigate for the expected significant impact. The DEIR therefore proposes no valid mitigation for Impact HAZ-1. The EIR must address this significant impact by proposing feasible mitigation measures and/or project alternatives that would reduce or eliminate this significant impact in order to be viable and compliant with CEQA. **E-24**

IX. The DEIR Fails to Analyze Impacts to Hydrology & Water Quality or Provide Adequate Mitigation Measures

A. The DEIR Fails to Provide Appropriate Mitigation Measures for the Project's Significant Impacts to Surface Water Quality

The DEIR states that the project would have significant and unavoidable impacts to the nearby surface waters of the Merced River and the San Joaquin River. "Occasional discharge of tile drainage may continue to contribute to surface water discharge from the end of TID's irrigation network and provide a conduit for contamination of surface water. This would be a significant impact" (DEIR 10-29). The DEIR does not acknowledge other potential pathways of discharge to surface water, though it acknowledges "close proximity of both the Merced and San Joaquin Rivers" as well as drainage laterals that appear to discharge to the San Joaquin River. (*See* DEIR 10-16; *see also* DEIR 10-10 ["The Merced River is adjacent to the southern application fields. The Merced River is listed as impaired under Section 303(d). As listed under the 2020-2022 California Section 303(d) List of Water Quality Limited Segments, the segment is impaired for the pollutants/stressors of chlorpyrifos, diazinon, E. coli, Group A Pesticides, mercury, temperature, and unknown toxicity. The likely source of pollutants is agriculture or resource extraction."].) **E-25**

As a result of the failure to analyze impacts of increased manure generation (which will be applied to agricultural fields at higher rates) on adjacent surface water the DEIR is inadequate. Further, despite this regionally significant impact to major waterways, there was no scoping meeting for this project.

Additionally, the discussion related to proximity of land application areas to surface water bodies and drainage laterals is inconsistent with water quality regulations in the region. Specifically, the DEIR concludes that while generally a separation of 100 feet is required between waste application areas and surface water bodies, a lesser separation is permissible "if adequate protection to the surface water body" is provided. (DEIR pg. 10-38.) In contrast, the Reissued Waste Discharge Requirements

General Order for Existing Milk Cow Dairies (Order R5-2013-0122) requires a 100 foot buffer between land application areas, or if not, it requires that "a 35-foot wide vegetated buffer or physical barrier is substituted for the 100-foot setback or alternative conservation practices or field-specific conditions will provide pollutant reductions equivalent or better than the reductions achieved by the 100-foot setback."[24] The DEIR must be revised to analyze consistency with these requirements.

E-25 cont.

Finally, there are no mitigation measures proposed to avoid significant impacts to surface water quality. Feasible mitigation measures to prevent or minimize significant impacts on surface water include but are not limited to: setback requirements, vegetated buffer zones, and denitrification. By not analyzing any feasible mitigation measures, the EIR does not comply with CEQA.

B. The DEIR Fails to Provide and Adequate or Accurate Analysis of Impacts to Groundwater Quality

The DEIR fails to properly analyze or mitigate impacts to groundwater quality related to the proposed project.

1. The Analysis of the Regulatory Framework Applicable To Discharge Of Nitrate Is Inaccurate and Insufficient

E-26

The DEIR mischaracterizes the way in which the Dairy is and will be regulated by the Central Valley Regional Water Quality Control Board (the "Regional Board"). Specifically, as acknowledged in the DEIR, Order R5-2013-0122 only applies to a dairy that existed in 2005 and has not expanded its mature cow herd size 15% beyond its size in 2005. What the DEIR does not recognize is that Order R5-2013-0122 prohibits the expansion of dairies beyond 15% of its mature herd size in 2005.[25] Under the Order, a dairy wishing to expand beyond the 15% limit is required to "submit a [report of waste discharge], document compliance with CEQA, and obtain coverage under individual waste discharge requirements ***before*** any material facility expansion."[26] (emphasis added.) This expansion project thus violates Order R5-2013-0122 because the DIER acknowledges that the Dairy has not obtained coverage under individual waste discharge requirements before the proposed material facility expansion. (DEIR, pg. 3-22, 10-5.)

Moreover, the DEIR fails to discuss the fact that, as a consequence of losing coverage under Order R5-2013-0122 and failure to obtain coverage under individual waste discharge requirements, the expansion is prohibited under the Porter Cologne Water Quality Control Act (Porter Cologne). This is because, absent a permit to increase discharges under waste discharge requirements or a waiver of waste discharge requirements, Porter Cologne only authorizes discharge that "does not create or threaten to create a condition of pollution or nuisance."[27] As explained more fully below, and as acknowledged by the DEIR, Vierra Dairy is not in compliance with this requirement because its operations are currently causing or contributing to nitrate pollution and resulting nuisance by discharging nitrate to groundwater. This problem will only get worse if the Dairy expands and generates additional manure with no safe way to dispose of it.

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[24] Order R5-2013-0122, pg. 15, available at https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0122.pdf

[25] *Id.* at pg. 14 ["Under this General Order, the expansion of the existing milk cow dairy beyond the level as defined under the term "Expansion" is prohibited."].

[26] *Id.*

[27] Water Code § 13264(a)(2)

Further, the DEIR's discussion of the regulatory framework is misleading, confusing, and incomplete because it repeatedly refers to Vierra Dairy as complying with requirements of Order R5-2013-0122, even though that Order does not apply for the reasons discussed above. (*See*, e.g., DEIR pg. 3-22 ["The existing dairy is operating in accordance with the Central Valley Regional Water Quality Control Board (CVRWQCB) Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies (Order R5-2013-0122)."]; 10-4 [discussing Vierra Dairy's participation in the representative monitoring program established by Order R5-2013-0122]; 10-5 Order R5-2013-0122 ["The Vierra Dairy is operating in accordance with the requirements of the Reissued Dairy General Order (R5-2013-0122). …"].)

E-26 cont.

Because the DEIR inaccurately discusses the regulatory framework and coverage related to discharge of nitrate, and because the discharge resulting from expansion is prohibited by Order R5-2013-0122 and Water Code § 13264, the DEIR is insufficient.

2. The DEIR's Analysis Of Impacts To Groundwater Quality Is Inaccurate And Insufficient.

The DEIR concludes that there will be a significant and unavoidable impact to groundwater quality after mitigation. This conclusion is contrary to the evidence contained in the Summary Representative Monitoring Report ("SRMR"), which was prepared by a dairy industry association and cited in the DEIR. It also fails to analyze impacts of manure exported for application to cropland not owned by the Dairy.

E-27

Regarding the first issue, the Central Valley Dairy Representative Monitoring Program ("CVDRMP"), a dairy industry association, drafted the SRMR in response to regulatory requirements. The SRMR monitored 42 dairies in the Central Valley Region. Each of the dairies in the program was chosen to be representative of the industry in the region. The overarching conclusion of the Report is that every one of the 42 monitored dairies was causing or contributing to nitrate pollution in the underlying groundwater. Further, each dairy was polluting groundwater through all three potential pathways: corrals, lagoons, and crop application areas.

Specifically, the SRMR includes the following conclusions:

- "CVDRMP's data set documents that elevated nitrate-N (i.e., as nitrogen) concentrations were present beneath all monitored dairies."
- "In 2018, the mean groundwater nitrate-N concentration beneath dairies overlaying shallow groundwater (<55 feet deep) was 48 mg/L (median=35 mg/L) and 38 mg/L in deeper groundwater (median=35 mg/L)."
- "The mean groundwater nitrate-N concentration in areas of permeable soils was 59 mg/L (median=46 mg/L) and 29 mg/L (median=21 mg/L) in areas of clay-rich soils."
- "The median nitrate-N concentrations at off-site locations was 20 mg/L less than beneath dairies."
- Nitrate concentrations of groundwater underlying dairies are increasing at a median rate of 5 mg/L per year.[28]

The central SRMR recommendation to stop nitrate pollution from dairies include bringing dairies into "balance" with respect to nitrogen (defined to mean that the supply of manure does not exceed the

[28] *Id.* at pp. 6-7.

demand for nitrogen from the dairy's crops combined with manure exported off dairy).[29] The problem is that Central Valley dairies are producing more nitrogen than their cropland can safely remove, and that the remainder leaches to groundwater.

Here, the DEIR correctly concludes that Vierra Dairy is likely causing or contributing to nitrate pollution under its facilities and cropland, but incorrectly concludes that these impacts are unavoidable. Specifically, Vierra Dairy proposes to expand its herd size, and though the Dairy proposes to add 188 acres of land application areas, the DEIR concludes that the nitrogen applied to removed ratio will still increase from 1.34 to 1.35. The Dairy is thus not adding sufficient acreage to prevent additional discharge of nitrogen or to address the imbalance of nitrogen applied to the soil. (DEIR pg. 10-31). Based on the SRMR, the Dairy is already polluting groundwater by discharging nitrate because it has too much manure to safely apply to cropland and because its lagoons are not lined.[30] Expanding its herd size will make the problem worse because the Dairy will produce more nitrogen without sufficiently increasing the corresponding cropland available for manure application to avoid nitrate pollution of groundwater. That the new applied to removed ratio is below the maximum ratio permitted in Order R5-2013-0122 is inappropriate because that Order does not apply to the dairy as discussed above, and because the SRMR concludes that implementation of the Order is not preventing continued nitrate pollution from dairies.[31]

E-27 cont.

This DEIR's reliance on the nitrogen applied and removed ratio is also likely inaccurate. The SRMR concludes that the current approach of measuring and reporting "field-by-field quantification of manure nitrogen applications" is likely "ineffective" because of "the difficulty of accurately estimating individual crop field nitrogen applications from liquid manure."[32] The SRMR report thus recommends that dairies instead quantify their nitrogen supply using their "herd's excretion rate" to improve accuracy. The DEIR ignores this recommendation, and continues to use the approaches that were discredited in the SRMR, resulting in an underestimate of available nitrogen applied to cropland.

The DEIR's analysis of impacts on groundwater quality fails for another reason: it fails to analyze the impacts of manure exported for application on cropland that is not owned by the Dairy. The DEIR states that "approximately 30,000 tons of solid manure (or approximately 485,000 pounds of nitrogen) (approximately 25-30 percent of the dry manure generated at the dairy) is exported and applied to off-site fields not owned by the dairy operator." (pg. 3-8.) The DEIR further concludes that, following expansion, exports will increase to 34,000 tons. (pg. 10-24.) It then goes on to conclude that this exported manure will be properly disposed of at off-site locations even though the DEIR does not discuss the "exact location of these off-site cropland parcels" and the Dairy has not yet entered into agreements with parcel owners. (pg. 10-24, 10-43.) Mitigation Measure HYD-8 does not resolve the issue, because agreements with those receiving exported manure have not yet been reached, and because the proposed agreements only require "reasonable" nitrogen application rates and enrollment under waste discharge requirements that, as discussed above, are not protective of groundwater quality. The DEIR must be revised to discuss off-site impacts on groundwater quality associated with exported dry and liquid manure.

The DEIR also states, without evidence or analysis, that "[w]ith the amount of irrigated land in the area, there is a high demand for dairy manure as an economical fertilizer source for other growers, and the increased manure to be exported would easily be sold to third-party fertilizer companies." (pg. 3-17.) This

[29] *Id.* at p. 10.
[30] The SRMR includes a study on nitrate discharge from earthen lagoons, which concludes that "[t]he mean subsurface N-loading rate was 1,045 lbs/ac/year." (*Id. at* p. 7.)
[31] Id. at 6-7.
[32] Id. at p. 32.

is contrary to the findings and recommendations of the SRMR, which in contrast concludes:

> Achieving appropriate whole-farm balance of manure nitrogen depends on reliable, environmentally safe and cost-effective methods to either export that nitrogen for use elsewhere, such as on non-dairy croplands, or to denitrify manure by converting reactive nitrogen to inert nitrogen gas. To date, these solutions do not exist at a scale sufficient to meet the needs for achieving industry-wide whole-farm nitrogen balance.
>
> Exporting excess manure nitrogen to non-dairy cropland is hampered by several factors. Demand for raw manure is limited because of concerns about pathogens, which compromise food safety, and weed seeds. Composting can address these concerns by destroying weed seeds and pathogens, but leads to additional costs, air emissions of volatile organic compounds (VOCs) and ammonia that contribute to regional air pollution, regulatory barriers (e.g., air permitting) and uncertain markets and pricing. There is potential to produce other value-added manure-based products, such as fertilizer pellets, but technologies to do so are still being developed and there is significant uncertainty related to potential markets, economic and technical feasibility and potential regulatory barriers.
>
> Even if all solid manure could be easily exported from dairies, a significant amount of manure nitrogen stored on dairies is in the liquid form. While liquid manure presents certain advantages – including the ability to apply it via fertigation throughout the crop growing season and not just pre-plant – it is extremely difficult and expensive to export excess liquid manure. New technologies are developing that could more easily extract nitrogen from liquid manure to facilitate export, but their economic and technical feasibility remains untested in California.

E-27 cont.

(SRMR, pg 12.) The DEIR thus unjustifiably minimizes the challenges associated with increasing manure export, and its analysis is thus misleading and inaccurate.

In addition to the challenges associated with export of solid manure, liquid manure is both more challenging to export and a threat to groundwater quality. Liquid manure is generally not transported by truck and is instead transported by pipeline. The DEIR does not discuss extension of pipelines to new fields for export off-dairy, as recommended by the SRMR.[33] The DEIR incorrectly implies that, because the resulting applied to removed ratio will remain below 1.4 as required by Order R5-2013-0122, groundwater quality will not be significantly impacted. This assumes incorrectly that a ratio of 1.4 is protective of groundwater quality, a conclusion that is contradicted by the SRMR.[34] It also presumes that the ratio of applied nitrogen to removed is accurate, a conclusion that should be subject to significant doubt given the SRMR's finding that dairies are miscalculating and underreporting manure nitrogen

[33] SRMR, pg vi, 71.

[34] SRMR, pg 6-7 ["To date, implementation of [Order R5-2013-0122] does not appear to have resulted in a trend to lower nitrate-N concentrations across the industry."].

produced by the dairy and applied to crops.[35]

It is important to note that nitrate contamination disproportionately impacts small, rural, disadvantaged communities of color,[36] which also tend to be very low-income[37] and pay on average three times the cost for water considered affordable by the U.S. Environmental Protection Agency.[38] The health impacts of nitrate pollution are links to cancer, and "blue baby syndrome."[39] As acknowledged in the DEIR, there are domestic wells on site. There are also nearby domestic wells off-site of the Dairy that may be impacted by nitrate pollution. Expansion of the Dairy will exacerbate nitrate pollution, and potentially expose people to unsafe drinking water.

E-27 cont.

As the DEIR fails to adequately analyze the impact of increasing manure production, it is insufficient and fails as an informational document.

3. The DEIR Fails To Include Adequate Mitigation Measures Related To Groundwater Quality.

As discussed above, the proposed project will result in additional nitrate reaching groundwater in concentrations that will exacerbate pollution and nuisance. The DEIR discusses a number of mitigation measures, but fails to discuss additional feasible and effective mitigation measures that must be implemented.

E-28

As an initial matter, mitigation measure HYD-3b is misleading because it will not be implemented. Specifically, it states that it will "implement CVRWQCB requirements included in the individual WDR for the proposed dairy expansion." (pg. 10-34.) However, as acknowledged earlier in the DEIR, individual waste discharge requirements never issued for the 2012 expansion, and the Central Valley Regional Water Quality Control Board is "is deferring the issuance of individual WDRs, and reviewing significant aspects of its Dairy General Order." (pg. 3-22, 10-5.) This is a fundamental flaw in each of the mitigation requirements, because the DEIR recommends that the mitigation measures be incorporated into individual WDRs that will either never issue, or that will be significantly delayed. (pg. 10-33.)

As noted above, "Formulation of mitigation measures shall not be deferred until some future time." Guidelines § 15126.4(a)(1)(B).) Here, the DEIR impermissibly postpones development of mitigation

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[35] SRMR, pg 10 ["Evidence garnered from annual reports to the Regional Board by individual dairies suggests a substantial amount of "unaccounted-for" manure nitrogen exists on many dairies. This unaccounted for portion is essentially the difference between nitrogen excreted by cows (supply) and what is reported as being applied to agricultural fields to fertilize crops (demand) and/or exported from the dairy. Some of the unaccounted-for portion of nitrogen can be attributed to volatilization of nitrogen as ammonia and other gases, but those pathways don't fully explain the difference between excreted nitrogen and applied nitrogen. Large amounts of unaccounted-for nitrogen, combined with imprecision in measurement of applied nitrogen and irrigation water, can result in overapplication of nitrogen to crops…"].

[36] Balazs et al., "Social Disparities in Nitrate Contaminated Drinking Water in California's San Joaquin Valley," Environmental Health Perspectives, 19:9 (September 2011), available at https://ehp.niehs.nih.gov/doi/full/10.1289/ehp.1002878

[37] 2 Jonathan London et al., The Struggle for Water Justice in California's San Joaquin Valley: A Focus on Disadvantaged Unincorporated Communities, UC Davis Center for Regional Change, at 29 (Feb. 2018), https://regionalchange.ucdavis.edu/sites/g/files/dgvnsk986/files/inlinefiles/The%20Struggle%20for%20Water%20Justice%20FULL%20REPORT 0.pdf.

[38] Eli Moore et al., The Human Costs of Nitrate-contaminated Drinking Water in the San Joaquin Valley, Pacific Institute, at 7 (Mar. 2011), https://pacinst.org/wp

[39] California Department of Public Health, Nitrate Fact Sheet (May 2014), available at https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/nitrate/Fact%20Sheet%20-%20Nitrate_May2014%20update.pdf

measures to a future date at which individual waste discharge requirements will purportedly be issued. CEQA does not permit deferral of formulation and implementation of mitigation measures.

Moreover, the DEIR fails to analyze and require implementation of additional mitigation measures that are both feasible and necessary to reduce impacts to groundwater quality. Additional mitigation measures that must be included and implemented include, but are not limited to, denitrification,[40] acquisition of additional cropland to use as land application areas, lining of coral areas and lagoons, extension of liquid manure pipelines to additional fields to increase land application areas, and processing manure for export to irrigated lands intended for human consumption.Because the DEIR fails to consider these mitigation measures, it is inadequate.

B. The DEIR Fails to Analyze and Mitigate Groundwater Depletion

E-29

The DEIR analysis of baseline and projected groundwater use at the Dairy is insufficient because it: (a) fails to analyze possible impacts to nearby domestic and municipal water well levels; (b) incorrectly concludes that impacts on groundwater supplies will be less than significant; and (c) neglects to propose mitigation measures. This is despite the acknowledgement that the proposed project will result in 13.2 million gallons per year in additional groundwater extractions. (pg. 10-37.) While the DEIR notes that some of this water will be used to irrigate additional cropland that requires 1.3 million gallons per year annually, and that there *could* be some additional resulting groundwater recharge, there is no analysis of the amount of additional groundwater recharge that will occur. The DEIR appears to wholly rely on implementation of the Sustainable Groundwater Management Act to prevent any associated significant impacts on groundwater levels. Reliance on implementation of future regulations and projects without detailed quantification of the impacts of groundwater extractions and any possible groundwater recharge does not satisfy the requirements of SGMA. The DEIR must be revised to quantify these impacts and resulting water supply impacts on nearby communities.

1. The DEIR Fails to Accurately Assess Baseline and Projected Groundwater and Surfacewater Use Associated with the Project

The hydrologic analysis in the DEIR is incomplete and fails to propose or analyze adequate mitigation measures significant impacts. First, the DEIR's groundwater use projections are incomplete because they do not include baseline and projected water use for the different ages and types of cows at Vierra Dairy. The DEIR only shares that lactating cows require between 25 to 40 gallons of water per day, and it does not provide an estimation of daily water intake for cows that are not lactating at the various stages in their life cycle. The EIR must accurately disclose baseline and projected cow water consumption based on cows' age and known milk production, and include this in a total accounting of the current and projected groundwater and surface water demand at the Dairy. Additionally, it is worth noting that the DEIR's estimations do not include detailed numbers for water lost through evaporation, water used to manage manure as a liquid through flushing manure into the lagoon system, water utilized for misters and cooling, and any increased water demand to operate the digester system. The DEIR also fails to provide a total estimate around groundwater demand increases for the herd's drinking water and is therefore incomplete in its analysis of groundwater supply impacts.

Due to the incomplete information provided in the DEIR, we have included projections below of how many gallons of water per day each type and age of dairy cow requires based on conservative averages

[40] See, e.g., https://www.usdairy.com/news-articles/worm-based-water-treatment-in-dairy-farm.

from the University of Nebraska-Lincoln Extension office.[41] For lactating cows, we have utilized the average of the 25 to 40 gallon-per-day range provided in the DEIR, 32 gallons per day. For all other cows, we rounded the average of the gallon-per-day range to the nearest whole number.

E-29 cont.

Baseline and Projected Herd Water Consumption

	Estimated gallons per day per cow	Number cows (pre-expansion)	Number cows (post-expansion)
Milk Cows	32	2,650	4,170
Dry Cows	11	550	550
Bred Heifers (15-24 months)	8	797	797
Heifers (7-14 months)	5	800	800
Calves (4-6 months)	4	400	400
Calves (0-3 months)	400	400	400
Total water intake:	**460**	**262,826**	**311,466**

According to the calculations above, the herd's drinking water intake alone would result in a projected annual increase of 48,640 gallons per day. This amounts to an annual increase of 17,753,600 gallons annually, or ***54.48 acre-feet per year***, for the herd's drinking water needs alone.

In addition to the herd's drinking water and the additional wastewater produced by the herd size expansion, the proposed expansion also includes 188 additional acres of irrigated cropland. The DEIR does not propose any adequate mitigation measures for the further surface and groundwater depletion that this would cause.

The EIR must assess groundwater depletion, the impacts of such depletion, and mitigation measures to address those impacts. Furthermore the EIR must assess the cumulative impacts to groundwater given the multiple dairy expansions and / or new dairies that have been approved or are currently under some stage of environmental review.

2. Proposed Expansion is in Conflict with Groundwater Sustainability Plan

E-30

The project's likely impact to groundwater directly conflicts with the Turlock Subbasin Groundwater Sustainability Plan (GSP), the GSP covering the area where Vierra Dairy is located. The GSP states that the Turlock Subbasin Groundwater Sustainability Agencies (GSAs) will implement a demand reduction strategies to gradually reduce pumping at a consistent annual rate during the implementation period to

[41] Clark, Kim J. and Kononoff, Paul J. *Water Quality and Requirements for Dairy Cattle*. September 2017. Available at https://extensionpublications.unl.edu/assets/html/g2292/build/g2292.htm#:~:text=Lactating%20dairy%20cows%20require%204.5,as%2050%20gallons%20of%20water

make up for the deficit in groundwater inflows versus outflows (overpumping).[42] However, the significant increase of groundwater use projected from the project reflects the opposite of demand reduction, especially when its impacts are considered cumulatively alongside the several other dairy expansions undergoing environmental review in Merced County at this time, many of which would impact the Turlock Subbasin. The project therefore directly conflicts with the goals outlined in the Turlock Subbasin GSP and cannot proceed. Additionally the project's potential conflict with the Turlock Subbasin GSP must be analyzed in the context of the many other dairy expansions or installations that have recently been approved or are under review at this time.

3. Failure to Include an Analysis of Impacts to Nearby Wells

The DEIR has not adequately analyzed impacts to nearby domestic and municipal water systems because it failed to include adequate, complete, or accurate water demand increase projections, and it failed to assess impacts to groundwater supplies. The DEIR does not include any projections on the anticipated groundwater levels decline should the project occur. Furthermore the applicant failed to identify the depths of domestic and municipal wells near the project site, and the applicant did not project how increasing groundwater extraction from the project would impact nearby residential drinking water sources, much less propose any mitigation measures to reduce or eliminate impacts to surrounding drinking water sources. The DEIR is therefore incomplete.

E-31

4. The DEIR Mischaracterizes the Regulatory Framework Associated with Groundwater, including SGMA and the Turlock Subbasin GSP

SGMA requires GSAs to implement sustainable management practices for their basis to prevent undesirable results, such as continued groundwater depletion, loss of groundwater storage, continued land subsidence, and further degradation of groundwater quality.[43] The DEIR erroneously claims that the existence of the GSP "would further minimize impacts to groundwater supplies. Therefore, impacts from groundwater depletion from this operation would be considered less than significant" (DEIR 10-37). The GSP is an existing plan with which the project *must* be (yet would not be) consistent as a baseline requirement. GSAs developed GSPs to implement their sustainability goals, a GSP is not a mitigation measure.[44] Furthermore, because the project would conflict with the groundwater sustainability and demand reduction goals outlined in the GSP, the GSP could not mitigate the groundwater depletion impacts of the project merely by existing.

E-32

5. The Applicant Incorrectly Claims that No Mitigation Measures are Required for the Significant Impacts to Groundwater Levels

Since the DEIR provides an inadequate, incomplete, and inaccurate analysis of groundwater impacts, it is unclear what impacts will result from the project and, therefore, what mitigation measures it requires. Based on our analysis with the information provided in the DEIR, the project would result in significant impacts to groundwater, thus requiring mitigation.

E-33

6. The Plan Does not Adequately Address Cumulative Impacts and Assess Existing and Ongoing Dairy Facilities in Merced County

[42] Turlock Subbasin Groundwater Sustainability Plan.
[43] Water Code § 10720.1; 23 CCR §354.26
[44] Water Code §10727(a); 23 CCR § 350.4(f)

The DEIR fails to analyze and account for the cumulative impacts of this and other ongoing dairy expansions taking place within Merced County. The strain of existing dairy facilities already impose several impacts to the water and air quality. Merced County's several ongoing dairy expansions would independently and cumulatively further burden the water supply and increase several types of toxic emissions that threaten local and regional air quality. Therefore, the Final EIR must include an assessment of the cumulative impacts to water supply and air quality caused by the expansion of Vierra Dairy in conjunction with the nine other dairies currently undergoing expansion.

E-34

The project should evaluate the individual and cumulative number of acre-feet of groundwater and surface water the projects would utilize, while accounting for the effects that existing dairy facilities and other water-intensive agricultural operations impose on the subbasin's water supply and quality. Furthermore, when assessing the impacts on water supply, the project should consider the usage of previous and ongoing dairy expansions and existing facilities.

Similarly, the EIR should account for cumulative air quality impacts of this and other ongoing dairy expansions, and especially consider the cumulative impacts of additional dairy facilities in their assessments of PM 2.5 and ammonia emissions.

VII. Conclusion

For the reasons outlined above describing the legal deficiencies and incompleteness of the DEIR, the significant environmental impacts of the project, and the project's inconsistency with local, regional, and state-level plans and policies, Merced County must reject the requested CUP, prohibiting the project from proceeding. Please do not hesitate to reach out to us should you have any questions regarding the contents of this letter.

Respectfully submitted,

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Response to Letter E

Commenter Leadership Counsel for Justice & Accountability
August 24, 2023

E-1 The commenter provides background on their organization, and objects to the proposed project due to its inconsistency with regional air, groundwater, and environmental justice policy.

Merced County acknowledges receipt of these comments from the representatives of the Leadership Counsel for Justice & Accountability. The Planning Commission will consider the views expressed in these comments in their review and actions on the proposed dairy expansion. Because these comments raise no questions or concerns regarding the analysis in the Draft EIR, no additional responses are necessary in this EIR. Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no modification of the EIR is necessary.

E-2 The commenter summarizes the purposes of CEQA, including to inform decision makers and the public regarding environmental impacts, and to reduce environmental impacts when feasible.

The comment summarizes the intent of CEQA accurately, citing CEQA sections in regard to informing decision makers and public of the environmental consequences of a project, and the requirement to avoid or reduce environmental impacts, when feasible. Because the comment does not raise any concerns regarding the content or environmental conclusions of the DEIR, no changes to the DEIR are necessary.

E-3 The comment states that the Animal Confinement Ordinance (ACO) sets forth regulatory measures that cannot be considered mitigation in the DEIR since compliance with ACO regulations is already required.

The comment correctly notes that CEQA "best practice" is to avoid repeating federal, state, or local legal requirements as mitigation. In general, if there is already a law that addresses the impact, compliance with the law is discussed in the analysis, but does not need to be a mitigation measure. In the Vierra Dairy Expansion project DEIR, there are several impacts that were determined to be less-than-significant, though recommended measures have been included to ensure that compliance with regulatory measures is documented in the Mitigation Monitoring and Reporting Program (MMRP) for the project (e.g. *Impact AQ-1: Construction-related emissions*, in Chapter 5, *Air Quality and Odors*, of the DEIR).

Impact HAZ-1 in Chapter 9, *Nuisance Conditions from Insects*, evaluates the nuisance effects of flies. Mitigation Measure HAZ-1 includes continued implementation of the Vector Control Plan, as required by the Merced County ACO, throughout the active life of the dairy. The following addition to Mitigation Measure HAZ-1 (DEIR p. 9-10) to make it more effective is included in the FEIR:

~~Mitigation~~ Recommended Measure HAZ-1a:
The applicant has prepared a Vector Control Plan to meet the requirements of the Animal Confinement Ordinance Chapter 18.64.060(C)(8), which has been submitted to the Merced County Division of Environmental Health. The applicant shall continue to implement all measures within the approved Vector Control Plan throughout the active life of the dairy.

Mitigation Measure HAZ-1b:
The applicant shall implement the odor control measures set forth in the Odor Control Plan in Mitigation Measure AQ-7a. The odor control measures include best management practices and manure management measures that would also act to control nuisance insects, and also provides a point of contact for nuisance complaints at the dairy facility, both in English and in Spanish.

As set forth by modified Mitigation Measure HAZ-1b (Mitigation Measure AQ-7a), the applicant would be required to revise the Odor Control Plan to include a description of the County's odor complaint procedures, including contact information for the County Division of Environmental Health (DEH). As required by Mitigation Measure AQ-7a, all potentially affected *residents* (including occupying tenants) will be notified of their rights to file a complaint and, as modified, an explanation of the filing process. Implementation of this modification to Mitigation Measure HAZ-1 would not change the significance conclusion of the EIR with respect to Impact HAZ-1, nor would it require any measures to be implemented outside of the dairy site as assessed in the DEIR. Therefore, no further response or modification of the EIR is necessary to respond.

CEQA Guideline Section 15088.5 requires a lead agency to recirculate an EIR for further review and comment when significant new information is added to the EIR after public notice is given of the availability of the Draft EIR but before certification of the Final EIR. New information added to an EIR is not "significant" unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect that the project proponent declines to implement. The CEQA Guidelines provide examples of when significant new information is added, such as when a new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented, or when a substantial increase in the severity of an environmental impact would result unless mitigation is adopted that reduces the impact to a level of insignificance. Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes an insignificant modification in an adequate EIR.

Because Merced County will impose this measure on the project upon approval of the Vierra Dairy Expansion, none of the conditions set forth in CEQA Guidelines Section 15088.5 are present, and no recirculation of the EIR would be necessary. The revised mitigation measure would be more effective than the previous version, and there would be no change in the environmental conclusions presented in the DEIR as a result of this comment. Therefore, no further modification of the EIR would be necessary.

E-4 The commenter states that because the Merced County General Plan EIR was certified in 2013, it does not include up-to-date environmental baseline conditions, and should not be used for cumulative analysis.

General Plan adequacy is a policy and legal judgment. A policy decision regarding the adequacy of the Merced County General Plan is the sole purview of the Board of Supervisors. The consideration of legal adequacy is the responsibility of the courts. Neither the Merced County Board of Supervisors nor a court of competent jurisdiction have rendered a decision stating that the current Merced County General Plan is inadequate. Until such time as either body does render such a decision, the existing General Plan is the constitution for land use and development within the County and may properly serve as the foundation for reviewing land use projects that come before the County for consideration.

As described in DEIR Chapter 12, *Required CEQA Analyses*, the projections used for the cumulative analysis for the Vierra Dairy Expansion project were described and evaluated in the Program Environmental Impact Report for the Merced County Animal Confinement Ordinance Revision (ACO EIR), certified by Merced County on October 22, 2002. The 2030 Merced County General Plan EIR, certified by Merced County on December 10, 2013, updated and expanded the environmental analyses and conclusions presented in the 2002 ACO EIR regarding the cumulative effects for all project types, including proposed and expanding dairy facility projects such as the Vierra Dairy Expansion project. The 2030 General Plan EIR contained two levels of cumulative analysis: the countywide evaluation of the potential effects of implementing the General Plan and its policies contained in Chapters 5 through 20 of the General Plan EIR; and a cumulative evaluation of planned development within unincorporated Merced County, cities within Merced County, and adjacent cities and counties set forth in Chapter 22 of the 2030 General Plan EIR. Therefore, the cumulative impact analysis for the Vierra Dairy EIR incorporates the analyses contained in the 2030 General Plan EIR and the ACO EIR as summarized in the DEIR, and as modified to reflect current environmental conditions in the county. The DEIR includes additional analysis demonstrating that while the proposed dairy expansion project is well outside of the 2010 herd forecast timeframe in ACO, the most recent estimated herd is well within ACO EIR cumulative herd forecast for both the San Joaquin Valley and Merced County, and the ACO EIR analysis of cumulative effects for new and expanding animal confinement facilities in Merced County is still applicable and relevant.

The comment notes that the General Plan EIR was written and adopted prior to the passage of the Sustainable Groundwater Management Act, CVRWQCB acceptance of a Salt and Nitrate Management Plan, and issuance of the Central Valley Representative Dairy Monitoring Report, along with climate regulations such as the Short-Lived Climate Pollution Strategy established in 2017. These more recent regulations and resources are included as integral components of the Vierra Dairy Expansion project DEIR analysis and establish the basis for many of the project-level significance conclusions. To determine background characteristics of the groundwater at the project site as described in DEIR Chapter 10, *Hydrology and Water Quality*, information was reviewed from the Turlock Subbasin Groundwater Sustainability Plan (adopted in 2022) and the California Department of Water Resources Sustainable Groundwater Management Act (SGMA) Portal, along with project site water quality data from on-site supply well samples. As described in DEIR Chapter 8, *Greenhouse Gas Emissions and Energy Use*, the 2022 Scoping Plan for Achieving Carbon Neutrality strategies includes

consideration of regulation development for methane mitigation strategies beyond complimentary incentives for dairy and livestock operations in order to meet 2030 greenhouse gas (GHG) emission targets included in the Short-Lived Climate Pollutant Reduction Strategy, though the California Air Resources Board (CARB) is only authorized to implement these regulations provided that they are determined technologically and economically feasible, and cost-effective. While these regulations were not in place as part of the 2030 General Plan EIR baseline, they are well documented and considered in the Vierra Dairy Expansion project DEIR analysis. Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no modification of the EIR is necessary.

E-5 The commenter states that the ACO regulations evaluated in the ACO EIR should not be used as mitigation but rather as regulatory requirements. The comment further notes that ACO regulations do not account for impacts from odors.

The comment mischaracterizes the cumulative analysis in the Vierra Dairy Expansion project DEIR. As the DEIR is tiered from both the ACO EIR and the 2030 General Plan EIR as modified to reflect current environmental conditions in the county, the cumulative impact discussion describes the mitigation measures included in these program-level EIRs, which are General Plan policies and ACO regulations, and how they have been applied to the Vierra Dairy Expansion project, as applicable. These policies and regulatory measures are intended to reduce project-level and cumulative impacts, and the project DEIR appropriately discusses this as part of the cumulative analysis.

In terms of odor impacts, the ACO regulations in combination with additional Merced County Code and General Plan policy address nuisance effects from odors, as described in Chapter 5, *Air Quality and Odors* (DEIR pp. 5-9 to 5-10, and pp. 5-34 to 5-39). To prevent nuisances from odors or vectors, the ACO requires animal confinement facilities to implement both odor control measures and a vector control plan. The need for specific control measures is determined by the Merced County DEH on a site-specific basis. Additionally, the ACO prohibits the location of new animal confinement facilities within one-half mile of urban areas, areas zoned for residential uses, or concentrations of rural residences. See response to comment E-17 below for a more extensive discussion of odor impacts.

Since no new or modified impact is identified by the comment and no new or modified mitigation would be necessary or appropriate, no revision of the EIR would be required.

E-6 The commenter states that the DEIR must consider a full assessment of mitigation measures for significant and cumulative impacts. The comment provides examples of project-specific water use and how it would impact SGMA goals, and how the project should assess impacts to air quality and compliance with the Clean Air Act.

The above comment includes two issues of concern, one regarding the DEIR cumulative analysis, and the other being how project-level impacts, even if they do not exceed significance thresholds, affect compliance state-wide and regional planning goals and policies.

The cumulative impacts to air quality and water resources in Merced County were evaluated in the EIR prepared for the 2030 Merced County General Plan and the ACO EIR. The 2030 General Plan EIR and ACO EIR have been incorporated by reference into the Vierra Dairy

Expansion DEIR, and serve as the basis for the analysis of all cumulative impacts assessed in the DEIR. See DEIR, Chapter 1, *Introduction*, Section 1.5 for a discussion of the 2030 General Plan and its EIR and the ACO EIR, and their application to the Vierra Dairy Expansion project.

Since the proposed project is consistent with the General Plan land use designations applicable to the dairy site, cumulative impacts to air quality and water resources as a result of General Plan implementation, including the proposed project, were previously evaluated in the 2030 General Plan EIR and the ACO EIR. State and regional air and water quality improvement plans and General Plan policies are in place to reduce adverse impacts to air quality and water resources through General Plan buildout. As described in DEIR Chapter 1, *Introduction*, the 2030 General Plan EIR and ACO EIR serve as the first tier of environmental analysis for the proposed project, including the evaluation of countywide and cumulative impacts. Through tiering, a subsequent environmental analysis can incorporate, by reference, discussion that summarizes general environmental data found in the program EIR that establishes cumulative impacts and mitigation measures, the planning context, and/or the regulatory background. Pursuant to Section 15183 of the State CEQA Guidelines, these broad-based issues need not be reevaluated subsequently, having been previously identified and evaluated at the program stage.

As described in Chapter 5, *Air Quality and Odors*, of the DEIR, the California State Implementation Plan (SIP) is required to show how the state will achieve air quality standards required by the Clean Air Act by specified dates. For a specific discussion of impacts due to ammonia and $PM_{2.5}$, see response to comment E-10 below. The SJVAPCD Rules and Regulations include best available control measures on livestock operations in order to reduce emissions of VOCs, ammonia, and PM_{10}, which apply to the existing and proposed Vierra Dairy operations. As described in DEIR *Impact AQ-10: Conflict with or obstruct implementation of the applicable air quality plan*, local General Plan land use designations and population projections form the basis of SJVAPCD attainment planning (DEIR p. 5-42). Since the proposed dairy expansion project is a use consistent with the 2030 Merced County General Plan land use designation, implementation of the project would not conflict with the assumptions and emissions estimates contained within the plans as approved by the CARB and the Environmental Protection Agency (EPA).

Similarly, consistency with SGMA and the Turlock Subbasin Groundwater Sustainability Plan (GSP) developed for the area is evaluated in Chapter 10, *Hydrology and Water Quality*, of the DEIR. Changes in water use as a result of the project and potential impacts to groundwater supplies were evaluated in DEIR *Impact HYD-4: Decrease Water Supplies*, and discussed more fully in response to comment E-29 below. In general, these state and regional planning documents consider the larger trends in growth and do not assume individual projects must meet a zero-increase standard; while there may be an overall increase in air emissions or water use as a result of the project, these impacts have been considered in the state and regional plans and discussed in the project DEIR.

Thus, the potential for cumulative impacts to air quality and water resources have been fully evaluated in the DEIR and no new or additional evaluation or mitigation would be necessary. Since no new or modified impact is identified by the comment and no new or modified mitigation would be necessary or appropriate, no revision of the EIR would be required.

E-7 The commenter states that the EIR does not identify several areas of controversy, including incompatibility with state water quality and climate goals.

As required by CEQA Guidelines Section 15123(b)(2), Section 2.3 of the DEIR (DEIR p. 2-2) includes a summary of areas of controversy that were identified during the NOP process. While this section does not specifically identify the issues that the commenter asserts should be there, the DEIR includes an analysis for each of the issues to be resolved at the following locations:

(1) Potential incompatibility with Merced County planning documents is discussed in Chapter 11, *Land Use Compatibility,* of the DEIR*;*
(2) Potential inconsistency with the State's climate goals is discussed in Chapter 8, *Greenhouse Gas Emissions and Energy Use,* of the DEIR;
(3) Potential inconsistency with state and federal air quality attainment requirements is discussed in Chapter 5, *Air Quality and Odors,* of the DEIR.

Potential impacts to groundwater supplies and consistency with the Turlock Subbasin Groundwater Sustainability Plan were evaluated in DEIR *Impact HYD-4: Decrease Water Supplies*, and are discussed more fully in response to comment E-29 below. Compliance with CARB's Scoping Plan is evaluated in DEIR *Impact GHG-3: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, or conflict with or obstruct a state or local plan for renewable energy or energy efficiency*, and is discussed more fully in response to comment E-21 below. Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no modification of the EIR is necessary.

E-8 The commenter states that the EIR project objectives are too narrowly defined, which does not allow for any reasonable alternative to be selected.

Project objectives as defined by CEQA Guidelines Section 15124(b) "will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary". These alternatives should "feasibly attain most of the basic objectives of the project but … avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives" (CEQA Guidelines Section 15126.6). The DEIR identifies six project objectives that include the underlying purpose of the project and the project benefits (DEIR p. 3-11). Based on the project's significant effects, three alternatives were developed that would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the project's significant effects. DEIR Chapter 13, *Alternatives Analysis*, evaluates the environmental impacts of these three alternatives, including the No Project Alternative, the On-Site Anaerobic Digester Alternative, and the Dairy Digester Cluster Alternative. This is after considering but eliminating three additional alternatives from consideration, predominantly due to the inordinate cost and lack of land availability required to implement these alternatives.

The commenter's reasoning that the project objectives are too narrow is problematic; Merced County finds that it is permissible for the underlying purpose of the project to efficiently use existing dairy facilities (instead of constructing an entirely new facility) and use all of the existing, available land owned by the applicant (instead of requiring purchase of adjacent lands, which has been discussed in the alternatives considered and rejected and determined to be

infeasible). Additional objectives include business and development goals, meeting applicable regulations and permitting requirements, and project benefits. The stated objectives do not preclude consideration of various onsite alternatives that could potentially reduce significant impacts, including GHG emissions and water quality. While the EIR analysis identifies how each of the project alternatives does not fully meet the objectives of the project applicant, it does not prevent the County from considering selection of the alternative; rather it provides the information necessary to adequately weigh all of the factors involved. The lead agencies selection of alternatives is generally considered adequate unless the opponent can "(1) demonstrate the alternatives are manifestly unreasonable and do not contribute to a reasonable range of alternatives and (2) identifies evidence of a potentially feasible alternative that meets most of the basic project objectives" (*Save Our Access-San Gabriel Mountains v. Watershed Conservation Authority* (2021) 68 Cal.App.5th 8). The commenter does not suggest any environmentally superior, potentially feasible project alternative that meets most of the basic project objectives beyond those considered in the DEIR.[2]

The commenter repeatedly cites the court case of *We Advocate Thorough Environmental Review v. County of Siskiyou, et al. (Crystal Geyser Water Company, Real Party in Interest)* (2022) 78 Cal.App.5th to argue that the objectives are too narrow, though there are a number of cases that support upholding the project objectives. CEQA Guidelines Section 15126.6 states that "an EIR need not consider every conceivable alternative to a project; [r]ather it must consider a reasonable range of potentially feasible alternatives." "Absolute perfection" is not required in analyzing the alternatives (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553; *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal.3d 376).

In choosing a preferred project, Merced County is required to make written findings regarding its choice of a project to implement, including the reasons why it chose not to implement an environmentally superior alternative or alternatives, if the selected project is not the environmentally superior alternative. These will be found in Merced County Findings of Fact and Statement of Overriding Considerations. There would be no change in the environmental conclusions presented in the DEIR as a result of this comment.

E-9 The comment states that the EIR does not evaluate or mitigate cumulative VOC and NO_X emissions, precursors to ozone. The comment states that even though the project emissions of VOC and NO_X are less than significant, the cumulative emissions of all approved dairies would worsen local smog.

As stated in the regulatory setting for Chapter 6, *Air Quality and Odors*, for nonattainment criteria pollutants, the SJVAPCD has attainment plans in place that identify strategies to bring regional emissions into compliance with federal and state air quality standards. Projects and uses that are consistent with the assumptions used to develop the plans, and implement strategies to implement the plans, would not jeopardize attainment of the air quality levels identified in the plans.

Local General Plan land use designations and population projections form the basis of SJVAPCD attainment planning. The proposed Vierra Dairy Expansion is a use consistent with the 2030 Merced County General Plan land use designation of the project site and area used to

[2] Blog posts by Arthur F. Coon, of Miller Starr Regalia. https://www.ceqadevelopments.com

generate air emission projections incorporated into the SJVAPCD attainment plans. Thus, implementation of the project would not conflict with the assumptions and emissions estimates contained within the plans as approved by CARB and the EPA. The SJVAPCD regulates air emissions at the Vierra Dairy through its Authority to Construct (ATC)/Permit to Operate (PTO) permit process, and has required operational mitigation measures to reduce air emissions at the dairy with consideration of the attainment plans. All regulatory requirements to reduce VOC and NO_X have been applied to the existing and proposed dairy operations. (DEIR p. 5-42)

Impact AQ-3: Ozone precursor emissions from dairy operations, farm equipment, and increased traffic (DEIR pp. 5-23 to 5-27) evaluates the proposed dairy expansion project impacts as a result of ozone precursor emissions (VOC and NOx). Estimated VOC and NO_X emissions from the project both were found to not exceed SJVAPCD significance thresholds, and the impact would be considered a less-than-significant impact. The basis for the EIR cumulative analysis is described in the response to comment E-4. This assessment of cumulative effects, incorporated by reference and tiered from the 2030 General Plan and ACO EIR, assesses increased VOC and NO_X emissions from all existing, proposed, and potential confined animal within the San Joaquin Valley Air Basin, along with planned growth in Merced County. Where applicable, ACO EIR mitigation measures adopted to reduce the magnitude of potential cumulative effects that apply to the Vierra Dairy Expansion project are listed. The text of the adopted ACO EIR mitigation measures is included in DEIR Appendix K, *ACO Final EIR - Summary of Impacts and Mitigation Measures*. Adopted 2030 General Plan policies that apply to the project and would reduce the magnitude of potential cumulative effects are set forth in Chapter 11, *Land Use Compatibility*, of the DEIR. Even with adoption of these measures, the cumulative impacts of ozone precursors would be considered significant and unavoidable, both within Merced County and within the larger San Joaquin Valley Air Basin. Approval of the Vierra Dairy Expansion project will require the adoption of a statement of overriding considerations pursuant to Section 15093 of the CEQA Guidelines. This guideline requires a decision-making agency such as the Merced County Planning Commission or Board of Supervisors to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project against its unavoidable environmental risks when determining whether to approve a project. According to the guideline, if the economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable."

Since no new or modified environmental effect is identified by the comment and no new or modified mitigation would be necessary or appropriate, no revision of the EIR would be required.

E-10 The comment states that the DEIR does not evaluate ammonia as a $PM_{2.5}$ precursor. The comment states that the SJVAPCD and CARB erroneously conclude that ammonia is not a significant $PM_{2.5}$ precursor, and it should be analyzed.

The Vierra Dairy Expansion DEIR includes an evaluation of ammonia as a precursor to $PM_{2.5}$ formation in *Impact AQ-4: PM_{10} and $PM_{2.5}$ emissions from fugitive dust during project operations* (DEIR p. 5-28). The comment states that the EPA recently found that the weight of evidence is insufficient for the SJVAPCD and CARB to determine that ammonia is not a significant $PM_{2.5}$ precursor; however, while the comment states the EPA came to this conclusion in its analysis of the San Joaquin Valley's $PM_{2.5}$ State Implementation Plan, the commentor does not provide

documentation. Following additional review of the record, the comment likely refers to the EPA's proposed disapproval of portions of the 2018 $PM_{2.5}$ Plan in December 2021, including the ammonia precursor demonstration. As a result of this proposed disapproval, the CARB requested withdrawal of key elements of the $PM_{2.5}$ Plan from inclusion in the California SIP in order to address these issues.[3] Since that time, the CARB and SJVAPCD have revised portions of the SIP as requested by the EPA, and the EPA issued a Proposed Rule to approve these changes in the July 14, 2023 Federal Register.[4] Essentially, the EPA concurs with the CARB and SJVAPCD conclusion that emissions of ammonia do not contribute significantly to ambient $PM_{2.5}$ levels in the San Joaquin Valley.

As set forth by the CARB in the supplemental information submitted to the EPA on ammonia:

> The largest source of ammonia in the Valley is confined animal facilities. The District has implemented Rule 4570 to reduce emissions from this source category, and requires the most stringent requirements for reducing emissions from CAFs in the nation. In addition to limiting volatile organic compound (VOC) emissions, District Rule 4570 includes measures that limit ammonia emissions from these operations… Multiple field studies in the Valley have confirmed that NOx is the limiting precursor to ammonium nitrate formation and that there is a far greater amount of ammonia in the Valley's air than is necessary to participate in the chemistry that leads to ammonium nitrate. Thus, NOx reductions are key for reducing ammonium nitrate and $PM_{2.5}$ levels in the Valley… Moreover, CARB and the District have not identified methods within its authority to control air emissions of ammonia that achieve an overall 30 percent reduction in ammonia emissions. In practice, the District has implemented the best available control measures on livestock operations that have already achieved approximately 25 percent reduction from this source [through Rule 4570]. CARB is not aware of controls that would achieve greater reductions on the order needed to achieve an overall 30 percent reduction of ammonia emissions in the Valley; nevertheless, CARB is pursuing further research specific to California and the Valley to improve our understanding of ammonia emissions from various sources as a necessary prerequisite to identifying potential effective measures to achieve additional emissions reductions. [5]

Based on the extensive information presented by the CARB and the SJVAPCD in their submittal to the EPA, the DEIR evaluation of ammonia as a precursor to $PM_{2.5}$ formation would be considered adequate, and no additional analysis would be required. There would be no change in the DEIR or environmental conclusions presented in the DEIR as a result of this comment.

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3 CARB Withdrawal Letter (October 27, 2022) and SJVAPCD Concurrence Letter can be obtained at: <https://ww2.arb.ca.gov/resources/documents/2018-san-joaquin-valley-pm25-plan>

4 Federal Register/Vol. 88, No. 134/Friday, July 14, 2023/Proposed Rules. Accessed at <https://www.federalregister.gov/documents/2023/07/14/2023-14687/air-quality-state-implementation-plans-approvals-and-promulgations-california-1997-annual-fine>

5 Ammonia: Supplemental Information for EPA in Support of 15 µg/m3 Annual $PM_{2.5}$ Standard. March 2023. CARB. Accessed on October 31, 2023 at: <https://ww2.arb.ca.gov/resources/documents/2018-san-joaquin-valley-pm25-plan>

E-11 The comment states that the EIR does not evaluate NOx emissions from the use of fertilizers applied to cropland.

The DEIR includes a discussion of NO_X emissions from soil in *Impact AQ-3: Ozone precursor emissions from dairy operations, farm equipment, and increased traffic* (DEIR p. 5-25). The discussion is expanded in Chapter 4 of this FEIR to provide additional clarity. The modification of this section merely refines the discussion of NO_X emissions from soil in the EIR and does not alter the conclusions of the EIR. A lead agency is not required "to conduct every test or perform all research, study, and experimentation recommended or demanded by commentors" (CEQA Guidelines Section 15204(a)). EIRs do not require "technical perfection," "scientific certainty," and "exhaustive analysis". Rather, EIRs require only "adequacy, completeness and a good-faith effort at full disclosure." (*The Claremont Canyon Conservancy v. Regents of the University of California* (2023) 92 Cal.App.5th 474). Merced County has determined that this standard has been met.

The comment suggests that the EIR analyze the impact of NOx emissions from both onsite and offsite fields. Because the proposed operations would result in increased solid manure exported for off-site application to cropland, and the County can't control where the manure is sold and how it is applied to cropland, and due to the complexity of soil NOx dynamics, it would be considered speculative to assess project-level emissions at off-site fields. However, impacts from NOx emissions throughout the County are considered in the cumulative analysis of the EIR.

Since the environmental analysis and conclusions of Impact AQ-3 presented in the DEIR would be unchanged by these modifications, no further revision to the EIR would be required.

E-12 The comment states that the EIR does not evaluate the impact of a planned anaerobic digester as part of the project. The commenter states that this constitutes a "piecemeal" analysis.

The commenter is correct that the Vierra Dairy is included as a participating dairy in the Hilmar Biogas Cluster Project (Merced County Conditional Use Permit No. 19-008)[6]. At buildout, the Hilmar Biogas Cluster Project will gather and process biogas from seven digesters for eight dairies in the region northwest of Hilmar. A collection pipeline will originate at each dairy digester and then traverse private land until meeting the main collection pipeline. The collected biogas (mostly methane and carbon dioxide) will be processed for the generation of renewable compressed natural gas (RCNG). The RCNG will be injected into an existing natural gas transmission line at the PG&E point of receipt and sold for offsite use. According to the IS/MND, the Hilmar Biogas Cluster project will help sequester approximately 210,389 metric tons carbon dioxide equivalents ($MTCO_2e$) compared to existing conditions.

Since issuance of the Draft EIR in June 2023, Merced County received a permit application for the construction of an anaerobic manure digester on the Vierra Dairy to the north of the existing wastewater retention pond. The Merced County General Plan policy AQ-1.12 supports dairy digester permit streamlining and encourages staff to permit digesters using on-farm feedstocks with a staff-level Plot Plan Review. The digester project was approved on

[6] Merced County, 2021. Hilmar Biogas Cluster Project. Initial Study/Mitigated Negative Declaration. July 2021. Prepared by ICF. Accessed at <https://www.countyofmerced.com/414/Environmental-Documents>

December 19, 2023. Therefore, the manure digester is not a part of the project under review in this EIR prepared for the dairy expansion project.

In order to streamline the CVRWQCB's permitting process for dairy digester facilities and provide for the protection of the beneficial uses of surface and groundwater, the CVRWQCB issued the General Order for Dairies with Manure Anaerobic Digester or Co-Digester Facilities (R5-2010-0130) (Digester General Order) and certified its accompanying Program EIR. The manure digester would be covered by this General Order and required to comply with its Waste Discharge Requirements.

The comment also states that the DEIR must analyze the increase in ammonia and other emissions from the digester. Construction and operation of the approved manure digester would have similar effects to those identified in the Draft EIR in the evaluation of Alternative 3 – Dairy Digester Cluster Alternative. As evaluated in the Dairy Digester Program EIR Chapter 6, *Air Quality and Greenhouse Gas Emissions*, construction and operation of a dairy digester is not anticipated to exceed SJVAPCD thresholds of significance in most cases[7]. While there would be an increase in VOC emissions as a result of vehicle and equipment emissions, the digester would reduce VOC emissions from the lagoon. There would be no combustion of biogas and associated emissions with the approved digester, as the biogas would be transported via pipeline to a biogas upgrading facility. The digester would reduce, but not avoid, odor and nuisance fly impacts. Greenhouse gas emissions would also be reduced. While the anaerobic digester would reduce pathogens in the liquid manure stored in the lagoon and applied to cropland off site, because the dry manure exported off site is separated from the waste stream and would not be processed in the manure digester, it would not minimize potential impacts from manure pathogen transport off site. As stated in the DEIR Alternative 2 regarding digesters, "the anaerobic treatment process creates intermediates such as ammonia, hydrogen sulfide, orthophosphates, and various salts, all of which must be properly controlled or captured. The ammonium level in the digester effluent is typically higher than raw manure, sometimes as much as two times higher. When digester effluent is field applied, much of the ammonium will be released as a gas (ammonia) unless it is incorporated into the soil. When incorporated, microorganisms can convert the ammonia to nitrite, which is then rapidly converted to nitrate, the nitrogen form most readily taken up by plants" (DEIR p. 13-10). For a specific discussion of impacts due to ammonia and $PM_{2.5}$, see response to comment E-10 above.

As described above, while dairy digester operations could result in increased environmental effects for some issue areas assessed in the DEIR, implementation of the digester wouldn't change the environmental conclusions of the DEIR. Further, the permitting process would ensure compliance with SJVAPCD and CVRWQCB requirements, which would ensure that all air and water emissions would meet the agency's standards and avoid adverse effects.

A project may be considered separately from potential future projects when the two "have different proponents, serve different purposes or can be implemented independently." (*Banning Ranch Conservancy v. City of Newport Beach* (2012) 211 Cal.App.4th 1209; *Make UC a Good Neighbor v. Regents of University of California* (2023) 88 Cal.App.5th 656). The proposed dairy

[7] Central Valley Regional Water Quality Control Board Dairy Manure Digester and Co-Digester Facilities Draft Program EIR. SCH #2010031085. Prepared by ESA. July 2010.

expansion project assessed in this EIR has independent utility. The successful implementation of the proposed dairy expansion does not depend upon the construction and operation of the digester, and the digester may or may not be constructed and operated for reasons other than the status of the dairy expansion, even if the two are related in some other respects (*Planning & Conservation League v. Castaic Lake Water Agency* (2009) 180 Cal.App.4th 210; *Sierra Club v. West Side Irrigation Dist.* (2005) 128 Cal.App.4th 690). For these reasons and pursuant to Section 15165 of the State CEQA Guidelines, there is no need to fully assess the individual impacts of implementing the digester in this EIR. The foregoing discussion evaluates the combined effects of implementing the proposed dairy expansion and the digester. No additional evaluation is necessary. The above addition is for clarification purposes only and does not alter the conclusions of the EIR. Therefore, no modification of the DEIR's evaluation of environmental effects or environmental conclusions would be necessary.

E-13 The comment states that the EIR does not adequately evaluate human health impacts resulting from the project's substantial air emissions based on the *Sierra Club* decision.

The Vierra Dairy Expansion DEIR includes an evaluation of human health effects from significant air quality impacts in *Impact AQ-3: Ozone precursor emissions from dairy operations, farm equipment, and increased traffic* (DEIR pp. 5-26 to 5-27), though it is important to note that the dairy expansion project does not exceed SJVAPCD significance thresholds for criteria air pollutants, including VOC or NO_X. The discussion of human health effects is modified in Chapter 4 of this FEIR to further expand upon the analysis, though it does not alter the conclusions of the EIR. The discussion provides a detailed explanation as to why it is not feasible to provide such an analysis, and based on existing guidance, provides a qualitative discussion of direct health impacts as a result of the proposed project's mass emissions. As stated in comment E-11 above, EIRs require only "adequacy, completeness and a good-faith effort at full disclosure" (*The Claremont Canyon Conservancy v. Regents of the University of California* (2023) 92 Cal.App.5th 474).

Based on the extensive information presented by the SJVAPCD and the South Coast Air Quality Management District in their amicus briefs[8] on the Friant Ranch case, the FEIR evaluation of human health effects from significant air quality impacts would be considered adequate, and no additional analysis would be required. There would be no changes in the environmental conclusions presented in the DEIR as a result of this comment.

[8] South Coast Air Quality Management District, 2014, Application of the South Coast Air Quality Management District for Leave to File Brief of Amicus Curiae in Support of Neither Party and Brief of Amicus Curiae. In the Supreme Court of California. Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno.
San Joaquin Valley Air Pollution Control District, 2014, Application for Leave to File Brief of Amicus Curiae Brief of San Joaquin Valley Unified Air Pollution Control District in Support of Defendant and Respondent, County of Fresno and Real Party In Interest and Respondent, Friant Ranch, L.P. In the Supreme Court of California. Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno.

E-14 The comment states that the EIR does not assess the disproportionate health impacts of implementing the proposed project on the predominantly Latinx community near the project.

The California Environmental Quality Act does not explicitly require analyses of environmental justice. The California Public Resources Code (PRC Section 21002) requires that an environmental document prepared to meet CEQA requirements evaluate adverse effects to the physical environment, and the ways in which project alternatives and mitigation measures could reduce such effects. An agency is required to find that a "project may have a 'significant effect on the environment' " if, among other things, "[t]he environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly[.]" (PRC Section 21083(b)(3)). CEQA documents may identify existing adverse environmental conditions in the document's discussion of the environmental setting, or in a discussion of cumulative impacts.

As defined by the State of California, environmental justice is the equal treatment of people of all races, cultures, and incomes when it comes to environmental laws, regulations and policies. (Government Code Section 65040.12(e))

Beginning in 1999, the State of California enacted a series of bills that incorporated the concepts of environmental justice into state law. As a result of these enactments, the term and concept of "environmental justice" has been defined in the California Government Code. Government Code Section 65040.12 (e) defines "environmental justice" as:

> The fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation and enforcement of environmental laws, regulations, and policies.

California legislation, state agency programs, and guidance have been issued in recent years that aim to more comprehensively address environmental justice issues, including: SB 1000 (2016); SB 535 (2012) and Assembly Bill (AB) 1550 (2016); AB 617 (2017); the California Department of Justice Bureau of Environmental Justice; the California Communities Environmental Health Screening Tool (CalEnviroScreen); and the Governor's Office of Planning and Research's (OPR) 2020 General Plan Guidelines, Environmental Justice Element.

The following discussion evaluates the subject of environmental justice with respect to the proposed Vierra Dairy Expansion project. The evaluation includes the potential identification of environmental justice communities in the project vicinity as well as a characterization of existing environmental stressors.

As authorized by the California Global Warming Solutions Act of 2006 (AB 32), a cap-and-trade program was developed to reduce GHG that cause climate change. The program has been modified to target 25 percent of the proceeds to fund projects that provide a benefit to

disadvantaged communities (DAC). The California Environmental Protection Agency (CalEPA) does not identify Hilmar and its surrounding census tract as a DAC.[9]

Demographic information regarding the nature of the populations in the project area is available from the U.S. Bureau of the Census. Table 3-1 compares the general demographic characteristics used to identify sensitive populations in Hilmar, the larger area in which the Vierra Dairy is located, Merced County as a whole, and the state of California, using information provided by the U.S. Bureau of the Census.

Table 3-1 Demographic Characteristics of Project Area and Hilmar Compared to Merced County and California

Population Characteristics	Project Vicinity	Hilmar	Merced County	California
Total Population	11,136	6,484	282,290	39,356,104
Age	**Percent**			
Children Under 18	28.4	28.4	29.2	22.3
18-64 years	55.9	54.4	59.4	62.8
Elderly 65 and Over	15.7	17.2	11.4	14.9
Race or Ethnicity	**Percent**			
Hispanic	41.5	34.3	61.9	39.7
White	63.2	79.9	50.2	60.6
African American	0.0	0.0	4.5	7.2
Native American	0.0	0.4	2.5	2.6
Asian American	0.2	0.7	8.7	17.6
Other	30.8	25.5	44.6	26.6
Income	**Median Income, in Dollars**			
Household	$71,753	$71,710	$64,772	$91,905
Language Spoken at	**Percent**			
Speak Only English	49.3	52.9	46.5	56.1
Other Languages, Speak English Less than Very Well	34.3	30.7	39.9	17.1
Speak Spanish	32.2	22.4	45.5	28.2

Note [a] Hilmar has been categorized by the U.S. Bureau of the Census as a Census Designated Place (CDP). CDPs are small, often unincorporated, and typically rural communities that exhibit some or all of the features of a larger town.

Sources: U.S. Bureau of the Census, 2024, Hilmar-Irwin CDP, Merced County, California Profile. Accessed at <https://data.census.gov/profile/Hilmar-Irwin_CDP,_California?g=160XX00US0633861> on January 25, 2024
U.S. Bureau of the Census, 2024, Hilmar-Irwin County Subdivision (CCD), Merced County, California Profile. Accessed at <https://data.census.gov/profile/Hilmar-Irwin_CCD,_Merced_County,_California?g=060XX00US0604> on January 25, 2024
U.S. Bureau of the Census, 2024, Merced County, California Profile. Accessed at; <https://data.census.gov/profile/Merced_County,_California?g=050XX00US06047> on January 25, 2024
U.S. Bureau of the Census, 2024, California Profile. Accessed at <https://data.census.gov/profile/California?g=040XX00US06> on January 25, 2024

[9] California, State of. Environmental Protection Agency; Office of Environmental Health Hazard Assessment, 2024. SB 535 Disadvantaged Communities Map. Accessed on January 25, 2024, at https://oehha.ca.gov/calenviroscreen/sb535

With respect to the concentration of children and the elderly, the residents of Hilmar and its surrounding area are similar to the remainder of Merced County as a whole. Hilmar and its surrounding area have a higher percentage of the elderly than do Merced County and the state. The population of the Hilmar area is characterized by a substantially lower proportion of persons who identify as Hispanic than in Merced County as a whole, while the percentage of persons who identify themselves racially as white or other is higher than the overall County population. Fewer of those who live in Hilmar and the surrounding area speak Spanish as their primary language than the remainder of Merced County. The median income of households in Hilmar is higher than elsewhere in Merced County. Thus, based on Census information, the project area and vicinity have substantially different population characteristics than other areas of Merced County and the state. Substantially fewer of those persons who would make up an environmental justice community are present in Hilmar, and the project area and vicinity. For these reasons, the community of Hilmar and the area surrounding the project would not be considered to be a "predominantly Latinx community."

As identified by the CalEPA and the Office of Environmental Health Hazard Assessment (OEHHA), understanding and addressing the cumulative vulnerability of communities most impacted by pollution is critical to minimizing environmental health and justice disparities. The agencies define cumulative vulnerability as "the exposure, public health, or environmental effects from the combined emissions and discharges, in a geographic area, including environmental pollution from all sources, whether single or multi-media, routinely, accidentally, or otherwise released accounting for sensitive populations and socio-economic factors".

To assess varying levels of vulnerability throughout the state, the OEHHA has developed a screening tool (CalEnviroScreen or CES) that can be used to develop a comprehensive picture of the burdens California communities face from environmental pollutants and their vulnerability to health and economic impacts. The tool uses environmental, health, and socioeconomic information to produce scores for every census tract[10] in the state. The scores are mapped so that different communities can be compared. For example, an area with a high score is one that experiences a much higher pollution burden than areas with low scores. The fourth iteration of this tool, CalEnviroScreen 4.0 was released in October 2021.

According to CalEnviroScreen data, Hilmar residents and those in surrounding rural areas are exposed to high levels of air pollution, pesticide use, drinking water contaminants, impaired waters, and groundwater threats[11]. In general, residents of the census tract containing Hilmar

[10] As defined by the federal Department of Commerce, Census Bureau, census tracts are a small, relatively permanent statistical subdivision of a county delineated by a local committee of census data users for the purpose of presenting data. Census tracts nest within counties, and their boundaries normally follow visible features, but may follow legal geography boundaries and other non-visible features in some instances. Census tracts ideally contain about 4,000 people and 1,600 housing units (Census Bureau 2021).

[11] As set forth in the CalEnviroScreen 4.0 Report, "Many activities can pose threats to groundwater quality. These include the storage and disposal of hazardous materials on land and in underground storage tanks at various types of commercial, industrial, and military sites. … Storage tanks are of particular concern when they can affect drinking water supplies. ... Dairy farms and concentrated animal-feeding operations, which produce large quantities of animal manure pose a threat to groundwater. Other activities that pose threats to groundwater quality include produced water ponds, which are generated as a result of oil and gas development." (OEHHA 2021)

are exposed to relatively low levels of diesel particulate matter, toxic releases from facilities, traffic impacts, lead from housing, cleanup sites, hazardous waste generators and facilities, and impaired water bodies. As measured by CalEnviroScreen, the Hilmar area is exposed to environmental contaminants at a level that averages greater than the level of exposures shared by all census tracts throughout California.

CalEnviroScreen additionally evaluates the susceptibility of populations to the adverse effects of environmental stressors. Residents of the Hilmar census tract exhibit relatively low incidences of population characteristics that would result in a sensitivity to pollution. Fifty-six percent of census tracts throughout the state have a burden of illness and population characteristics that would indicate a greater vulnerability to the adverse effects of pollution.

For Hilmar and the larger project area, the most significant population characteristic is the percentage of the population suffering from cardiovascular disease. Typically, cardiovascular diseases are considered to be a disease of affluence. Risk factors include age, sex, family history, smoking, unhealthy diet, high blood pressure, high cholesterol, diabetes, obesity, and lack of exercise.[12] Significantly fewer persons within Hilmar and the surrounding area suffer from asthma.

To establish a comprehensive CalEnviroScreen score that considers both the pollution burden and population characteristics, the model combines the individual scores to derive an overall result. For the residents of the census tract containing Hilmar, the combined score indicates that residents of this census tract are exposed to a cumulative environmental justice burden than is greater than that for 66 percent of all census tracts in California.

Rural Merced County-specific information developed by CalEnviroScreen for the Pollution Burden Summary and Population Characteristics Summary Scores, together with the Overall CES 4.0 Score, are set forth in Table 3-2.

[12] Mayo Clinic, 2024. Heart Disease. Accessed at on January 27, 2024 at: https://www.mayoclinic.org/diseases-conditions/heart-disease/symptoms-causes/syc-20353118

Table 3-2 CalEnviroScreen Scores for Merced County Rural Census Tracts

Census Tract	Nearest Community	Pollution Burden Percentile	Population Characteristics Percentile	Overall CES 4.0 Percentile
6047001901	Planada	54	80	74
6047000901	El Nido	**92**	65	83
6047002000	Gustine	79	79	84
6047000402	Hilmar	85	**44**	64
6047001902	Le Grand	62	**82**	78
6047000303	Livingston South	84	49	68
6047002100	Los Banos S/W	82	79	**85**
6047002600	Merced East	62	65	68
6047001002	Merced NW	66	**82**	80
6047002500	Snelling	73	77	81
6047000401	Stevinson	69	74	77
6047001801	UC Merced	**19**	52	**37**
6047000503	Winton	86	54	72
All	***Median***	***73***	***74***	***77***

Note: The highest value in each column is indicated in **red** font. The lowest value in each column is indicated in **green** font.

Sources: CalEnviroScreen 4.0 Results for 13 census tracts in Merced County obtained on April 8, 2022.

In general, residents of the census tract containing Hilmar have a relatively high overall pollution burden when compared with other rural census tracts in Merced County. However, Table 3-2 reveals that the Hilmar census tract is characterized by substantially lower percentiles of population characteristics that result in a sensitivity to pollution as compared to other rural areas within the County. On balance, the combination of the high pollution burden and low population characteristics yields an Overall CES 4.0 percentile score that indicates that the Hilmar area is less burdened with adverse environmental effects than is typical of the other rural areas of Merced County[13] as described in Table 3-2.

In conclusion, the community of Hilmar and the surrounding area in the vicinity of the Vierra Dairy would not be considered to be an environmental justice community. Additionally, the pollution burden and population characteristics for the area as identified by CalEnviroScreen indicate that the project area has a lower environmental burden than all similarly situated rural communities within Merced County. Nothing in this finding conflicts with the DEIR, and no modification of the DEIR and the County's environmental conclusions would be necessary.

E-15 The comment states that the EIR does not assess the health impacts from ammonia.

The comment is incorrect, as the DEIR assesses the potential risk to the adjacent residents and workers attributable to emissions of hazardous air pollutants (including ammonia) from construction and operation of the proposed dairy in the Health Risk Assessment (HRA) located in Appendix G of the DEIR and summarized in Impact *AQ-5: Expose nearby residents to*

[13] With the notable exception of U.C. Merced. The university is located primarily in an undeveloped area with a limited amount of agricultural activities; thus, the pollution burden is quite low. Similarly, because the population is primarily made up of students, the population characteristics score is also relatively low (although not lower than that for Hilmar and the Vierra Dairy project area).

substantial pollutant concentrations from the emissions of toxic air contaminants from project construction and operations (DEIR pp. 5-31 to 5-33). The HRA evaluates emissions from numerous toxic air pollutants, including ammonia and hydrogen sulfide. Preliminary modeling with the on-site employee residences indicated that one residence would exceed the SJVAPCD's cancer risk and non-cancer chronic hazard thresholds, and the DEIR includes mitigation measures to minimize the exposure of sensitive persons to hazardous air pollutants during construction and reduce potential cancer risk to acceptable levels. In terms of impacts from ammonia, the HRA found the maximum predicted acute non-cancer hazard risks and chronic non-cancer hazard risks, which are primarily attributable to emissions of ammonia, were below the significance level for chronic and acute non-cancer hazard risks.

According to CEQA, project-related impacts are considered the physical changes in the environment which may be caused by the project (CEQA Guidelines Section 15064(d)). To determine whether an impact is significant, a "baseline" set of environmental conditions is required against which agencies can assess the significance of project impacts. For the Vierra Dairy, the existing herd size and dairy configuration accurately depicts the environmental baseline with which to identify the changes in the physical environment caused by the proposed project pursuant to Section 15064(d) of the State CEQA Guidelines (see Chapter 3 p. 3-23 of the DEIR for a discussion of baseline for the project). While the comment states that total ammonia emissions must be evaluated for health impacts, CEQA requires only the emissions from the dairy herd expansion be evaluated to determine the increase in impacts as a result of the project. Mitigation measures can only address impacts associated with the proposed project and not preexisting environmental conditions. Though ammonia is not designated as a precursor pollutant under the Clean Air Act, SJVAPCD Rule 4570 includes ammonia emission controls for dairies, which applies to existing operations and the proposed expansion. Compliance with SJVAPCD Rule 4570 during the permitting process would further act to reduce ammonia concentrations from proposed operations.

Thus, the potential health impacts from the increase in ammonia emissions have been fully evaluated in the DEIR, and no new or additional evaluation or mitigation would be necessary. Since no new or modified impact is identified by the comment and no new or modified mitigation would be necessary or appropriate, no revision of the EIR would be required.

E-16 The comment states that the EIR does not assess the health impacts from hydrogen sulfide.

As stated on DEIR page 5-31, the HRA addresses emissions from hydrogen sulfide. Hydrogen sulfide emissions occur from liquid manure in the lagoon. Consistent with SJVAPCD methodology, hydrogen sulfide emissions calculations are based on the surface area of the lagoon. As there would be no increase in the surface area of the existing lagoons with the proposed expansion, no change in hydrogen sulfide emissions associated with the proposed dairy expansion is expected.

Since no new or modified impact is identified by the comment and no new or modified mitigation would be necessary or appropriate, no revision of the EIR would be required.

E-17 The comment states that the EIR does not adequately analyze or mitigate for odor impacts. The comment can be divided into five topics that will be addressed below:

- The potential for increases in the frequency and intensity of odors in Hilmar
- Misunderstanding of the County's setback requirements from the active areas of dairies
- Perceived flaws in the County's reliance on complaints to identify odor nuisances
- Perceived flaws by the County in not using odor management devices to identify and reduce odors
- Failure to evaluate adverse health effects from exposure to dairy odors

Increased Potential for Odors in Hilmar/County Setback Requirements

The comment reflects a misunderstanding of Merced County's setback requirements. Merced County regulates dairy locations using two complementary provisions of the Zoning Code: Section 18.10.020 C, Agricultural Zone Land Uses and Permit Requirements, and Section 18.64.040, Locational Criteria. Summarily, these two sections of the Zoning Code require a 0.5-mile setback between the active areas of a dairy and various sensitive uses, including large and small locations of urban uses; residentially designated property in the General Plan or residentially zoned property; sensitive uses such as schools, hospitals, jails, public or private recreational areas, parks, or all wildlife refuges; or concentrations of five or more off-site residences. No provision of the Zoning Code allows the waiver or modification of this setback requirement.

For isolated rural residences, the Code requires a minimum setback of 1,000 feet between an off-site residence and active areas of a dairy. However, this setback may be lessened by a dairy operator in favor of an off-site property owner seeking to construct a new residence nearer to the dairy than 1,000 feet, or by an existing resident in favor of an existing dairy seeking to construct an active area of the dairy within the 1,000-foot setback. In the case of the Vierra Dairy, a single off-site resident has waived the 1,000-foot setback requirement to permit the construction of active facilities within a setback of no less than 750 feet. See Figure 3-8 in Chapter 3, *Project Description*, of the DEIR.

Finally, both Sections 18.10.020 C and 18.64.040 establish a regulatory setback for determining what level of County review would be required to evaluate a proposed new or expanded dairy. A windshed diagram (duplicated as Figures 2-1 and 4-4 in the Zoning Code) establishes an area of concern that extends between 1,320 feet (1/4 mile) upwind and 2,640 feet (1/2 mile) downwind from active areas of a proposed dairy. The windshed diagram was developed to incorporate prevailing wind directions into Merced County's dairy regulatory framework in order to include considerations of odor transport, dust, and other aspects of dairy operations that could result in nuisances in the County's review. As adopted in the windshed diagram, the primary wind direction in the County is from the northwest to southeast. (See Figure 3-5 in Chapter 3, *Project Description*, of the DEIR for the windshed diagram for the Vierra Dairy.) Thus, it would be unlikely that the community of Hilmar located 2.5 miles to the east/northeast of the Vierra Dairy site would be adversely affected by an expansion of the dairy at its current location.

Perceived flaws in the County's reliance on complaints to identify odor nuisances

The comment questions the efficacy of the County's reliance on a complaints system as a means to control odors.

The comment fails to consider the full breadth of the measures in the County's regulatory scheme with respect to odors associated with dairies. Rather than relying solely on the presence/absence of odor complaints for a particular dairy submitted to either the SJVAPCD or the County DEH, the odor regulatory scheme: (1) requires setbacks between dairies and sensitive land uses[14]; (2) requires implementation of a number of mandatory operational requirements set forth in the ACO[15]; (3) requires preparation, approval, and implementation of an Odor Control Plan; (4) encourages the use of odor-reducing operations and equipment; and, (5) implements a notification and response system to address outstanding odor complaints.

In the case of the Vierra Dairy, the operator has identified a series of best management practices known to reduce odor emissions as discussed on page 5-37 of the DEIR. These measures, to the extent that they are not currently being implemented, would be implemented as required by the Odor Control Plan should the proposed expansion be approved. Additionally, the operator has previously installed solids separation equipment to separate liquid manure from solid manure, which in turn is composted on the project site. Both of these processes are considered to be moderately effective in reducing odor.[16,17] Additionally, the project applicant has been approved to install an anaerobic digester. Operation of the anaerobic digester is considered to be highly effective in reducing odor generation, in some cases reducing the concentration of odor-generating compounds in the digestate by an average of 80 percent.[18]

With respect to publicizing the complaint process, Mitigation Measure AQ-7a will be modified to include a description of the County's odor complaint procedures, including contact information for the County Division of Environmental Health as shown below. As required by Mitigation Measure AQ-7a, all potentially affected *residents* (including occupying tenants) will be notified of their rights to file a complaint and, as modified, an explanation of the filing process.

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[14] A review of El Dorado County ordinance (5110), Chapter 5, Section B and Yolo County Ordinance Sec. 8-2.1408.E Specific Use Requirements and Performance Standards, Buffers, indicates that the required setback between cannabis cultivation sites and sensitive land use is substantially shorter (100 to 1,500 feet vs. 0.5 miles) than those required by the Merced County Zoning Code. Additionally, the El Dorado County ordinance offers no setback protection for residential uses.

[15] For a discussion of these measures, see DEIR pages 5-36 through 5-38, in Chapter 5, *Air Quality and Odors.*

[16] The odor reduction effectiveness of each practice is indicated as "low," "moderate," or "high." A low effectiveness assumes a reduction in odor generation of less than 20%; moderate, between 20 and 50%; and high, greater than 50% relative to the base line unit.

[17] Garcia, A., Tjardes, K., Stein, H., Ullery, C., Pohl, S., Schmit, C. (Garcia et al), Undated. Recommended Strategies for Odor Control in Dairy Operations. South Dakota State University, undated. Accessed on January 25, 2024 at: https://nutrition.ansci.illinois.edu/sites/default/files/ESS803-B.pdf

[18] Cornell College of Agriculture and Life Sciences, Dairy Environmental Systems Program (Cornell), 2020. Dairy Manure Odor Perception and Management Series; Accessed on January 26, 2024 at https://cals.cornell.edu/pro-dairy/our-expertise/environmental-systems/climate-environment/odor-air-quality.

Perceived flaws by the County in not using odor management devices to identify and reduce odors

The human nose has around 400 types of scent receptors, and scientists estimate 1 trillion different odors could be detected. The sensitivity of these receptors varies from person to person; therefore, a highly offensive smell to one individual may not bother another at all. Odor perception can vary up to 1,000-fold between the least- and most-sensitive individuals. How to effectively manage odors is highly complicated by the subjective nature of describing the type and intensity of odor combined with other factors that affect a person's response to an odor including the effect and experience from any previous exposures, and any perspectives or biases that were created at that time.[17]

One method used to overcome the varying sensitivities and experiences of individuals is to empanel a group of people with a range of odor sensitivities who are trained in detecting different odor thresholds. The *detection threshold* is the concentration at which half of a human panel could identify the presence of an odor without knowing exactly what the odor was; this is the term most frequently used when discussing odor assessment results associated with livestock operations. The *recognition threshold* is the concentration at which half of a human panel could identify the actual source of the odor, for example, peppermint or ammonia.[17]

The strategy used for direct measurement methods to quantify odors, termed dilution to threshold (DT), introduces a sample of an odor with odorless air. Beginning with a large concentration of odorless air and small concentration of the odor sample, a human subject or a panel of subjects analyzes the sample mixture beginning with completely odorless air followed by stepwise increases in the concentration of the odor within the sample mixture. Values are represented as ratios of dilutions of fresh air to the threshold value. This is the method that provides the foundation used by El Dorado County Ordinance 5110/Yolo County Ordinance 8-2.1408 in establishing a maximum value of 7 DT as the upper limit of permitted cannabis odors. However, by definition, the 7 DT limit would permit odors at concentrations that would be perceived by one-half of all persons exposed to the odor.

Although the comment is correct in stating that the intensity of odors can be measured in the field by the use of olfactometers or other similar techniques, this represents only a portion of the regulatory scheme used by El Dorado or Yolo Counties. For both agencies, the use of a recognition threshold as a regulatory marker does not take into account human variability.

In contrast, Merced County's odor regulation seeks to eliminate or reduce odor generation based on the implementation of best management practices, robust setbacks between dairies and sensitive uses, encouragement to modify operations and install equipment that reduce dairy odor generation, and operation of a notification and response system to address outstanding odor complaints. No aspect of the comment indicates that the County's existing odor regulation policies are inadequate or inappropriate.

Failure to evaluate adverse health effects from exposure to dairy odors

The following text of the DEIR page 5-16, is hereby amended to add information regarding adverse health effects from exposure to dairy odors:

> ~~**Health Effects:** A literature search conducted for the EIR prepared and certified by Merced County for Revisions to the Animal Confinement Ordinance indicated that no scientific studies have validated adverse health effects from dairy odors, though they can be a source of great nuisance.~~
>
> **Health Effects:** The following information is provided by the Centers for Disease Control and Prevention, Agency for Toxic Substances and Disease Registry:
>
> Everyone reacts to odors differently. Some people are more sensitive to environmental odors than others. When more sensitive people are exposed to an odor, they may have symptoms even at a low concentration of the odor in air. In general, as concentration levels increase, more people will have symptoms. Young children, the elderly, and pregnant women may be more sensitive to odors. In general, the most common symptoms are:
>
> - Headaches
> - Eye, nose, and throat irritation
> - Cough
> - Shortness of breath
> - Heart Palpitations
> - Drowsiness
> - Nasal congestion
> - Hoarseness, sore throat
> - Chest tightness
> - Wheezing
> - Nausea
> - Mental depression
>
> In many cases, odors can make asthma, COPD, or emphysema worse. However, in general, most substances that cause odors in the outdoor air are not at levels that can cause serious injury, long-term health effects, or death.
>
> These signs and symptoms may be from other causes as well. For example, watery eyes and a stuffy nose may also be related to seasonal allergies, and depression may be the sign of other stressful events or problems.[19]

Mitigation Measures AQ-7a and AQ-7b are hereby revised to state:

> **Mitigation Measure AQ-7a:**
> The applicant has prepared an Odor Control Plan, which has been submitted to the Merced County Division of Environmental Health. The project applicant shall revise the Odor Control Plan to include all neighbors, including tenants, within the windshed and sensitive area setbacks to be provided with a point of contact for nuisance complaints at the dairy facility. The applicant shall inform all neighbors within the windshed and sensitive area setbacks of the facility of methods to contact this individual and/or the Merced County Division of Environmental Health in the event of nuisance conditions, both in English and in Spanish. The applicant shall continue to

[19] United States, Centers for Disease Control and Prevention, 2017. Division of Community Health Investigation (DCHI). Are Environmental Odors Toxic?. Accessed on January 20, 2024 at: tps://www.atsdr.cdc.gov/odors/faqs.html

implement all measures within the approved Odor Control Plan throughout the active life of the dairy. The project applicant shall provide documentation regarding the preparation and distribution of the information document to Merced County prior to herd expansion.

Mitigation Measure AQ-7b:
The applicant shall implement the nuisance control measures set forth in the Vector Control Plan in Mitigation Measure HAZ-1. The nuisance control measures include best management practices and manure management measures that would also act to control odors. The project applicant shall provide documentation of implementation of the best management practices and manure management to Merced County prior to herd expansion.

Mitigation Measure AQ-7c is hereby included to ensure that the approved digester is operational and would reduce odors:

Mitigation Measure AQ-7c:
Implement Mitigation Measure GHG-1 to ensure that the approved digester is operational and would reduce odors.

As set forth by modified Mitigation Measures AQ-7a, AQ-7b, and AQ-7c, the applicant would be required to demonstrate that the three mitigation measures had been implemented prior to the population of the dairy. Implementation of the modifications to Mitigation Measures AQ-7a, AQ-7b and the introduction of Measure AQ-7c would not change the significance conclusion of the EIR with respect to Impact AQ-7, nor would it require any measures to be implemented outside of the dairy site as assessed in the DEIR. Therefore, no further response or modification of the EIR is necessary to respond.

CEQA Guidelines Section 15088.5 requires a lead agency to recirculate an EIR for further review and comment when significant new information is added to the EIR after public notice is given of the availability of the Draft EIR but before certification of the Final EIR. New information added to an EIR is not "significant" unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect that the project proponent declines to implement. The CEQA Guidelines provide examples of when significant new information is added, such as when a new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented, or when a substantial increase in the severity of an environmental impact would result unless mitigation is adopted that reduces the impact to a level of insignificance. Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes an insignificant modification in an adequate EIR. In the case of Mitigation Measures AQ-7a, AQ-7b, and AQ-7c, the measures have been modified to be more protective of the environment than the measures set forth in the DEIR.

Because Merced County will impose this measure on the project upon approval of the Vierra Dairy Expansion, none of the conditions set forth in CEQA Guidelines Section 15088.5 are present, and no recirculation of the EIR would be necessary. The revised mitigation measure would be more effective than the previous version, and there would be no change in the

environmental conclusions presented in the DEIR as a result of this comment. Therefore, no further modification of the EIR would be necessary.

E-18 The comment states that the EIR incorrectly states that animal waste would replace synthetic fertilizer, since animal wastes cannot be applied to crops for humans.

The comment makes an unsubstantiated assertion regarding the Vierra Dairy based on the Summary Representative Monitoring Report (SRMR) generalized statement that exporting excess manure to non-dairy cropland is limited because of concerns about pathogens and food safety from using raw manure. It is well supported that "manure is a valuable source of nitrogen, phosphorus, and potassium, which can make it a substitute for, or complement to, commercial fertilizers… In addition, manure provides organic matter and carbon, which makes manure a useful soil amendment for improving soil health, measured by chemical, physical, and biological properties."[20] As provided by the Vierra Dairy operator, all mechanically separated manure is composted on-site and used for bedding; composting would continue with proposed operations. Scraped manure is typically removed from corrals twice annually in the spring and fall following harvest of crops. Solid manure is loaded directly from corrals into spreader trucks for field application. All manure that leaves the facility is handled by a contracted third party who sells the solid manure as fertilizer to a client base that uses the solid manure as a nutrient source in place of synthetic fertilizer for their farmland. There are at least six agricultural manure composting sites in Merced County that take dairy manure for processing and sale.

Composting manure addresses some of the concerns identified by the SRMR, since composting reduces manure volumes volume, kills weed seeds and pathogens, increases manure's value as a soil amendment and fertilizer, and reduces the potential for air and water pollution[21]. Some precautions must be taken when using raw manure as a fertilizer for food crops: "... raw manure cannot be applied within 120 days of harvesting a food crop that may be contaminated by soil that received raw manure."[22] There are regulations that dictate how manure can be treated if it will be used on food crops closer to harvest; these treatment processes include composting. Also, much of the surrounding cropland in the project area is feed crop for animals and is not intended for human consumption.

The comment also states that the DEIR should be revised to analyze the impacts of increased manure on both onsite and offsite N_2O emissions. Studies have found that "estimating the nutrient content of manure is difficult because manure is not biologically or chemically stable. It is a living, dynamic material and continuously undergoes transformations depending on the character of the material and the conditions under which it is collected, stored, managed and

[20] Lim, Teng, Ray Massey, Laura McCann, Timothy Canter, Seabrook Omura, Cammy Willett, Alice Roach, Nigel Key and Laura Dodson. March 2023. *Increasing the Value of Animal Manure for Farmers,* AP-109, U.S. Department of Agriculture, Economic Research Service.

[21] Modderman, C. 2019. "Composting With or Without Additives," in *Animal Manure: Production, Characteristics, Environmental Concerns and Management*, eds H.M. Waldrip, P.H. Pagliari, and Z. He, 323–44. Madison, WI, USA: American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America.

[22] Lim, et. al. 2023.

applied."[23] Practices designed to reduce emissions of one form of N may result in emissions of another form, resulting in a high level of uncertainty and inaccuracy in estimating emission levels. Because the County can't control where the manure is sold and how it is applied to cropland, and due to the complexity of soil N_2O dynamics, it would be considered speculative to assess emissions at off-site fields. Based on research completed for the Merced County ACO EIR, for new and expanding dairy operations in the County, animal wastes used as fertilizer would replace all or a portion of existing synthetic fertilizers used on existing cropland, and no feature of general best practices in the San Joaquin Valley would require the application of greater amounts of fertilizer than those currently used. Therefore, it is assumed that N_2O emissions from offsite agricultural fields would not change dramatically (DEIR page 8-13). For on-site fields, the Vierra Dairy existing and proposed crop types and acreage were used to estimate the change in GHG emissions from the project site cropland with implementation of the expansion (see Impact GHG-1 as modified in this FEIR and Appendix F-3 of the DEIR).

The above discussion is for clarification purposes only and does not alter the conclusions of Impact GHG-1 presented in the EIR. Therefore, no modification of the DEIR's evaluation of environmental effects or environmental conclusions would be necessary.

E-19 The commenter states that the direct GHG emissions analysis is incomplete, and does not account for all GHG emissions.

As set forth in CEQA Guidelines Section 15064.4(c), the lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change. Where direct quantification of emissions is not possible, they may be described qualitatively. Appendix F-3 of the DEIR explains the rationale for selecting a direct emissions approach for the proposed dairy expansion, and describes how these estimates were calculated. While the comment finds fault with various identified errors and omissions, including calculation of N_2O emissions and the need for a full life-cycle assessment, Merced County has made a "good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project" (CEQA Guidelines Section 15064.4 (a)). In its review of various modeling tools and methodologies, the County selected an emission factor system in efforts to estimate emissions that would capture both large increases in GHG emissions and large emitters of GHG emissions, and would also be appropriate for the identified significance thresholds (see DEIR pages 8-16 to 8-17 and Appendix F-4 for a discussion of the selected GHG emission thresholds specific to dairies. Appendix F-3 also includes SJVAPCD calculator emission factors, which are based on CARB California GHG Emission Inventory Data). It is understood that while there is nuance lacking in an emission factor methodology and available resources, Merced County has made a good-

[23] Kaffka, Williams, Marvinney and Smith 2022. Manure Nutrient Recovery, Removal, and Reuse on California Dairies. Stephen Kaffka, Rob Williams, Elias Marvinney, Cole Smith. October 15, 2022. Accessed on January 22, 2024 at: < https://www.cdfa.ca.gov/oefi/research/docs/cbc_manure_nutrient_report.pdf>

faith effort based on the available resources, given that "quantifying all emissions from a given farm or production system is essentially impossible and prohibitively expensive."[24]

Regarding GHG emissions from the application of manure offsite, see response to Comment E-18 above.

E-20 The commenter states that the EIR does not include GHG emissions from the approved digester.

The manure digester is not a part of the project under review in this EIR prepared for the dairy expansion project. Refer to previous response to comment E-12.

E-21 The comment states that the project conflicts with state plans and goals since it increases short lived climate pollutants.

The comment is incorrect in its statement that the project would be inconsistent with State Plans and Goals to reduce short lived climate pollutants since the project would result in an increase in methane and other GHG emissions. As described in *Impact GHG-3: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, or conflict with or obstruct a state or local plan for renewable energy or energy efficiency* (DEIR pp. 8-24 to 8-25), CARB's Climate Change Scoping Plan represents the primary plan to reduce GHG emissions and promote alternative energy use throughout California. In general, these state planning documents consider the larger trends in growth and do not assume individual projects must meet a zero-increase standard. The Scoping Plan, SB 1383, and other GHG emissions reduction, renewable energy, and energy efficiency plans and regulatory measures do not include regulatory requirements immediately applicable to the agricultural sector; rather, as a result of these plans, agencies may establish rules in the future that could apply to the proposed dairy project. There is no requirement that the proposed project emissions be reduced by the same percentage as the statewide percentage in order for the state to achieve these targets. Therefore, the proposed project's GHG emissions increases do not conflict with the Scoping Plan's provisions to meet the statewide targets. To accomplish methane reduction goals, the State is encouraging near-term actions by dairies to reduce emissions through market support and financial incentives. As described in Impact GHG-1 as modified in the FEIR Chapter 4, the Vierra Dairy already implements a number of GHG emission mitigation strategies to reduce GHG emissions, and a dairy digester has been permitted to be constructed at the site. Once constructed, the approved dairy digester would be consistent with the voluntary Scoping Plan methane mitigation strategy for dairy and livestock operations.

Since no new or modified impact is identified by the comment and no new or modified mitigation would be necessary or appropriate, no revision of the EIR would be required.

E-22 The comment states the EIR does not require feasible mitigation for impacts from GHG emissions.

[24] Rotz, A. 2018. Modeling greenhouse gas emissions from dairy farms. J. Dairy Sci. 101:6675–6690. July 01, 2018. Accessed on May 12, 2022 at: <https://doi.org/10.3168/jds.2017-13272>

Impact GHG-1 in Chapter 8, *Greenhouse Gas Emissions and Energy Use*, evaluates the impacts of GHG emissions from construction and operation of the Vierra Dairy Expansion project. Since issuance of the DEIR, a manure digester has been approved for the Vierra Dairy. See response to comment E-12 for additional details. Impact GHG-1 is hereby revised as included in FEIR Chapter 4 in order to update the EIR with this information, reorganize the discussion of GHG emission reduction measures that are currently implemented at the dairy to make it clearer for the reader, and modify mitigation measures to reflect the updated status of the approved manure digester.

The discussion for Impact GHG-1 is reorganized in the FEIR to more clearly identify the GHG emission reduction measures that are currently implemented at the dairy, and the feasibility of implementing additional measures. This section expands the explanation of how best management practices required by SJVAPCD regulations would also act to reduce methane emissions at the dairy. Additional BMPs implemented at the dairy that would reduce GHG emissions are more clearly itemized in this section. Not all measures that have been determined promising or possible but not yet feasible by CARB are included in this discussion since there are a numerous measures and Scoping Plan strategies already being implemented.

As set forth by modified Mitigation Measure GHG-1 (previously Mitigation Measure GHG-1b), the proposed herd expansion would not occur until the approved manure digester is operational to ensure the digester is online to reduce GHG emissions consistent with the Scoping Plan mitigation strategy. Implementation of this modification to Mitigation Measure GHG-1 would further reduce the significance level of the impact. The modified measure would not require any measures to be implemented outside of the dairy site as assessed in the DEIR. Therefore, no further response or modification of the EIR is necessary to respond.

For a discussion of "piecemealing", see response to comment E-12.

CEQA Guideline Section 15088.5 requires a lead agency to recirculate an EIR for further review and comment when significant new information is added to the EIR after public notice is given of the availability of the Draft EIR but before certification of the Final EIR. New information added to an EIR is not "significant" unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect that the project proponent declines to implement. The CEQA Guidelines provide examples of when significant new information is added, such as when a new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented, or when a substantial increase in the severity of an environmental impact would result unless mitigation is adopted that reduces the impact to a level of insignificance. Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes an insignificant modification in an adequate EIR.

Because Merced County will impose this measure on the project upon approval of the Vierra Dairy Expansion, none of the conditions set forth in CEQA Guidelines Section 15088.5 are present, and no recirculation of the EIR would be necessary. The revised mitigation measure would be more effective than the previous version, and there would be no change in the environmental conclusions presented in the DEIR as a result of this comment. Therefore, no further modification of the EIR would be necessary.

E-23 The comment states that the DEIR must assess mitigation measures as part of the project, and not include project alternatives as mitigation.

As set forth in response to comment E-12, a manure digester has been approved for the Vierra Dairy following issuance of the DEIR. Response to comment E-22 above details how Impact GHG-1 and associated mitigation measures have been modified to reflect the updated status of the approved manure digester. No further modification of the EIR would be necessary to respond to this comment.

E-24 The comment states that the DEIR must provide adequate mitigation measures for insects. The comment states that the EIR must include mitigation beyond requirements of the ACO.

Impact HAZ-1 in Chapter 9, *Nuisance Conditions from Insects*, evaluates the nuisance effects of flies. Refer to previous response to comment E-3, above.

E-25 The comment states that the DEIR fails to evaluate the potential environmental effects of discharging to the Merced River irrigation water, tail water, tile water, or other types of process water used at the dairy.

The comment is based upon a misunderstanding of the existing features that prevent the discharge of water from the southerly fields associated with the Vierra Dairy. Using the field identification used for DEIR Figure 3-7b, Fields Riverside 14, River 16, and Turner 12 are framed by elevated roadways that act as berms to contain irrigation and tail water within the fields. The TID canal in the vicinity of fields Turner 11 and 12 is raised above field level and bordered by roads to prevent the discharge of water into the TID canal (see photo at right). Thus, there are no complete pathways for surface water to be discharged from the fields.

The comment also states that the additional manure generated by the expanded herd would lead to additional manure placed on the dairy fields, thereby establishing another source for surface water discharge. This comment is incorrect. The rate at which manure is applied to crop fields is regulated by the RWQCB and the Merced County ACO. According to the proposed NMP prepared for the expanded dairy, there would be no significant increase in wastewater applied to the dairy cropland compared to existing conditions.

Regarding regulations establishing minimum distances between land application areas and surface water features, the County agrees that the State mandated requirements take precedence over this aspect of the County ACO. The County hereby modifies the cited

paragraph in *Impact HYD-5: Modification of surface water drainage patterns and an increase in runoff*, on DEIR page 10-38 to recognize State requirements.

> Chapters 18.64.050 E and I of the ACO require that all wastewater or stormwater that has come into contact with manure be maintained on the project site, or applied to other sites only upon written approval of the landowner. Chapter 18.64.050 G requires notification of Merced County Division of Environmental Health for any off-site discharge of wastewater. Chapter 18.64.050 BB requires application of manure at agronomic rates. Additionally, Chapter 18.64.050 O requires a separation of at least 100 feet between waste application areas and any surface water feature. However, application of manure (liquid or dry) may be closer than 100 feet to a surface water body or irrigation well if adequate protection to the surface water body or irrigation well is provided. The CVRWQCB's Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies (Order R5-2013-0122) requires a 100 foot buffer between land application areas, or if not, it requires that "a 35-foot wide vegetated buffer or physical barrier is substituted for the 100-foot setback or alternative conservation practices or field-specific conditions will provide pollutant reductions equivalent or better than the reductions achieved by the 100-foot setback. Chapter 18.64.070 M requires a separation of at least 50 feet between waste management ponds and settling basins and any public irrigation facilities, with a maintained drainage area between the two facilities. As noted in the DEH inspection, the Vierra Dairy is in substantial compliance with ACO requirements.

Based on the foregoing discussion, since there are no complete pathways beyond that associated with tile drains that potentially could lead to the discharge of surface water, there would be no change in the environmental conclusions associated with Impact HYD-5. The impact would remain less than significant, and no mitigation would be necessary. Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no additional modification of the EIR is necessary.

For additional information regarding tile drain discharges, refer to response to comment A-5 above.

E-26 The comment states that the EIR does not accurately state regulation from the CVRWQCB, and the expansion is prohibited.

Contrary to the commentor's assertion, the DEIR accurately states that the Vierra Dairy complies with the requirements of the Dairy General Order. While the CVRWQCB has not issued individual Waste Discharge Requirements (WDR) for the dairy's previous expansion, and therefore the dairy is not technically covered by the Dairy General Order, the applicant continues to implement BMPs, prepare updated NMPs and WMPs, and comply with reporting requirements designed to reduce impacts to water quality as contained in the General Order.

Merced County acknowledges that the regulation of groundwater quality and confined animal facilities such as dairies solely rests with the RWQCB. The County further encourages the RWQCB to develop a regulatory and permitting protocol to evaluate and mitigate the adverse effects of dairies and other Confined Animal Feeding Operations (CAFO) on water quality. To explain why it is infeasible to implement CVDRMP recommendations as project-level

mitigation, and to encourage the RWQCB to develop such a regulatory structure, Merced County has expanded the discussion in Impact HYD-3 and identified modified Mitigation Measures HYD-3a, and HYD-3b through HYD-3j as shown below. Implementation of HYD-3a would place the responsibility of evaluating and mitigating potential effects to groundwater and surface water quality on the CVRWQCB. HYD-3a would permit a CAFO applicant to construct structures and processes necessary to support a herd, but would prohibit the actual expansion of the herd until Individual WDRs or similar approvals are obtained from the RWQCB.

Feasibility of Implementing CVDRMP Recommendations as Project-Level Mitigation

The CVDRMP has stated that: "since adoption of the Dairy Order, a growing body of evidence has suggested that currently available and feasible agricultural technology and practices cannot be expected to eliminate discharges into groundwater from dairies, nor alter volume or character of those discharges so that they are at or below some applicable water quality objectives. Likewise, currently available and feasible technologies and practices are not expected to result in returning groundwater quality to drinking water standards in many aquifers" (CVDRMP 2019). Even with revision of the Dairy General Order, and implementation of identified efforts, the CV-SALTS technical studies have found that it is not feasible to meet nitrate Water Quality Objectives within the region within 10 years. Further still, CV-SALTS technical studies "suggested that in some areas, even if all farming was permanently stopped, it would take many decades for groundwater nitrate-N concentrations in the production aquifer to decline below the Maximum Contamination Limit of 10 mg/L" (CVRMP 2019).

The CVDRMP states that practices to reduce impacts from nitrate leaching must be implemented at all dairies represented by the CVDRMP and should not be based on monitoring well levels. This does not mean that exactly the same measures would be performed to the same degree at every dairy facility; rather, it will depend on site-specific conditions. Revision of the Dairy General Order is required to facilitate implementation of CVDRMP recommended measures across the Basin. The Basin Plan amendments (2020 Resolution R5-2020-0057) attempt to strike a balance between the need for the Central Valley to maintain the economic viability of farming while progressively improving management practices – even if those practices are not yet capable of restoring groundwater aquifers to drinking water quality. The CVDRMP recommends that the Basin Plan shift in policy should be addressed in the revised Dairy General Order, and that a staged, collaborative effort between the dairy community, various government agencies, academia and supporting industries is required to implement these changes to the dairy industry.

It is not feasible for one dairy operation in Merced County, such as the Vierra Dairy Expansion project, to develop and implement appropriate measures identified by the CVDRMP before a unified approach is adopted by the CVRWQCB. It is unlikely that any such measures could be determined effective based on the uncertainty of project-level impacts to the larger aquifer. CEQA Guidelines Section 15130(c) notes that sometimes the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a

project-by-project basis. Given the uncertainties in identifying, let alone quantifying the impact of any single project on groundwater quality, and the good-faith efforts made to reduce water quality impacts from the project through implementation of the ACO and existing General Order regulations, in accordance with CEQA Section 15130, any further feasible water quality controls would be accomplished through CVRWQCB regulations adopted in a revised Dairy General Order.

Conclusion

The proposed project as planned would be required to use Best Management Practices (BMP), and engineering and design measures consistent with existing local and state regulations. Construction of the proposed dairy facilities ~~expansion~~ is not anticipated to significantly increase the potential for impacts to groundwater quality. However, because of the elevated nitrate levels from agricultural operations in general in the Central Valley, the following Mitigation Measure HYD-3a should be implemented by the CVRWQCB. In the absence of effective regulation by the CVRWQCB as required under Mitigation Measure HYD-3a, the project applicant or any successor in interest shall implement Mitigation Measures HYD-3b through HYD-3j to reduce, but not eliminate, adverse effects. ~~The CVRWQCB should incorporate the following mitigation measures into the individual WDR permit requirements for the Vierra Dairy Expansion project.~~

Significance of Impact: Significant.

Mitigation Measure HYD-3a:
Based on the results of the CVDRMP study, the CVRWQCB should develop a revised Dairy General Order with updated standards that apply to all confined animal facilities within the Central Valley. The revised Dairy General Order should re-examine seepage rates from all areas, including but not limited to corrals, treatment ponds, and application fields; maximum permeability rates for areas that require lining to prevent groundwater degradation; and implementation of an antidegradation policy for groundwater. The revised Dairy General Order requirements would apply to the Vierra Dairy Farms Expansion project. The revised Dairy General Order, individual WDRs, or similar discretionary entitlements shall be issued by the CVRWQCB prior to the proposed expansion of the herd.

Should the CVRWQCB not develop and implement a revised General Order, or similar discretionary entitlements, then HYD-3b through HYD-j below must be implemented.

Mitigation Measure HYD-3b:
The following Best Management Practices shall be implemented as applicable:

1. Positive drainage shall be included in project design and construction to ensure that excessive ponding does not occur. The design shall comply with Title 3, Division 2, Chapter 1, Article 22, Section 646.1 of the Food and Agriculture Code for construction and maintenance of dairy or facility surroundings, corrals, and ramps, as described below.

2. Dirt or unpaved corrals, or unpaved lanes, shall not be located closer than 25 feet from the milking barn or closer than 50 feet from the milk house. Corral drainage must be provided.
3. A paved (concrete or equivalent) ramp or corral shall be provided to allow the animals to enter and leave the milking barn. This paved area shall be curbed (minimum of 6 inches high and 6 inches wide) and sloped to a drain. Cow washing areas shall be paved (concrete or equivalent) and sloped to a drain. The perimeter of the area shall be constructed in a manner that will retain the wash water to a paved drained area. Paved access shall be provided to permanent feed racks, mangers, and water troughs. Water troughs shall be provided with: (1) a drain to carry the water from the corrals; and (2) pavement (concrete or equivalent) which is at least 10 feet wide at the drinking area.
4. The cow standing platform at permanent feed racks shall be paved with concrete or equivalent for at least 10 feet back of the stanchion line.
5. As unpaved areas are cleaned, depressions tend to form, allowing ponding and increased infiltration. Regular maintenance shall include filling of depressions. Personnel shall be taught the correct use of manure collection machines (wheel loaders or elevating scrapers).

Mitigation Measure HYD-3c:
The CVRWQCB should issue interim individual WDRs or other type of discretionary permit for the proposed dairy expansion based on the CVDRMP study. The applicant shall comply with requirements of the NMP/WMP, implement CVRWQCB requirements included in the interim individual WDR for the proposed dairy expansion, and with all Merced County ACO requirements not superseded by the conditions of the individual WDR. The interim individual WDRs or similar requirements shall be issued by the CVRWQCB prior to the proposed expansion of the herd.

Mitigation Measure HYD-3d:
As set forth in the NMP, proposed application rates of liquid and/or solid manure shall not exceed agronomic rates. Nutrient samples shall be collected prior to and during applications periods to confirm agronomic rates within all portions of cropped areas receiving manure, and to protect water supplies. Soil testing frequency for nitrogen, potassium, phosphorus, and salts are described in the NMP. Modifications to the NMP may be required as outlined in the interim individual WDR for the proposed dairy expansion to be issued by the CVRWQCB.

Mitigation Measure HYD-3e:
The applicant shall comply with the permit requirements to protect surface waters and groundwater from salts in wastewater, to be issued by the CVRWQCB as set forth in Board Resolution R5-2018-0034 and Resolution R5-2020-0057 (Basin Plan Amendments implementing CVSALTS). Since the dairy is a member of the Central Valley Dairy Representative Monitoring Program, and the CVDRMP has committed to participate in the Salt Control Program on behalf of its members, the applicant is not required to take further action to comply with the Salt Control Program as of the date of this EIR, but may be required to do so in the future.

Mitigation Measure HYD-3f:
Because the Vierra Dairy is a member of a Groundwater Monitoring Coalition, no site-specific shallow groundwater monitoring system has been implemented at the Vierra Dairy. As a condition of the interim individual WDR issued for the facility, the CVRWQCB

may require shallow groundwater monitoring wells to be installed and monitored or require the facility to contribute to a regional representative groundwater monitoring system to confirm water table gradients and water quality variations. Monitoring well requirements and a monitoring schedule shall be included in the interim individual WDR issued for the facility. The resulting groundwater monitoring objectives for either the regional program or individual site shall be used to assess and mitigate groundwater impacts.

Mitigation Measure HYD-3g:
Groundwater monitoring of the on-site domestic and irrigation wells as required under the General Order shall be completed by the dairy operator. Potential future groundwater monitoring wells may be sampled as required by the interim individual WDR, or depending on the success of the regional representative monitoring program. If appropriate, surrounding properties with domestic water supply wells within 500 feet of the land application property could be considered for sampling for nitrate and E.C. at a minimum. A well monitoring schedule shall be incorporated into the interim individual WDR issued for the facility.

Mitigation Measure HYD-3h:
After project implementation and subsequent groundwater monitoring, if the dairy shows increased concentration in groundwater of constituents of concern, additional manure exportation, a reduction in herd size, or additional crop acres may be necessary to accommodate the proposed dairy expansion. A new Report of Waste Discharge (ROWD) may be required by the CVRWQCB. The ROWD shall clearly demonstrate that the herd size will not constitute a threat to groundwater quality. If necessary, the CVRWQCB shall revise the interim individual issued to the facility.

Mitigation Measure HYD-3i:
The Department of Community and Economic Development and the Division of Environmental Health shall make a final inspection of the facility prior to the commencement of expanded operations to confirm the dairy meets local and state requirements.

Mitigation Measure HYD-3j:
During construction, all soils that contain manure or process water residue shall be maintained on the project site.

~~**Mitigation Measure HYD-3k:**~~
~~Based on the results of the CVDRMP study, the CVRWQCB should develop a revised Dairy General Order with updated standards that apply to all confined animal facilities within the Central Valley. The revised Dairy General Order should re-examine seepage rates from all areas, including but not limited to corrals, treatment ponds, and application fields; maximum permeability rates for areas that require lining to prevent groundwater degradation; and implementation of an antidegradation policy for groundwater.~~

Potential Environmental Effects of Measure: Most physical improvements or activities that could result in changes to the physical environment required by this measure will be located within the project site, though some components of Mitigation Measure HYD-3g may have components that would be located outside the project site.

The impacts of implementing such measures, if any, would be similar to those identified for the project in Chapters 5-11 of this EIR, or construction of surface water protection, such as berms, or installation of well backflow protection at additional cropland locations would result in less-than-significant environmental effects.

Significance after Mitigation: Significant and Unavoidable.

As stated above, construction of the proposed dairy facilities ~~facility expansion~~ would not increase the potential for impacts to groundwater quality. Mitigation Measures HYD-3a-j reinforce ACO and General Order requirements to quantify and evaluate water quality and determine necessary measures to remediate water quality conditions as required to meet water quality standards. It includes monitoring of the effectiveness of implemented measures, and modification or addition of measures if water quality problems persist. Compliance with applicable requirements would reduce project impacts to groundwater quality. However, because of the demonstrated history of groundwater contamination as a result of animal confinement facilities, and the above-stated mitigation measures are within the responsibility and jurisdiction of other public agencies and not the County of Merced, potential impacts to groundwater quality would be significant and unavoidable.

Implementation/Monitoring: Implementation of MM HYD-3a would be the responsibility of the CVRWQCB. The timing of implementation of HYD-3a is currently unknown. Should the CVRWQCB not develop and implement a revised General Order, then HYD-3b through HYD-3j must be implemented. Implementation of these remaining measures would be the responsibility of the project applicant. The Merced County Division of Environmental Health, Department of Community and Economic Development, and the CVRWQCB shall monitor for compliance. Implementation of HYD-3b and HYD-3c shall occur prior to herd expansion and throughout ongoing operations. Implementation of HYD-3d, HYD-3f, HYD-3g, and HYD-3h shall occur throughout ongoing operations. Implementation of HYD-3e shall occur prior to final inspection or initiation of new operations, and throughout ongoing operations. Implementation of HYD-3i shall occur prior to final inspection or initiation of new operations. Implementation of HYD-3j shall occur during construction.

Implementation of the modifications to Mitigation Measure HYD-3 above would not change the significance conclusion of the EIR with respect to Impact HYD-3. Therefore, no further response or modification of the EIR is necessary to respond.

CEQA Guidelines Section 15088.5 requires a lead agency to recirculate an EIR for further review and comment when significant new information is added to the EIR after public notice is given of the availability of the Draft EIR but before certification of the Final EIR. New information added to an EIR is not "significant" unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect that the project proponent declines to implement. The CEQA Guidelines provide examples of when significant new information is added, such as when a new significant environmental impact would result from the project or from a new mitigation measure proposed to be

implemented, or when a substantial increase in the severity of an environmental impact would result unless mitigation is adopted that reduces the impact to a level of insignificance. Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes an insignificant modification in an adequate EIR. In the case of Mitigation Measures HYD-3a-j, the measures have been modified to be more protective of the environment than the measures set forth in the DEIR.

Because Merced County will impose this measure on the project upon approval of the Vierra Dairy Expansion, none of the conditions set forth in CEQA Guidelines Section 15088.5 are present, and no recirculation of the EIR would be necessary. The revised mitigation measure would be more effective than the previous version, and there would be no change in the environmental conclusions presented in the DEIR as a result of this comment. Therefore, no further modification of the EIR would be necessary.

E-27 The comment states that the EIR analysis of impacts to groundwater quality is inaccurate, and it does not analyze off-site export of manure. The comment states that dairies are miscalculating and underreporting manure nitrogen applied to crops. The comment states that excess nitrogen in the water will disproportionally impact small, rural, disadvantaged communities of color.

The DEIR *Impact HYD-8: Impacts to water quality at off-site locations as a result of project operations* (DEIR pp. 10-43 to 10-45) includes an evaluation of impacts to water quality from manure exported for application to cropland not owned by the dairy. The comment uses the generalized conclusions of the SRMR to state that the analysis is inadequate. However, while the issues the SRMR identifies may be generally true for dairy operations in the San Joaquin Valley, they do not necessarily apply to the Vierra Dairy project. Just because the commenter states the DEIR analysis is incorrect does not make it so. As provided by the applicant, all manure that leaves the Vierra Dairy facility is handled by a contracted third party who sells the solid manure as fertilizer to a client base. The client uses the solid manure as a nutrient source in place of synthetic fertilizer for their farmland. There are at least six agricultural manure composting sites in Merced County that take dairy manure for processing and sale. No liquid manure is exported from the facility. The DEIR provided mitigation measures to the extent feasible for potentially significant off-site impacts to water quality based on the regulatory framework in place. Because the County can't control where the manure is sold and how it is applied to cropland, potential impacts to groundwater quality from the off-site export of manure would be significant and unavoidable. For a discussion of mitigation measures intended to improve the regulatory framework that the SRMR determined inadequate to protect water quality, see response to comment E-26 above. See response to comment E-14 for a discussion of environmental justice.

Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no additional modification of the EIR is necessary.

E-28 The comment states that the DEIR does not include adequate mitigation for additional nitrate reaching groundwater. The comment states that the DEIR must evaluate additional mitigation, such as denitrification, increase in manured cropland, composting, and implementation of alternative manure management practices.

See response to comment E-26 above.

E-29 The comment states that the DEIR does not sufficiently evaluate groundwater use and depletion. The comment states that the EIR does not include an accurate assessment of herd drinking water and overall water use at the dairy.

Changes in water use as a result of the project and potential impacts to groundwater supplies were evaluated in DEIR *Impact HYD-4: Decrease Water Supplies*. The impact discussion is modified in Chapter 4 of this FEIR to further expand upon background information and analysis, though it does not alter the conclusions of the EIR.

The estimated drinking water for the dairy herd increase is provided in additional detail, including water use for the different cow age classes under existing and proposed operations. Language regarding changes in overall water use from drinking water, milkbarn operations, and crop irrigation has been updated to more accurately describe the increases in groundwater use and the decreases in surface water required for crop irrigation. As described in Chapter 3 of the DEIR (page 3-8), recycled water is used to clean the milk parlor floor, to flush waste from animal housing and concrete areas, and is the source of sprinkler pen water.

The Turlock Subbasin is not identified as a critically overdrafted groundwater basin. According to the Turlock GSP, irrigation return flows, including recharge of applied surface water in the western Subbasin, are the primary source of recharge to the Turlock Subbasin. This includes the Vierra Dairy crop irrigation operations potentially contributing to groundwater recharge. The West Turlock Subbasin Groundwater Sustainability Agency's (GSA) current knowledge and understanding is that it is, on average, the western area is a net recharger of the aquifer, and individual project increases such as the Vierra Dairy Expansion are not anticipated to have significant impacts to the overall groundwater basin (Cooke, Michael, TID, pers. comm. 2023). Therefore, project impacts to groundwater depletion were determined to be less than significant, and no mitigation would be required. Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no additional modification of the EIR is necessary.

For a discussion of possible impacts to nearby domestic or water supply wells, see response to comment E-31 below.

E-30 The comment states that the project conflicts with the GSP, since it would increase groundwater use.

According to consultation with a Turlock Subbasin GSA representative, individual project increases in the West Turlock Subbasin such as the Vierra Dairy Expansion are not anticipated to have significant impacts to the overall groundwater basin (Cooke, Michael, TID, pers. comm. 2023), and would not conflict with the GSP. Consistency with SGMA and the Turlock Subbasin GSP developed for the area is evaluated in Impact HYD-9 of Chapter 10, *Hydrology and Water Quality*, of the DEIR (DEIR pp. 10-44 to 10-45).

The comment states that the Turlock Subbasin GSP will implement a demand reduction strategy to reduce pumping, and the increase in groundwater use at the Vierra Dairy would conflict with this strategy. However, the GSP states it would invest in other projects to maintain water availability for agriculture before resorting to demand reduction:

> In the Turlock Subbasin, where growers are currently reliant on groundwater for agricultural beneficial uses, significant investment in projects and supplemental water will be required to continue to support the current level of agricultural production. If projects cannot meet the sustainable yield, demand reduction will need to be considered, which could negatively affect property interests in the Subbasin. (GSP p. 6-21)

Demand reduction strategies are a broad and strategic set of actions, including voluntary conservation and/or land fallowing, that would be implemented following Group 1 and Group 2 projects, depending on their effectiveness. The GSP identifies several Group 2 projects for Agricultural Water Supply Projects in the West Turlock Subbasin, including: TID On-Farm Recharge Project where parcels with the greatest recharge are identified and growers are encouraged to use surface water when available; Recycled Water from the City of Turlock where recycled water from the city of Turlock is diverted to TID conveyance system to irrigate fields; and TID Ceres Main Regulating Reservoir where a new regulating reservoir would be constructed to absorb operational fluctuations. The GSP identified projects and management actions are intended to meet the sustainability goals for the Turlock Subbasin over the 50-year planning horizon. The GSP does not state that each individual water use operation in the basin must reduce groundwater use, rather the larger groundwater recharge, conjunctive use, or reduced demand projects identified in the GSP are for the benefit of basin as a whole.

Based on consultation with the Turlock Subbasin GSA, and review of projects in the GSP, the proposed project would not conflict with the Turlock Subbasin GSP. Since no new or modified impact is identified by the comment and no new or modified mitigation would be necessary or appropriate, no revision of the EIR would be required.

E-31 The comment states that the EIR does not analyze impacts to nearby domestic wells or water systems.

The comment states that the EIR does not adequately assess impacts to groundwater supplies. This comment is addressed in comment E-29, above. The anticipated increased extraction of groundwater from the existing domestic dairy well is not likely to interfere with the production and functioning of existing nearby wells. This generally occurs when the wells are too close or there is excessive pumping and an overall lowering of the water table. First, it is not anticipated that the dairy expansion project would affect the broader groundwater basin levels or overdraft conditions (see comment E-29, above). In addition, Merced County water well standards require a minimum 300-foot setback between agricultural wells and water wells or public wells. There are no existing irrigation wells or public wells within 300 feet of the existing domestic dairy well (see Figure 3-4 and Figure 3-7a in Chapter 3, *Project Description,* of the DEIR). Therefore, the proposed project is not anticipated to impact nearby domestic wells.

There are no existing public water systems located in the immediate project vicinity. The closest public water system is the Hilmar County Water District community water system[25]

[25] Community water systems are city, county, regulated utilities, regional water systems and even small water companies where people live.

serving Hilmar, located approximately 2.6 miles to the east of the project site[26]. Since it is not anticipated that the dairy expansion project would affect the broader groundwater basin levels or overdraft conditions, and there are no existing public water systems located in the immediate project vicinity, the proposed increase in water use is not anticipated to affect nearby water systems.

Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no modification of the EIR is necessary.

E-32 The comment states that the EIR misrepresents the SGMA regulatory framework, and that the GSP would not further minimize impacts to groundwater supplies.

See response to comment E-30 for project consistency with the Turlock Subbasin GSP. Impact HYD-4 does not include the GSP as a mitigation measure as the comment suggests; rather, the DEIR states that the project would be required to comply with any applicable measures or programs of the GSP, as adopted or revised in the future. Language in Impact HYD-4 has been revised as shown in Chapter 4 in this FEIR to provide additional clarity.

Since the environmental analysis and conclusions of Impact HYD-4 presented in the DEIR would be unchanged by these modifications, no further revision to the EIR would be required.

E-33 The comment states that the EIR should include mitigation for significant impacts to groundwater levels.

See response to comments E-29 and E-30 above.

E-34 The comment states that DEIR does not analyze the cumulative impacts of the project and other ongoing dairy expansions in Merced County.

For a discussion of the adequacy of the cumulative analysis in the Vierra Dairy Expansion project DEIR, see response to comments E-4, E-5, and E-6. The potential for cumulative impacts to air quality and water resources have been fully evaluated in the DEIR and no new or additional evaluation or mitigation would be necessary. Since no new or modified impact is identified by the comment and no new or modified mitigation would be necessary or appropriate, no revision of the EIR would be required.

[26] State Water Resources Control Board, California Drinking Water System Area Boundaries. Accessed on January 10, 2024 at: https://gis.data.ca.gov/datasets/waterboards::california-drinking-water-system-area-boundaries/about

August 28, 2023

Advocates for the Environment

A non-profit public-interest law firm
and environmental advocacy organization

Tiffany Ho
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Via U.S. Mail and email to tiffany.ho@countyofmerced.com

re: Comments on Draft Environmental Impact Report on Vierra Dairy Expansion Project, SCH No. 2021100002

Dear Ms. Ho:

Advocates for the Environment writes to comment on the Draft Environmental Impact Report (**DEIR**) for the Vierra Dairy Expansion Project (**Project**). The Project Site is located in Merced County (**County**), at the intersection of Williams Avenue and Washington Road. The Project would expand the existing dairy farm, which currently houses 5,597 animals, and increase the herd by 1,520 animals. This expansion also includes converting approximately 15 cropped acres into dairy facilities. Although construction would occur within the existing acreage, there would be a huge increase in overall environmental footprint due to the dairy cows' GHG emissions. We have reviewed the DEIR released in June 2022 and submit comments regarding the sufficiency of the DEIR's Greenhouse-Gas (**GHG**) analysis under the California Environmental Quality Act (**CEQA**).

GHG Mitigation is Insufficient under CEQA

F-1

The County concluded that the Project would have significant and unavoidable GHG emissions as to the first threshold, which quantified the emissions and compared it to a numeric significance threshold. (**Impact GHG-1**). The County also adopted two more significance thresholds, whether the Project would result in a "wasteful or inefficient consumption of energy," (**Impact GHG-2**), and whether it would "[c]onflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, or conflict with or obstruct a state or local plan for renewable energy or energy efficiency." (**Impact GHG-3**). The County concluded that the Project would have a less than significant impact regarding Impact GHG-2 and Impact GHG-3, but a significant and unavoidable impact as to Impact GHG-1. Concluding significant impact for any one of these thresholds alone is sufficient for GHG impact to be significant for the Project as a whole.

To reduce the significant GHG impact, the GHG mitigation section included Greenhouse Gas Mitigation Measures (**MM GHG**) 1a and 1b. MM GHG-1a "requires implementation of all air quality provisions of the ACO and compliance with SJVAPCD Rules." (DEIR p. 2-6.) Mitigation Measure GHG-1b implements Alternative 3 and installs a manure digester.

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There is no substantial evidence that further mitigation, beyond these two measures, would be infeasible. Despite the availability of other GHG mitigation measures, the DEIR declared that the Project's quantified emissions would be unavoidable because Mitigation Measure GHG 1-a is not sufficient to reduce the Project's emissions to less-than-significant levels, and the County is "unable to control the outcome" of Mitigation Measure GHG 1-b. (DEIR p. 8-21.) Because the mitigation measures the DEIR addressed are not sufficient to reduce the project's full GHG impact and there are other readily available mitigation measures, the Project should be required to include more mitigation to reduce the Project's GHG to the extent required by CEQA. The County did not address any reason why adopting more mitigation measures would be infeasible. **F-1 cont.**

Mitigation Measure GHG-1b Violates CEQA

Mitigation Measure GHG-1b contemplates initiating Alternative 3, the Diary Digester Cluster Alternative. However, the DEIR notes that a digester would require government funding which has not yet been secured. (*See* DEIR, p. 8-21.) The lack of analysis regarding funding and feasibility of this measure ultimately constitutes an impermissibly deferred mitigation measure under CEQA because the County is failing to commit to any performance standards to achieve this mitigation measure in the future. Further, when a mitigation measure introduces its own source of environmental impact, CEQA requires the lead agency to address those impacts in the discussion of the mitigation measure. Here, as stated in the alternatives analysis, digestion systems create adverse environmental impacts of "nitrogen oxide emissions, and soil and groundwater contamination." (DEIR p. 13-10.) The DEIR should make these adverse impacts clear in the mitigation discussion if it wishes to proceed with a digester as a mitigation measure. **F-2**

Infeasibility Finding Lacks Substantial Evidence

The conclusion that the Project will not be able to achieve any mitigation beyond which was identified in MM-GHG 1 and 2 is not supported with substantial evidence. Overall, as discussed in the next section of this letter, there are abundant options available to mitigate emissions to the full extent of project emissions. The lead agency carries the burden of including an adequate discussion of feasible mitigation measures, including identifying the reasons for infeasibility, and the failure to do so here is a violation of CEQA and insufficient to meet the County burden. **F-3**

Dairy Emission Mitigation Measures Are Feasible

There are many options for mitigation measures specifically for reducing emissions in the dairy sector. Overall, enhancing animal productivity would reduce the number of animals needed to maintain the same goals that the Project has for expanding dairy production capacity of the farm. Some measures to increase animal productivity include optimizing the protein and energy content in the animal feed, improving manure collection, storage, herd-structure management strategies, reducing diseases, and improving genetic potential. **F-4**

There are also ways to reduce GHG emissions while still maintaining high production rates, such as better grassland management to store carbon in the soil, spread fertilizer at optimal times, and switch from raw to composted manures. Other ideas for mitigation measures include installing a compost-bedded pack barn, increase the pasture time of cows, implement separation technology in manure management, and enteric fermentation systems. **F-4 cont.**

These are just some measures that the County could include in the DEIR as potential mitigation strategies to reduce the Project's GHG impact.[1]

Solar Panels Are Feasible

One of the most important feasible mitigation measures is installing solar panels or otherwise incorporating renewable energy production on-site, as to be less reliant on GHG-intense fuels which power the energy system of the County. **F-5**

Offsets Are Feasible

Since there is no reason why CEQA-compliant offsets are infeasible, the conclusion presented in the DEIR that further mitigation is infeasible and therefore the impact is unavoidable, is not supported by substantial evidence. The County should require the Applicant to purchase offsets to the extent necessary to mitigate the Project's emissions, if they cannot be fully mitigated on-site. **F-6**

Inconsistency with Applicable Plans

The discussion of Impact GHG-3 was incomplete and therefore misleading. The DEIR indicated some ways in which the Project would be consistent with the California Air Resources Board (**CARB**) 2017 Scoping Plan, but it is inconsistent with the overall goals. The CARB Scoping Plan sets out statewide goals for total GHG emissions targets of 6 MTCO2e/capita by 2030, and 2 MTCO2e/capita by 2050. The Project would not be able to achieve emissions below these targets. The dairy farm anticipates adding 13 employees with this expansion. Based on the current calculation in the DEIR, the expansion would add additional annual Project-related emissions of 748.85 MTCO2e per service population.[2] This GHG efficiency metric is over 100 times the threshold of 2030, which is an applicable target because the Project would likely still be in operation at that point. And the Project needs to demonstrate consistency with applicable plans for the entire duration of the Project's lifespan, which is reasonable that it would last through 2030 and potentially into 2050. The **F-7**

[1] Strategies mentioned in this section of the comment letter were suggested measures in a report by the Food and Agriculture Report of the United Nations, "Climate Change and the Global Dairy Cattle Sector, p. 30 https://www.fao.org/3/CA2929EN/ca2929en.pdf and CARB's 2022 Scoping Plan, located at https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents.
[2] Journal of Dairy Science, p. 6677 https://www.journalofdairyscience.org/article/S0022-0302(17)31069-X/pdf
9,735 MTCO2e ÷ 13 employees = 748.85 MTCO2e/service population, rounded to the nearest tenths-place.

DEIR violates CEQA by failing to disclose that the Project is inconsistent with the CARB 2017 Scoping Plan.

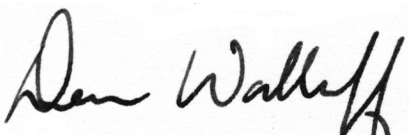
The most recent Scoping Plan, released in 2022, adopts SB 1383's dairy and livestock sector target of 40 percent below 2013 levels, roughly 9 million MMTCO2e by 2030. The 2022 Scoping Plan lays out strategies that will be necessary to achieve this 2030 target. (2022 Scoping Plan, p. 232.) The MND fails to show how the Project would be consistent with these strategies.

Conclusion

Once a lead agency has concluded that a project's GHG emissions will be significant under any individual chosen threshold, CEQA requires all feasible mitigation to counteract the GHG impact. Despite the availability of many feasible mitigation measures, the County wrongly concluded that further mitigation (beyond that which was identified in MM GHG 1a and 1b) would be infeasible. Because more mitigation measures are available, as identified in this letter, the DEIR should be amended to include mitigation measures representative of the full extent feasible. F-8

Please put me on the interest list to receive updates about the progress of this project.

Sincerely,



Dean Wallraff, Attorney at Law
Executive Director, Advocates for the Environment

Response to Letter F

Commenter Advocates for the Environment
August 28, 2023

F-1 The comment summarizes the environmental conclusions for Impacts GHG-1, GHG-2, and GHG-3, and the mitigation measures included for Impact GHG-1. The comment states that additional mitigation should be applied since the project's full GHG impact would not be reduced. The comment says the County did not address why adopting additional mitigation measures would be infeasible.

As described in Impact GHG-1 as modified in the FEIR Chapter 4, the Vierra Dairy already implements a number of GHG emission mitigation strategies to reduce GHG emissions, and a dairy digester has been approved to be constructed at the dairy site. Once constructed, the approved dairy digester would be consistent with the voluntary Scoping Plan methane mitigation strategy for dairy and livestock operations. See response to comment E-12 for additional information regarding the approved digester, and response to comment E-22 regarding implementation of feasible mitigation for impacts from GHG emissions. No further modification of the EIR would be necessary to respond to this comment.

F-2 The comment states that Mitigation Measure GHG-1b is deferred mitigation and would result in additional impacts.

Mitigation Measure GHG-1 has been revised as shown in FEIR Chapter 4 as a result of new information regarding a dairy digester. As discussed in response to comment E-12, since issuance of the DEIR, a manure digester has been approved for the Vierra Dairy. As described in response to comment E-22, Mitigation Measure GHG-1 has been modified as shown in FEIR Chapter 4 to reflect the updated status of the approved manure digester. Once constructed, the approved dairy digester would be consistent with the voluntary Scoping Plan methane mitigation strategy for dairy and livestock operations. No further modification of the EIR would be necessary to respond to this comment.

F-3 The comment states that additional mitigation should be adopted to reduce GHG emissions to the full extent of project emissions, and that the County should include adequate discussion of feasible mitigation measures.

See response to comment E-22. The discussion for Impact GHG-1 is reorganized in the FEIR to more clearly identify the GHG emission reduction measures that are currently implemented at the dairy, and the feasibility of implementing additional measures. This section expands the explanation of how best management practices required by SJVAPCD regulations would also act to reduce methane emissions at the dairy. Additional BMPs implemented at the dairy that would reduce GHG emissions are more clearly itemized in this section. Not all measures that have been determined promising or possible but not yet feasible by CARB are included in this discussion since there are a numerous measures and Scoping Plan strategies already being implemented. No further modification of the EIR would be necessary to respond to this comment.

F-4 The comment states that there are many options for mitigation measures, including enhancing animal productivity so that cow numbers can be reduced.

The comment is correct in that enhancing animal productivity reduces emissions at dairy operations. Impact GHG-1 as revised in FEIR Chapter 4 includes a discussion of applicability and feasibility of GHG emission reduction measures. The Vierra Dairy existing and proposed operations include measures to increase animal productivity, including adjusting feed rations to maximize animal productivity and feed efficiency, herd management, and cow comfort and well-being. The operations include additional emission mitigation strategies, including manure management and energy efficiency measures. See response to comment F-3 above for additional information. No further modification of the EIR would be necessary to respond to this comment.

F-5 The comment states that solar panels or other renewable energy production on-site are a feasible mitigation measure to reduce energy use and associated GHG emissions.

As described in response to comment E-22, Mitigation Measure GHG-1 has been modified as shown in FEIR Chapter 4 to reflect the updated status of the approved manure digester. While not part of the project, the approved dairy digester would produce renewable energy from the Vierra Dairy manure as biogas, which would be upgraded to biomethane for use as energy. While the project applicant has considered installing solar panels on the farm, it was determined not financially feasible. No further modification of the EIR would be necessary to respond to this comment.

F-6 The comment states that the County should require the applicant to purchase offsets to mitigate the project's emissions.

With implementation of the modified Mitigation Measure GHG-1 as shown in FEIR Chapter 4, delaying expansion of the herd until the dairy digester is operational would ensure GHG emissions would be reduced consistent with the Scoping Plan mitigation strategy, and no additional mitigation would be required. No further modification of the EIR would be necessary to respond to this comment.

F-7 The comment states that the project conflicts with statewide goals for total GHG emission per capita targets. The commenter also states that the project needs to demonstrate consistency with applicable plans for the duration of the project's lifespan.

See response to comment E-21.

Since no new or modified impact is identified by the comment and no new or modified mitigation would be necessary or appropriate, no revision of the EIR would be required.

F-8 The comment summarizes the above points and states that the DEIR should be amended to include additional mitigation measures to the full extent feasible.

Merced County acknowledges receipt of these comments from the representatives of Advocates for the Environment. The Planning Commission will consider the views expressed in these comments in their review and actions on the proposed dairy expansion. Because these comments raise no additional questions or concerns beyond the previous comments outlined above, no additional responses are necessary in this EIR. Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no modification of the EIR is necessary.

From: Sean Brophy <troutbum43@gmail.com>
Sent: Tuesday, July 11, 2023 11:10 AM
To: Ho, Tiffany <Tiffany.Ho@countyofmerced.com>
Cc: Andrea Brophy <andreahbrophy@gmail.com>
Subject: Comment regarding Notice of Availability -Vierra Dairy Expansion Project (CUP20-009) Merced County, CA

Good morning,

I submit a public comment regarding the proposed Vierra Dairy Expansion Project in Hilmar CA. The proposed project would include the construction of supporting buildings and structures, additional concrete and earthen manure drying areas, and a septic system, as well as expand the herd by 1,520 animals**.** The town of Hilmar recently failed water quality standards for nitrates, to the level that infants and pregnant women were at serious health risk and advised to not consume any amount of tap water. I think it is no coincidence, and in fact is common sense, that the repeated and long term practice of the dairies surrounding this community to spread raw manure both to evaporate and on silage corn fields followed by flood irrigation has undoubtedly caused nitrate leaching into groundwater supplies, contaminating the water supply of the entire community for the private profit of businesses. I argue that expansions of this practice should not be permitted until it can be clearly demonstrated that this practice does not cause subsurface nitrate leaching and subsequent potential for groundwater contamination. **G-1**

While important to the local economy, the activities associated with the dairies and silage fields also decreases property values and degrades already poor air quality. Expansions of operations should take into account measures to alleviate impacts to air quality of the surrounding community and homes (for example cover cropping, no till agriculture, not discing or applying herbicides to fields during winds in excess of 10mph, etc). **G-2**

Sincerely,

Sean Brophy
7874 Michelle Avenue
Hilmar, CA 95324

Response to Letter G

Commenter Sean Brophy, Hilmar resident
July 11, 2023

G-1 The comment states that the Hilmar community recently failed water quality standards for nitrates. The comment further states that the dairy expansion should not be permitted until it can be clearly demonstrated that the spreading of manure on cropped fields by dairies in the surrounding area does not cause subsurface nitrate leaching and subsequent potential for groundwater contamination.

See response to comment E-26 for a discussion of impacts to groundwater quality.

Merced County acknowledges receipt of these comments from Sean Brophy. The Planning Commission will consider the views expressed in these comments in their review and actions on the proposed dairy expansion. Because these comments raise no questions or concerns regarding the analysis in the Draft EIR, no additional responses are necessary in this EIR. Since there would be no change in the environmental conclusions presented in the DEIR as a result of this comment, no modification of the EIR is necessary.

G-2 The comment states that dairy operations decrease property values and degrade air quality. The comments states that the dairy should take into account measures to alleviate impacts to air quality, such as cover cropping, no till agriculture, not discing or applying herbicides to fields during winds in excess of 10 mph, etc.

CEQA focuses on changes in the environment caused by the project. Section 15126.2 (a) of the CEQA Guidelines states that, "the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published …" Economic changes are generally not considered as a potential indirect environmental effect by CEQA unless such changes in turn causes a physical environmental effect. Thus, the EIR does not need to evaluate potential changes in property values.

The DEIR includes an analysis of potential impacts to air quality as a result of the proposed dairy expansion in Chapter 6, *Air Quality and Odors*. The EIR includes discussion of SJVAPCD Rules and Regulations, and includes recommended measures to ensure the project applicant obtains all necessary permits from the Air District, and implements all required Best Available Control Technology (BACT) and Best Available Retrofit Control Technology (BARCT) to reduce emissions on the dairy. Specific to management of crop fields associated with the dairy, SJVACPCD Rule 4550 requires growers and animal feeding operations to implement a Conservation Management Practices plan to reduce dust emissions from land preparation and harvest activities, and unpaved roads and equipment yards. Potential amendments to Rule 4550 are in progress that would potentially result in additional emission reductions of $PM_{2.5}$ from agricultural operations.

Merced County acknowledges receipt of these comments from Hilmar resident Sean Brophy. The Planning Commission will consider the views expressed in these comments in their review and actions on the proposed dairy expansion. Because these comments raise no questions or concerns regarding the analysis in the Draft EIR, no additional responses are necessary in this EIR.

4 CHANGES TO TEXT OF THE ENVIRONMENTAL DOCUMENTS

4.1 CHANGES TO THE ENVIRONMENTAL IMPACT REPORT

Consistent with the requirements of Section 15088(d) of the State CEQA Guidelines, this section serves to set forth any substantive changes to the Environmental Impact Report (EIR) that might have occurred after publication of the Draft EIR (DEIR). Such changes update or correct misinformation or errors in the text noted by Merced County, as well as changes made in response to public and agency comment on the DEIR. Within this chapter, additions to text are indicated by underlining; deletions of text are designated by ~~strikethrough~~. The chapter and section references are ordered as they appear in the DEIR. If a DEIR chapter or section does not appear in this Chapter 4, no corrections or modifications were necessary. There would be no change in the residual significance of identified impacts with the updated information presented below, and no further modification of the EIR would be necessary. Any changes to information that would appear in the Summary Table (Table 2-1 of the DEIR) appear in the revised summary presented in Table 2-1 of this Final EIR.

The following text of the DEIR Chapter 5, *Air Quality and Odors*, Section 5.2.2, *Odors and Other Emissions*, page 5-16, is hereby amended to add information regarding adverse health effects from exposure to dairy odors. The revision below is for clarification purposes only and does not alter the conclusions of the EIR:

> ~~**Health Effects:** A literature search conducted for the EIR prepared and certified by Merced County for Revisions to the Animal Confinement Ordinance indicated that no scientific studies have validated adverse health effects from dairy odors, though they can be a source of great nuisance.~~
>
> The following information is provided by the Centers for Disease Control and Prevention, Agency for Toxic Substances and Disease Registry:
>
> Everyone reacts to odors differently. Some people are more sensitive to environmental odors than others. When more sensitive people are exposed to an odor, they may have symptoms even at a low concentration of the odor in air. In general, as concentration levels increase, more people will have symptoms. Young children, the elderly, and pregnant women may be more sensitive to odors. In general, the most common symptoms are:
>
> - Headaches
> - Eye, nose, and throat irritation
> - Cough
> - Shortness of breath
> - Heart Palpitations
> - Drowsiness
> - Nasal congestion
> - Hoarseness, sore throat
> - Chest tightness
> - Wheezing
> - Nausea
> - Mental depression

In many cases, odors can make asthma, chronic bronchitis, or emphysema worse. However, in general, most substances that cause odors in the outdoor air are not at levels that can cause serious injury, long-term health effects, or death.

These signs and symptoms may be from other causes as well. For example, watery eyes and a stuffy nose may also be related to seasonal allergies, and depression may be the sign of other stressful events or problems. (DCHI 2017)

Additional Literature Cited:

United States, Centers for Disease Control and Prevention, Division of Community Health Investigation (DCHI), 2017. Are Environmental Odors Toxic? Accessed on January 20, 2024 at: tps://www.atsdr.cdc.gov/odors/faqs.html

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The text of *Impact AQ-3: Ozone precursor emissions from dairy operations, farm equipment, and increased traffic*, in DEIR Chapter 5, *Air Quality and Odors*, Section 5.3.2, *Environmental Impacts*, page 5-25, is hereby revised to clarify the discussion of NOx emissions from soil. The environmental analysis and conclusions of Impact AQ-3 presented in the DEIR would be unchanged by these modifications. The below revision is for clarification purposes only and does not alter the conclusions of the EIR. Therefore, no further revision to the EIR would be required.

NO_X emissions from soil – Nitrogen in soil can be transformed to various N gases (NOx, nitrous oxide-N_2O, ammonia-NH_3, and nitrogen-N_2) through nitrification and denitrification by soil microorganisms. ~~Nitrous oxide emissions from cropland are a result of natural processes occurring in the soil~~. Many factors influence the emission of N gases such as soil moisture, temperature, microbial activity, aeration and organic matter content. Cropland is the dominant source of *soil* NOx emissions in California, contributing nearly 60 percent of statewide *soil* NOx emissions (Guo, L., et. al. 2020). Studies have indicated that an increase of soil NOx and N_2O emissions is primarily attributable to the increase of agricultural inputs from fertilizer and manure (Almaraz, et. al. 2018). However, there are conflicting studies regarding the magnitude of NOx emissions from soils contributing to overall NOx emissions in California, some saying that soil may be responsible for 40 percent of total California NOx emissions based on July 2018 data (Tong, et. al. 2021). Researches at ARB found that soil NOx is a relatively minor fraction of the total NOx emissions in California and has a minor effect on atmospheric concentrations of particulate nitrate in the San Joaquin Valley (ARB 2024; Guo, L., et. al. 2020). ~~Previous findings suggest that soils are a dominant source of NO_x emissions in California; however, a statewide assessment of the impacts of soil NO_x emission on air quality is still lacking. Studies have indicated that an increase of soil N_2O emissions is primarily attributable to the increase of agricultural inputs from fertilizer and manure (Almaraz, et. al. 2018).~~ Several existing farming practices could be used to reduce soil NO_X emissions from fertilized croplands, such as application of fertilizers at agronomic rates, using cover crops to absorb excess nitrogen, and efficient application methods. Many of these methods are promoted through the California Department of Food and Agriculture's Fertilizer Research and Education Program.

For the Vierra Dairy, wastewater would continue to be applied to cropland as fertilizer with the proposed dairy expansion. ~~While the overall acreage associated with dairy operations would increase from 582 acres to 770 acres, it is assumed that animal wastes used as fertilizer would replace all or a portion of existing synthetic fertilizers used on acquired cropland~~. Studies have reported a wide range of soil NOx emissions, which emphasizes the complexity of soil NOx dynamics. There are no currently adopted emission factors for NO_X emissions from the soil due to the wide number of variables, the episodic nature of N gases from soil, and lack of extensive assessment (Guo, L., et. al. 2020). To provide an estimate on the potential change in NO_X emissions from the soil as a result of the dairy expansion, this analysis uses N_2O emissions[1] from Michigan State University's US Cropland Greenhouse Gas Calculator, which accounts for different cropping systems (see Appendix F). Based on the increased crop acreage, it is estimated there would be an increase of 0.21 tons/year of N_2O emissions with the proposed project.

Additional Literature Cited for Impact AQ-3:

California, State of, Air Resources Board (CARB). 2024. NOx Emissions from California Lands. Accessed on January 11, 2024 at < https://ww2.arb.ca.gov/our-work/programs/soil-emissions-california-lands/nox-emissions-california-lands>

Guo, L, et. al. 2020. Assessment of nitrogen oxide emissions and San Joaquin Valley $PM_{2.5}$ impacts from soils in California. Journal of Geophysical Research: Atmospheres. Vol. 125, Issue 24. December 27, 2020. Guo, L; Chen, J; Luo, D; Liu, S; Lee, HJ; Motallebi, N; Fong, A; Deng, J; Rasool, QZ; Avise, JC; Kuwayama, T; Croes, BE; FitzGibbon, M. Accessed on January 11, 2024 at: <https://doi.org/10.1029/2020JD033304>

Pan, SY., He, KH., Lin, KT. et al. 2022. Addressing nitrogenous gases from croplands toward low-emission agriculture. npj Clim Atmos Sci 5, 43. Accessed on January 11, 2024 at: <https://doi.org/10.1038/s41612-022-00265-3>

Tong, et. al. 2021. Impacts of Soil NOx Emission on O_3 Air Quality in Rural California. Environ. Sci. Technol. 2021, 55, 7113−7122. Tong Sha, Xiaoyan Ma,* Huanxin Zhang, Nathan Janechek, Yanyu Wang, Yi Wang, Lorena Castro García, G. Darrel Jenerette, and Jun Wang*. Accessed on January 11, 2024 at: <https://dx.doi.org/10.1021/acs.est.0c06834>

Williams, E. J., G. L. Hutchinson, F. C. Fehsenfeld. 1992. NOx And N_2O Emissions From Soil. Global Biogeochemical Cycles. Special Section: Natural Sources of Acid Precursors, Neutralizing Compounds, and Oxidants. Volume 6, Issue 4, Pages 351-388. December 1992. Accessed on January 11, 2024 at: <https://doi.org/10.1029/92GB02124>

[1] While N_2O emissions from soil compared to NOx emissions from soil vary according to soil parameters and are not necessarily equal (Williams, E.J. et. al. 1992), one study found total emissions of N_2O and NOx from agriculture to be similar (Pan, SY., He, KH., Lin, KT. *et al. 2022).* While not perfect, this analysis uses N_2O to provide an estimate of what NOx emissions may be until a more accurate emission factor is adopted.

The text of *Impact AQ-3: Ozone precursor emissions from dairy operations, farm equipment, and increased traffic*, in DEIR Chapter 5, *Air Quality and Odors*, Section 5.3.2, *Environmental Impacts*, pages 5-26 to 5-27, is hereby revised to clarify the discussion of potential human health effects from the project's VOC and NOx emissions. The environmental conclusions of Impact AQ-3 presented in the DEIR would be unchanged by these modifications. The below revision is for clarification purposes only and does not alter the conclusions of the EIR. Therefore, no further revision to the EIR would be required.

Human Health Effects

This discussion is provided to address concerns raised in the California Supreme Court's *Sierra Club v. County of Fresno* (2018) 6 Cal. 5th decision (Friant Ranch 2018) decision regarding adequate disclosure of the potential human health effects from significant air quality impacts. The Friant Ranch decision requires projects with significant air quality impacts to "relate the expected adverse air quality impacts to likely health consequences or explain why it is not feasible at the time of drafting to provide such an analysis, so that the public may make informed decisions regarding the costs and benefits of the project."

As described in the Environmental Setting of this chapter, exposure to criteria pollutant emissions can cause human health effects (see Table 5-3). Health effects associated with ozone include respiratory symptoms, worsening of lung disease leading to premature death, and damage to lung tissue. Potential health effects vary depending primarily on the pollutant type, the concentration of pollutants during exposure, and the duration of exposure. Air pollution does not affect every individual in the population in the same way, and some groups are more sensitive than others to adverse health effects. However, using the SJVAPCD emissions threshold is not amenable to determining project level assessments of human health effects. Air districts have focused on reducing regional emissions from all sectors to meet the health-based concentration standards, thereby reducing the pollutant specific health impacts for the entire population. As set forth above, the SJVAPCD has prepared plans to attain and maintain the ozone and particulate matter ambient air quality standards. These attainment plans include emissions inventories, air monitoring data, control measures, modeling, future pollutant-level estimates, and general health information. Attainment planning models rely on regional inputs to determine ozone and particulate matter formation and concentrations in a regional context, not a project specific context. For an analysis of the potential for localized health impacts, see Impacts AQ-5 and AQ-6 regarding hazardous air pollutants and health risk.

In their amicus briefs on the Friant Ranch case, the South Coast Air Quality Management District and SJVAPCD staff determined[2] that it is not feasible with existing modeling techniques to correlate a project's impacts related to VOC, NO_x, and PM emissions to quantifiable health impacts. As described in the introduction to this chapter, ROG/VOC and NO_X are precursors to ozone, increased concentrations of which can cause health effects generally associated with reduced lung function. The amicus briefs also note that ozone formation is not linearly related to VOC and NO_x emissions. The contribution of VOCs and NO_X to a region's ambient ozone concentrations is the result of complex photochemistry. Because of the reaction time involved, peak ozone concentrations often

[2] Brief for San Joaquin Valley Unified Air Pollution Control District as Amicus Curiae Supporting Respondents, Sierra Club, Revive the San Joaquin, and League of Women Voters Fresno v. County of Fresno and Friant Ranch, L.P. (2018), 6 Cal.5th 502, Case No. S219783.

occur far downwind of the precursor emissions. Therefore, ozone is a regional pollutant that often affects large areas. In other words, because of the complexity of ozone formation, the pounds or tons of emissions from a proposed project in a specific geographical location does not equate to a specific concentration of ozone formation in a given area, because in addition to emission levels, ozone formation is affected by atmospheric chemistry, geography, and weather. Because air district attainment plans and supporting air model tools are regional in nature, they do not allow for analysis of the health impacts of specific projects on any given geographic location.

In contrast to attainment models, CalEEMod, one of the models used for this CEQA air quality analysis, is designed to calculate and disclose the mass emissions expected from the construction and operation of the proposed dairy expansion project (tons/year). The estimated emissions are then compared to SJVAPCD significance thresholds, which are in turn keyed to reducing emissions to levels that will not interfere with the region's ability to attain the Federal and State ambient air quality standards. This protects public health in the overall region, but there is currently no methodology to determine the impact of emissions on concentration levels in specific geographic areas in the San Joaquin Valley. The SJVAPCD currently does not have a methodology that would provide Lead Agencies and CEQA practitioners with a consistent, reliable, and meaningful analysis to correlate specific health impacts that may result from a proposed project's mass emissions (SJVAPCD 2023). While the Sacramento Metropolitan Air Quality Management District (SMAQMD) has developed guidance to address the Friant Ranch Ruling for CEQA projects in the Sac Metro Air District (SMAQMD 2020), even with conservative factors built in, the models' outputs indicate low overall health effects. The modeling results support a conclusion that any one proposed project in the SMAQMD Five-Air-District Region with emissions at or below the maximum threshold levels would not on its own lead to sizeable health effects. Since the proposed project is under the jurisdiction of the SJVAPCD, given existing constraints, the analysis of direct health impacts due to criteria air pollutant emissions from the proposed dairy expansion is not yet feasible and will remain a qualitative discussion.

As stated above, the proposed dairy expansion project would result in an increase in VOC emissions of 8.71 tons/year over existing operations, which would not exceed the SJVAPCD significance threshold of 10 tons/year. In order to provide some context on project emissions compared to emissions in the SJVAB, the daily emissions due to project operations were compared to the total daily emissions of VOC in the air basin. The estimated increase in ROG emissions of up to 8.71 tons/year, or approximately 0.024 tons per day due to the proposed project would be a relatively small fraction of the estimated 1,032 tons per day in the SJVAB in 2022.[3] By emitting ROG emissions below significance thresholds, it is unlikely that the project would contribute to more days of ozone exceedances or meaningfully contribute to air emissions that are unhealthy for sensitive groups and other populations. Further, it is unlikely that anyone would experience greater impacts from regional emissions than currently occur.

[3] California Air Resources Board, CEPAM 2016-Standard Emission Tool. Accessed December 14, 2023 at: <https://www.arb.ca.gov/app/emsinv/fcemssumcat/fcemssumcat2016.php>

Summary
The proposed dairy expansion project would result in an increase of VOC emissions that would not exceed the SJVAPCD significance thresholds. While the Air Basin is in nonattainment for both federal and state ozone standards, and VOCs and NO_X are ozone precursors, the expanded operations of the proposed dairy are not predicted to exceed SJVAPCD significance thresholds, and this would be considered a less-than-significant impact.

Significance of Impact: Less than significant.

Mitigation Measure AQ-3: None required.

The following text of Mitigation Measure AQ-7 of the DEIR Chapter 5, *Air Quality and Odors*, Section 5.3.2, *Environmental Impacts*, page 5-38, is hereby amended to make the measure more effective at reducing potential impacts from dairy odors. Implementation of the modifications to Mitigation Measures AQ-7a, AQ-7b and the introduction of Measure AQ-7c below would not change the significance conclusion of the EIR with respect to Impact AQ-7, nor would it require any measures to be implemented outside of the dairy site as assessed in the DEIR. Therefore, no further response or modification of the EIR is necessary.

Mitigation Measure AQ-7a:
The applicant has prepared an Odor Control Plan, which has been submitted to the Merced County Division of Environmental Health. The project applicant shall revise the Odor Control Plan to include all neighbors, <u>including tenants,</u> within the windshed and sensitive area setbacks to be provided with a point of contact for nuisance complaints at the dairy facility. The applicant shall inform all neighbors within the windshed and sensitive area setbacks of the facility of methods to contact this individual <u>and/or the Merced County Division of Environmental Health</u> in the event of nuisance conditions, both in English and in Spanish. The applicant shall continue to implement all measures within the approved Odor Control Plan throughout the active life of the dairy. <u>The project applicant shall provide documentation regarding the preparation and distribution of the information document to Merced County prior to herd expansion.</u>

Mitigation Measure AQ-7b:
The applicant shall implement the nuisance control measures set forth in the Vector Control Plan in Mitigation Measure HAZ-1<u>a</u>. The nuisance control measures include best management practices and manure management measures that would also act to control odors. <u>The project applicant shall provide documentation of implementation of the best management practices and manure management to Merced County prior to herd expansion.</u>

<u>Mitigation Measure AQ-7c:</u>
<u>Implement Mitigation Measure GHG-1 to ensure that the approved digester is operational and would reduce odors</u>.

The text of *Impact BIO-4: Impacts to the San Joaquin kit fox and/or American badger,* in DEIR Chapter 6, *Biological Resources*, Section 6.3.2, *Environmental Impacts*, page 6-18 to 6-19, Mitigation Measure BIO-4 is hereby revised to remove outdated contact information and make minor corrections. The environmental analysis and conclusions of Impact BIO-4 presented in the DEIR would be unchanged by these modifications.

Mitigation Measure BIO-4:

1. Project-related vehicles should observe a daytime speed limit of 20-mph throughout the site in all project areas, except on county roads and state and federal highways; this is particularly important at night when kit foxes are most active. Night-time operations should be minimized to the extent possible. However, if it does occur, then the speed limit should be reduced to 10-mph. Off-road traffic outside of designated project areas should be prohibited.
2. To prevent inadvertent entrapment of San Joaquin kit foxes or other animals, all excavated, steep-walled holes or trenches more than two feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured San Joaquin kit fox is discovered, USFWS and CDFW shall be contacted ~~as noted under Measure 13 referenced below~~.
3. San Joaquin kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All pipes, culverts, or similar structures with a diameter of four-inches or greater that are stored at the site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a San Joaquin kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from the project site.
5. No firearms shall be allowed on the project site.
6. If any San Joaquin kit fox or American badger, or their sign, are detected on site, dogs and cats shall be kept off the project site to prevent harassment, mortality of San Joaquin kit foxes or American badgers, and/or destruction of their dens.

7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of San Joaquin kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other state and federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.
8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a San Joaquin kit fox or who finds a dead, injured or entrapped San Joaquin kit fox. The representative will be identified during the employee education program and their name and telephone number shall be provided to the Service.
9. An employee education program should be conducted for any project that has anticipated impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and/or agency personnel involved in the project. The program should include the following: A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the project site.
10. Upon completion of the project, all areas subject to temporary ground disturbance, including storage and staging areas, temporary roads, pipeline corridors, etc. should be recontoured if necessary, and revegetated to promote restoration of area to pre-project conditions.
11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for guidance.
12. Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFW immediately in the case of a dead, injured or entrapped kit fox. ~~The CDFW contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or Mr. Paul Hoffman, the wildlife biologist at (530) 934-9309. The USFWS should be contacted at the numbers below.~~
13. The Sacramento Fish and Wildlife Office and CDFW shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. ~~The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact is Mr. Paul Hoffman at 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670, (530) 934-9309.~~

14. New sightings of San Joaquin kit fox shall be reported to the CNDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the USFWS at the address below.
15. Any project-related information required by the USFWS or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at: Endangered Species Division, 2800 Cottage Way, Suite W2605, Sacramento, California, 95825-1846~~, (916) 414-6620 or (916) 414-6600~~.

The text of *Impact GHG-1: Greenhouse gas emissions from project construction and operation*, in DEIR Chapter 8, *Greenhouse Gas Emissions and Energy Use*, Section 8.3.2, *Environmental Impacts*, page 8-17 to 8-22, is hereby revised to update the EIR with information regarding the approved digester, reorganize the discussion of GHG emission reduction measures that are currently implemented at the dairy to make it clearer for the reader, and modify mitigation measures to reflect the updated status of the approved manure digester. Implementation of this modification to Mitigation Measure GHG-1 would further reduce the significance level of the impact. The modified measure would not require any measures to be implemented outside of the dairy site as assessed in the DEIR. Therefore, no further response or modification of the EIR is necessary.

Impact GHG-1: Greenhouse gas emissions from project construction and operation (Criterion VIII.a)

Construction and operation of the Vierra Dairy Expansion project would result in greenhouse gas emissions from direct and indirect sources. Because the proposed project would exceed established significance thresholds for GHG emissions, this would be a significant impact.

Construction activities associated with the Vierra Dairy Expansion project would result in short-term CO_2 emissions, a greenhouse gas. Construction-related emissions were calculated using CalEEMod Version 2020.4.0 (see Appendix G, *Health Risk Assessment and Ambient Air Quality Analysis* for construction modeling results). GHG emissions from site preparation and facilities construction for the proposed project would result in maximum annual emissions of approximately 307 metric tons of CO_2e over two years (see Table 8-1).

Table 8-1 Construction Related Greenhouse Gas Emissions

Construction Year	Greenhouse Gas Emissions (metric tons/year of CO_2e)
2022 Emissions [(1)]	307
2023 Emissions	224
Maximum Annual Emissions	**307**

Notes: Calculations completed in May 2022. CO_2e = carbon dioxide equivalents.

1 See CalEEMod calculation assumptions in Appendix A of the Health Risk Assessment and Ambient Air Quality Analysis included as Appendix G of this EIR. Construction would include 481,360 square feet of new structures.

Source: Trinity Consultants 2023, Planning Partners 2023.

Greenhouse gases associated with operations of confined animal and agricultural activities include methane, nitrous oxide, ozone, and carbon dioxide. Several sources of these greenhouse gases are associated with animal confinement facilities: animal metabolic activity and animal housing; manure decomposition in waste deposits, treatment and storage areas, and field applied manure; on-field cultivation; fuel consumption; electricity use; and feed cultivation and transport.

Milk production is the commercial dairy operation's single largest source of GHG emissions, at approximately 59 percent of total emissions. On the dairy farm, the most significant source of greenhouse gas emissions is the dairy cow: estimates of 35-80 percent (mean 50 percent) of GHG emissions are due to methane from enteric fermentation. Growing feed, both on dairies and crop farms, is milk's second most GHG-intensive process (Wightman 2008). The primary sources of these emissions include the production of commercial fertilizer, fuel use in machinery, and on-field production of nitrous oxide due to nitrification and denitrification of nitrogen (both chemical and organic) (Innovation Center 2008). Approximately 9-53 percent (mean 30 percent) of GHG emissions are from nitrous oxide emissions (manure management and nitrous fertilizers), and 16 percent of GHG emissions are from carbon dioxide coming from tractors, trucks, and electricity production (IDF 2009).

~~The digestibility of feed has a strong effect on the GHG emissions per pound of milk product; a 10 percent increase in feed digestibility in an intensively managed[4] system can reduce GHG emissions by approximately 10 percent (FAO 2010). In practice, however, the quality of the feed is interrelated with milk production and growth, so looking at the combined effect of changes in feed quality, milk production, and growth is more realistic. If an increase in milk production by 10 percent is assumed, parallel to the increased digestibility, the GHG emissions are reduced by 15.4 percent. In the situation where the growth rate is also increased, the GHG emissions are further reduced (FAO 2010). Today, many producers already reduce enteric methane emissions by maximizing feed efficiency and increasing production per cow. Despite the considerable methane emissions mitigation potential of enteric strategies like feed additives, little progress has been made, as few products with proven mitigation potential have become commercially available (CARB 2022).~~

~~The use of dairy manure digesters is often discussed as a method of reducing methane emissions from manure because it has been recognized as the most effective means of reducing animal-related emissions, which represent the most significant source of dairy-related GHG emissions. CDFA has awarded a total of $195 million for 117 dairy digester projects from 2015 through 2021. There are approximately 417 anaerobic digester systems in operation or under construction at commercial dairy farms in the United States, with 137 located in California (database updated August 24, 2022) (EPA 2022a). As set forth in Chapter 13, *Alternatives Analysis*, of this EIR, Alternatives 2 and 3 evaluate the environmental effects of the proposed project as modified to include a digester.~~

~~For an evaluation of electricity use and energy efficiency on the proposed Vierra Dairy Expansion project, please refer to Impact GHG-2.~~

~~Studies have shown that the use of best management practices, rather than the size or location of the dairy farm, makes the biggest difference in reducing GHG emissions (Paustian et. al. 2006). No provisions of the ACO or SJVAPCD regulations directly address methane or CO_2 emissions, but Chapter 18.64.050 U of the ACO applies to air emissions in general (see Appendix C). Because the decomposition of manure is one source of methane emissions, measures to comply with ROG limitations required by Chapter 18.64.050 U of the Merced County Code and a SJVAPCD Permit to Operate would also reduce methane emissions~~.

For a calculation of emissions from the dairy farm, this analysis considers emissions from on-site operations, including animal and manure management, vehicle sources, emissions from cropping activities, and secondary emissions from energy use on the farm. GHG emissions were estimated using available emission factors and basic calculator models. Based on the SJVAPCD dairy calculator (dated January 2020), GHG emissions from the herd would increase from 24,794 to 34,189 metric tons of CO_2 equivalents per year (see Appendix F-3). Additional GHG emissions resulting from increased on-site operations including mobile source emissions from truck trips and dairy operational equipment (such as the feed loader) is estimated at 123 metric tons CO_2e (see CalEEMod data in Appendix F). While there would be no direct emissions of GHG from energy use, increased electricity use for operations would result in secondary GHG emissions. Based on monthly energy use provided by the project applicant and emission factors provided by the EPA, secondary GHG emissions from electricity use would results in an increase of approximately 163 metric tons CO_2e per year over existing operations (see Appendix F-3 for GHG emission calculations from electricity use). GHG emissions from agricultural activities on project site cropland is estimated to result in an increase of 58 metric tons CO_2e annually. See Table 8-2 for a summary of increased GHG emissions as a result of the dairy expansion project.

Table 8-2 Greenhouse Gas Emissions from the Vierra Dairy Expansion – Increased Emissions from Animals and Manure Management, Vehicle Trips, Electricity Use, and Cropland

Increased Herd GHG Emissions (metric tons CO_2e/yr)	Increased On-Site Operations GHG Emissions (metric tons CO_2e/yr)	Increased Electricity Use GHG Emissions (metric tons CO_2e/yr)	Increased Farming GHG Emissions (metric tons CO_2e/yr)	Total Increment of Increased GHG Emissions (metric tons CO_2e/yr)
9,395	123	163	58	**9,739**

Notes: See Appendix F-3 of this EIR for calculations.

(1) GHG emissions from the expanded herd were estimated using the SJVAPCD dairy emissions calculator dated January 2020.

(2) GHG emissions from increased vehicle trips and on-site operations were estimated using CalEEMod Version 2020.4.0.

(3) Electricity use was based on information provided by the project applicant and extrapolated for the expanded herd, and converted to GHG emissions using eGRID emission rates for California (https://www.epa.gov/egrid).

(4) GHG emissions from agricultural activities was estimated using Michigan State University's US Cropland Greenhouse Gas Calculator.

Source: Planning Partners 2023.

Based on the estimates included in Table 8-2, the dairy expansion would result in an overall increase of 9,739 metric tons CO_2e per year from existing operations, which is less than the 10,000 t/y CO_2e significance threshold. However, the estimated net emissions of 34,189 metric tons CO_2e per year for the herd would qualify as a major source of greenhouse gas

emissions as established by the EIR significance threshold of 25,000 t/y CO_2e. The proposed expansion would house a total of 4,720 mature dairy cows, which is greater than the minimum average annual animal population of 3,200 mature dairy cows (not including calves and heifers) identified by the EPA greenhouse gas mandatory reporting regulation[5,6]. Since both the existing and proposed dairy herd would meet or exceed 3,200 mature cows as identified by the EPA as a major source threshold, this would be a significant impact.

Applicability and Feasibility of GHG Emission Reduction Measures

Studies have shown that the use of best management practices, rather than the size or location of the dairy farm, makes the biggest difference in reducing GHG emissions (Paustian et. al. 2006). No provisions of the ACO or SJVAPCD regulations directly address methane or CO_2 emissions, but Chapter 18.64.050 U of the ACO applies to air emissions in general (see Appendix C). Because the decomposition of manure is one source of methane emissions, manure management measures to comply with ROG limitations required by Chapter 18.64.050 U of the Merced County Code and a SJVAPCD Permit to Operate would also reduce methane emissions. Examples of management practice type mitigation measures are feed manipulation, frequent scraping of animal housing, and covering of silage piles (as outlined in Appendix D of the EIR).

Many water quality and soil health Best Management Practices (BMP) commonly used on a dairy farm are also good GHG emission reduction practices. The Vierra Dairy operations include the following GHG emission mitigation strategies to reduce GHG emissions from enteric methane, manure management, and energy sources as identified by the CARB and other resource papers:

Enteric Methane	Manure Management	Energy
✓ Diet management	✓ Anaerobic digestion	✓ LED lighting
✓ Herd management	✓ Composting	✓ Milk pre-cooling technology
✓ Cow comfort and well-being	✓ Solid separation and storage	✓ Variable speed pumps
	✓ Nutrient and water recovery	Renewable energy from solar
	✓ Renewable fertilizers	

Composting and solid separation and storage practices result in a relatively significant methane reduction from manure (EPA 2023c), and would continue to implemented at the Vierra Dairy with the proposed expansion.

The digestibility of feed has a strong effect on the GHG emissions per pound of milk product; a 10 percent increase in feed digestibility in an intensively managed[7] system can reduce GHG emissions by approximately 10 percent (FAO 2010). In practice, however, the

[5] The Rule applies to livestock facilities with manure management systems, but does not require reporting of emissions of methane via enteric fermentation or land application of manure, which are included in proposed project calculations. However, the project cropland acts as a carbon sink and results in a reduction in net emissions.

[6] While the EPA is currently not implementing subpart JJ, Manure Management of the Mandatory GHG Reporting Rule, and dairies that appear to fall under this rule do not currently need to report, it is recommended that these dairy operators maintain records on their manure management systems in accordance with the Rule should they be requested for data in the future.

quality of the feed is interrelated with milk production and growth, so looking at the combined effect of changes in feed quality, milk production, and growth is more realistic. If an increase in milk production by 10 percent is assumed, parallel to the increased digestibility, the GHG emissions are reduced by 15.4 percent. In the situation where the growth rate is also increased, the GHG emissions are further reduced (FAO 2010). Today, many producers, including the Vierra Dairy, already reduce enteric methane emissions by maximizing feed efficiency and increasing production per cow. Herd health and breeding practices also increase production, which reduces GHG emissions. Feed additives are an additional methodology for enteric emission reductions that are promising but have made limited progress in overcoming both technical or market barriers; no feed additives with demonstrated long-term methane mitigation potential have been approved by the U.S. Food and Drug Administration and are commercially available, though there may be in the near future (CARB 2022a).

For an evaluation of electricity use and energy efficiency on the proposed Vierra Dairy Expansion project, please refer to Impact GHG-2.

At this time, there is no adopted methodology specifically for mitigating GHG emissions for a dairy operation either locally or through the SJVAPCD. Further, as described in the regulatory setting above, the Legislature has determined that GHG emissions reductions from dairies statewide will remain voluntary, ~~through 2023~~ though one of the 2022 Scoping Plan strategies includes consideration of regulation development for methane mitigation strategies beyond complimentary incentives for dairy and livestock operations in order to meet 2030 GHG emission targets. As set forth by CARB the recent *Analysis of Progress toward Achieving the 2030 Dairy and Livestock Sector Methane Emissions Target* (March 2022), while the dairy and livestock sector has made significant progress, it must still achieve considerable methane emissions reductions to meet the 2030 target of 40 percent below 2013 levels. The report identifies two primary methods for reducing manure methane emissions, including installation of an anaerobic digester and alternative manure management practices. Alternative manure management practices have been difficult to move forward, since resultant emissions reductions are inconsistent across the same project types and difficult to quantify. Even so, several manure management strategies are used at the Vierra Dairy, as shown above.

The use of dairy manure digesters is often discussed as a method of reducing methane emissions from manure because it has been recognized as the most effective means of reducing animal-related emissions, which represent the most significant source of dairy-related GHG emissions. Due to the high cost of operations, incentives are needed for California's dairy sector to adopt these methane reduction strategies (CARB 2022a). CDFA has awarded a total of $195 million for 117 dairy digester projects from 2015 through 2021.

Since issuance of the Draft EIR in June 2023, Merced County received a permit application for the construction of an anaerobic manure digester on the project site to the north of the existing wastewater retention pond. The Merced County General Plan policy AQ-1.12 supports dairy digester permit streamlining and encourages staff to permit digesters using on-farm feedstocks with a staff-level Plot Plan Review. The digester project was approved on December 19, 2023. The digester would store manure from the Vierra Dairy in order to capture the biogas for delivery to pipeline associated with the Hilmar Biogas Cluster Project.

In addition to generating renewable energy, anaerobic digestion leads to reduced odor pollution, a decrease in manure pathogens, and reduced greenhouse gas emissions. The installation of manure digesters to reduce methane emissions is included as a voluntary strategy for the agricultural sector in the CARB Scoping Plan. Once constructed, the approved dairy digester would be consistent with the voluntary Scoping Plan methane mitigation strategy for dairy and livestock operations. As set forth in Chapter 13, *Alternatives Analysis*, of the DEIR, Alternative 3 evaluates the environmental effects of the proposed project with the addition of an anaerobic digester as part of a dairy digester cluster.

Should additional Best Management Practices for the reduction of GHGs from dairy operations be adopted, the Vierra Dairy Expansion would likely be required to meet those standards, as adopted by the State, SJVAPCD, or County.

The proposed project would exceed 3,200-mature cows and established significance thresholds for GHG emissions even after the continued implantation of best management practices. However, a previously approved dairy digester is planned to be constructed to serve the Vierra Dairy. Following construction of the digester, GHG emissions would be reduced consistent with Scoping Plan methane mitigation strategies. To ensure the digester is operational at the Vierra Dairy Expansion project, the following measure would be required.

Significance of Impact: Significant.

Mitigation Measure GHG-1:
The proposed herd expansion shall not occur until the approved manure digester is operational and captured biogas can be sent via pipeline to the central processing plant, and injected into the existing natural gas transmission line. Once operational, the dairy operator shall use the digester to store manure from the existing and proposed herd in order to capture methane for energy use to displace fossil fuel use and reduce GHG emissions from the dairy. The project sponsor shall provide documentation of use of the dairy digester to Merced County prior to herd expansion.

Potential Environmental Effects of Measures: All physical improvements or activities that could result in changes to the physical environment required by this measure would be located within the project area. The impacts of implementing such measures, if any, would be similar to those identified for the project in Chapters 5-11 of this EIR.

Significance after Mitigation: Project implementation of ACO and SJVAPCD Rules would reduce methane emissions. Delaying expansion of the herd until the dairy digester is operational would ensure GHG emissions would be reduced consistent with the Scoping Plan mitigation strategy, and this would be a less-than-significant impact after mitigation.

Implementation and Monitoring: Implementation of these measures would be the responsibility of the project applicant. The Merced County Community and Economic Development Department shall monitor for compliance. Mitigation Measure GHG-1 shall be implemented prior to expansion of the herd.

Mitigation Measure GHG-1a:
Implement Mitigation Measure AQ-3a, which requires implementation of all air quality provisions of the ACO and compliance with SJVAPCD Rules, several of which would also act to reduce methane emissions.

Mitigation Measure GHG-1b:
The installation of manure digesters to reduce methane emissions is included as a voluntary strategy for the agricultural sector in the CARB Scoping Plan. Because project emissions have been evaluated to exceed GHG significance thresholds of 25,000 t/y CO_2e, prior to the issuance of a building permit, the project sponsor shall complete a good faith effort to obtain funding in order to install a manure digester on the project site as set forth in Alternative 3, in Chapter 13, *Alternatives Analysis*, of this EIR. The project sponsor shall provide documentation of application to obtain financial assistance for the dairy digester to Merced County prior to issuance of a building permit.

Should adequate funding assistance be provided, and the digester is installed as set forth in Alternative 3, the applicant shall use the digester and the captured methane for energy use to displace fossil fuel use and reduce GHG emissions from the dairy. Implementation of this measure is contingent upon adequate state or other government funding and technological and economic feasibility in accordance with SB 1383.

Potential Environmental Effects of Measures: On-site facilities necessary to comply with the above measures would be constructed within the overall facility footprint of the Vierra Dairy Expansion site as assessed in Chapters 5-11 of this EIR. The impacts of implementing such measures, if any, would be similar to those identified for the project in Chapters 5-11 of this EIR, and as discussed under Alternative 3, in Chapter 13, *Alternatives Analysis*.

Significance after Mitigation: Significant and Unavoidable.

Even after imposition of the identified mitigation measures, this would be a significant and unavoidable impact for the following reasons: the measures required by the above Mitigation Measure GHG-1a would not be sufficient to reduce project GHG emissions below the threshold of significance; the dairy digester cited in Mitigation Measure GHG-1b may be considered financially infeasible without financial assistance, and even if the project applicant applied for funding assistance, funds may not be awarded. Further, installation of the dairy digester still may not reduce project GHG emissions below the threshold of significance. The ultimate success of implementing Mitigation Measure GHG-1b is contingent on a favorable award of financial incentives to construct the digester; however, Merced County is unable to control the outcome of the financial award and construction of the digester, and hence the effectiveness, of the measure.

CEQA Guidelines Section 15130(c) states that with some projects, the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis. Global climate change is considered a cumulative impact, since the causes and effects are not just regional or statewide, but also worldwide. While this analysis uses a numeric threshold to assist in determining significance pursuant to CEQA, given the uncertainties in quantifying the impact of any single project on global warming and climate change, and also the

~~uncertainties in quantifying GHG reduction from project design and BMPs, any further feasible emissions reductions would be accomplished through CARB regulations adopted pursuant to AB 32.~~

~~**Implementation and Monitoring:** Implementation of these measures would be the responsibility of the project applicant. The Merced County Community and Economic Development Department shall monitor for compliance. Mitigation Measure GHG-1a shall be implemented prior to final inspection or prior to initiation of new operations and throughout ongoing operations. Mitigation Measure GHG-1b shall be implemented prior to issuance of a building permit and throughout ongoing operations.~~

The text of Mitigation Measure HAZ-1 in *Impact HAZ-1: Increased fly production and related nuisance effects*, of DEIR Chapter 9, *Nuisance Conditions from Insects*, Section 9.3.2, *Environmental Impacts*, page 9-10, is hereby amended to make the measure more effective at reducing potential impacts from nuisance insects. Implementation of this modification to Mitigation Measure HAZ-1 would not change the significance conclusion of the EIR with respect to Impact HAZ-1, nor would it require any measures to be implemented outside of the dairy site as assessed in the DEIR. Therefore, no further response or modification of the EIR is necessary to respond.

Mitigation Measure HAZ-1a:
The applicant has prepared a Vector Control Plan to meet the requirements of the Animal Confinement Ordinance Chapter 18.64.060(C)(8), which has been submitted to the Merced County Division of Environmental Health. The applicant shall continue to implement all measures within the approved Vector Control Plan throughout the active life of the dairy.

Mitigation Measure HAZ-1b:
The applicant shall implement the odor control measures set forth in the Odor Control Plan in Mitigation Measure AQ-7a. The odor control measures include best management practices and manure management measures that would also act to control nuisance insects, and also provides a point of contact for nuisance complaints at the dairy facility, both in English and in Spanish.

The following text of the DEIR Chapter 10, *Hydrology and Water Quality*, Section 10.1.2, *California Laws and Regulations*, subsection *Central Valley Salinity Alternatives for Long Term Sustainability and Nitrate Control Program*, page 10-8, is hereby revised to include reference to 2020 Basin Plan amendment in CVRWQCB R5-2020-0057 and additional information regarding the Nitrate Control Program. The addition of background information would simply expand upon the regulatory setting and would not lead to any change in the determination of level of significance for any environmental conclusions within the EIR.

CENTRAL VALLEY SALINITY ALTERNATIVES FOR LONG TERM SUSTAINABILITY AND NITRATE CONTROL PROGRAM

In 2018, the CVRWQCB adopted Basin Plan amendments (Resolution R5-2018-0034) (and as amended in the 2020 Resolution R5-2020-0057) that established valley-wide Salt and Nitrate Control Programs. Central Valley Salinity Alternatives for Long Term Sustainability (CV-SALTS) is a collaborative stakeholder driven and management effort to develop sustainable salinity and nitrate management planning. The long-term solutions for managing salt in the Central Valley will be developed and implemented through a phased Salt Control Program. The three phases of the Salt Control Program include: (1) Complete a comprehensive study and analysis to define long-term salt management actions, beginning in 2021 over 10 to 15 years; (2) Complete design and permitting of projects identified in Phase 1; and (3) Construct projects to manage salts. The program approach is intended to protect beneficial uses by maintaining water quality that meets applicable objectives, allow some salt accumulation in areas where salt can be stored without impairing beneficial uses of water, and through long-term management, restore water quality where reasonable, feasible, and practicable. In 2020 and 2021, initiatives were made through the IRLP coalitions, the CVDRMP, and private WDR holders to fund the 20-year salinity study. The CVDRMP is paying the fee for participation in the CV-SALTS Salt Control Program on behalf of its members.

Nitrate in parts of the Modesto and Turlock groundwater basins is often found above drinking water standards. Residences who rely on private domestic wells or small private water systems as their source of drinking water are the focus of the Nitrate Control Program (NCP) to address this potential health threat. To streamline resources while addressing nitrate management issues, groundwater basins in the Central Valley have been grouped into three categories for nitrate management. The highest priority areas with the most affected drinking water supplies were addressed first. These Priority 1 areas are located in these Basins or Subbasins: Chowchilla, Kaweah, Kings, Modesto, Tule, and Turlock.

NCP collaboratives were developed in Merced County within the 2020 Priority 1 subbasins (Turlock and Chowchilla). The collaboratives were charged with developing and implementing action plans to provide safe drinking water, reducing nitrate impacts, and restoring groundwater quality. This program will require facilities that discharge nitrates at levels that are causing exceedances of drinking water standards (including most dairies) to upgrade their facilities and/or waste management practices over a timeframe that may extend as long as 35 years. While upgrades are being developed and implemented, facilities responsible for adverse nitrate impacts are required to supply impacted communities with replacement drinking water. Facilities such as dairies may comply with the Nitrate Control Program individually or may elect to participate in Management Zones, which are collectives of permitees that collaborate on enhancing water quality management practices while providing affected communities replacement drinking water. Regulatory requirements under the Nitrate Control Program are triggered by the issuance of a Notice to Comply, which was sent in May 2020 for Priority 1 areas. The Vierra Dairy is located in the Priority Area 1 Turlock Management Zone, which is included in the Valley Water Collaborative (VWC), a non-profit organization established to organize and operate the proposed Modesto and Turlock Management Zones. The VWC is responsible for the implementation of the Early Action Plan within the Turlock Subbasin. The EAP Implementation began in May 2021, and

Management Zone Implementation Plans for Modesto and Turlock Management Zones were submitted in September 2023.

Based on Central Valley Regional Water Quality Control Board comments on the DEIR, Appendix I *Hydrogeologic Assessment Summary for CEQA*, is hereby replaced with a revised report (Revised January 2024) as attached to this chapter. As a result of the revised report, minor modifications to the EIR are required. Portions of Section 10.2.3, *Hydrogeology*, of Chapter 10, *Hydrology and Water Quality,* page 10-16 to 10-17 are hereby revised to include updates from the appendix. The revisions below are for clarification purposes only and do not alter the conclusions of the EIR.

SITE SPECIFIC HYDROGEOLOGY

Groundwater flow in the Turlock Subbasin in the project vicinity is generally to the west across the basin, towards the San Joaquin River. In general, groundwater depths are shallowest near the San Joaquin River, and increase away from the river as surface elevation increases. Data from the GSP indicates regional groundwater flow contours have been influenced because of weak groundwater depressions north of the site. The impact on water levels from localized pumping centers are minimized due to the near surface groundwater presence and resulting use of an extensive surface drainage system. The proximity of both the Merced and San Joaquin Rivers and TID drainage laterals have influenced groundwater elevations at the Vierra Dairy. Due to the presence of near surface, semi-continuous clay layers, perched groundwater conditions also exist near surface depths.

The localized hydrogeologic cross-sections depict the extremely variable interbedded nature of the subsurface sediments (see Appendix I Figures 3 and 4). The hydrogeologic cross-sections were composed of 15 DWR well logs that were selected from a collection of over 50 individual DWR well logs in proximity to the facility. Three Vierra owned DWR well logs were used in the cross-sections. Water supply wells in the area generally have depths of less than 200 feet, which confirms the shallow unconfined aquifer nature above the Corcoran Clay. As shown on the DWR well log, one on-site well is installed to a depth of 360 feet with perforations from 60 to 300 feet bgs (see Appendix I). Due to the presence of near surface, semi-continuous clay layers, perched groundwater conditions may exist near surface depths. The close proximity of both the Merced and San Joaquin Rivers and drainage laterals have influenced groundwater elevations at the Vierra Dairy.

Area knowledge and DWR hydrographs indicate that groundwater may exist within saturated sand units found less than 25 feet bgs. First encountered groundwater is anticipated to be found in shallow and unconfined aquifers (Western Upper Principal Aquifer) and within laterally extensive sands units or as isolated perched units. DWR hydrographs for nearby wells show 13 feet and 4 feet of change. Seasonal groundwater fluctuations range approximately 5 feet for the TID well. These minor variations in groundwater from measurement to measurement are likely due to pump use during or immediately prior to the measurement.

Of the dairies included in the CVDRMP representative monitoring program, there are two in the general vicinity of the Vierra Dairy: one located approximately two miles to the east and one located approximately two miles to the southwest (see Appendix I of this EIR for more information). As included in the Year 10 (2021) RMP report, the dairy to the east has seven monitoring wells that have been sampled over the 10-year monitoring period. Groundwater levels have remained stable over the monitoring period. The dairy to the southwest has nine monitoring wells that have been sampled over the 10-year monitoring period. Due to the close proximity to the river, groundwater levels have had some variability during the monitoring period. While not necessarily representative of the Vierra Dairy conditions, the data from these dairy monitoring wells give some insight as to what may be occurring in the area of the Dairy.

Project area groundwater beneficial use is for domestic and irrigation purposes. The land uses in the surrounding area are primarily irrigated agriculture and confined animal facilities, with numerous dairies in the nearby vicinity. Six domestic wells and two irrigation wells are located in the area of active dairy facilities and associated cropland, with additional domestic wells located on adjacent project site cropland parcels. Similar to existing conditions, the proposed project would use both surface water from the Turlock Irrigation District and groundwater from the existing irrigation wells for irrigation needs.

4.1.1 EXISTING WATER QUALITY

The Turlock Subbasin GSP states that Nitrate as N in the western portion of the subbasin (where the Vierra Dairy is located) has significant variability, with elevated values in the western most portion of the subbasin. As described above, there are two dairies included in the CVDRMP representative monitoring program in the general vicinity of the Vierra Dairy: one located approximately two miles to the east and one located approximately two miles to the southwest (see Appendix I of this EIR for more information). The Year 10 (2021) RMP report found the water quality at the dairy to the east (seven monitoring wells sampled) showed nitrate ranges from 35 to 120 mg/L over the 10-year monitoring period. The dairy to the southwest (nine monitoring wells) showed nitrate ranges from non-detect to 120 mg/L over the 10-year monitoring period. While not necessarily representative of the Vierra Dairy conditions, the data from these dairy monitoring wells gives some insight as to what may be occurring in the area.

Water quality data collected as required by the General Order for Existing Milk Cow Dairies for the existing domestic and irrigation water wells for the project site was available for 2011 and 2018 through 2022. Concentration of nitrate as nitrogen ranged from 0.969 to 163 mg/L, with fifteen of fifty-one measurements detections reported above the California Title 22 Primary Maximum Contaminant Limit (MCL) of 10 mg/L. Electrical Conductance (EC)[8] ranged from 0.7 to 2.21 mmhos/cm, with forty-five of fifty-one measurements above the Title 22 Secondary MCL of 0.9 mmhos/cm. There were only two wells in 2022 that exceeded Nitrate exceedances. Nitrate concentrations are variable but have decreased over

[8] The reason that the conductivity of water is important is because it can tell you how much dissolved substances, chemicals, and minerals are present in the water.

time. For a complete table of all water quality parameters tested, see Table 1 in Appendix I of this EIR.

The following text of Mitigation Measures HYD-2a and HYD-2b of the DEIR Chapter 10, *Hydrology and Water Quality*, Section 10.3.2, *Environmental Impacts*, page 10-29, is hereby amended to make the measure more effective at reducing potential impacts to surface waters. Implementation of the modifications to Mitigation Measures HYD-2a and HYD-2b below would not change the significance conclusion of the EIR with respect to Impact HYD-2, nor would it require any measures to be implemented outside of the dairy site as assessed in the DEIR. Therefore, no further modification of the EIR is necessary.

Mitigation Measure HYD-2a:
Prior to the commencement of operations or expansion of the herd at the proposed dairy facilities, the applicant shall provide to the County a written agreement with the Turlock Irrigation District to complete annual water quality testing of the Vierra Subsurface Drain at Lateral 7 and Faith Home Road. The applicant shall complete water testing at the tile drain outfall for the same parameters required for the project site domestic and irrigation wells under the Dairy General Order. The applicant shall submit testing results to TID and to the CVRWQCB as part of the Annual Report required in accordance with the Dairy General Order.

Mitigation Measure HYD-2b:
~~Implement Mitigation Measure HYD-3j, which states that the CVRWQCB should develop a revised Dairy General Order with updated standards~~. If testing results required by Mitigation Measure HYD-2a do not meet state or federal standards for discharge to surface waters, the applicant shall prepare an Operational Plan to improve drain water quality. The Plan shall contain drainage water management techniques as appropriate, including water quality measurements of tile drain water to be discharged to TID canals and background canal water at the time of discharge. Measurements shall be no less than semi-annually. The Plan shall be submitted to TID for approval. Once approved, the Plan shall be implemented, and the resulting water quality measurements shall be reported in the dairy's Annual Report to TID and the CVRWQCB in accordance with the Dairy General Order.

The following text of *Impact HYD-3: Groundwater contamination from expanded dairy project operations* and Mitigation Measure HYD-3 of the DEIR Chapter 10, *Hydrology and Water Quality*, Section 10.3.2, *Environmental Impacts*, page 10-33 to 10-35, is hereby amended to explain why it is infeasible to implement CVDRMP recommendations as project-level mitigation, and to make the measure more effective at reducing potential impacts to groundwater. Implementation of the modifications to Mitigation Measure HYD-3 below would not change the significance conclusion of the EIR with respect to Impact HYD-3. Therefore, no further modification of the EIR is necessary.

Feasibility of Implementing CVDRMP Recommendations as Project-Level Mitigation

The CVDRMP has stated that: "since adoption of the Dairy Order, a growing body of evidence has suggested that currently available and feasible agricultural technology and practices cannot be expected to eliminate discharges into groundwater from dairies, nor alter volume or character of those discharges so that they are at or below some applicable water quality objectives. Likewise, currently available and feasible technologies and practices are not expected to result in returning groundwater quality to drinking water standards in many aquifers" (CVRMP 2019). Even with revision of the Dairy General Order, and implementation of identified efforts, the CV-SALTS technical studies have found that it is not feasible to meet nitrate Water Quality Objectives within the region within 10 years. Further still, CV-SALTS technical studies "suggested that in some areas, even if all farming was permanently stopped, it would take many decades for groundwater nitrate-N concentrations in the production aquifer to decline below the Maximum Contamination Limit of 10 mg/L" (CVRMP 2019).

The CVDRMP states that practices to reduce impacts from nitrate leaching must be implemented at all dairies represented by the CVDRMP and should not be based on monitoring well levels. This does not mean that exactly the same measures would be performed to the same degree at every dairy facility; rather, it will depend on site-specific conditions. Revision of the Dairy General Order is required to facilitate implementation of CVDRMP recommended measures across the Basin. The Basin Plan amendments (2020 Resolution R5-2020-0057) attempt to strike a balance between the need for the Central Valley to maintain the economic viability of farming while progressively improving management practices – even if those practices are not yet capable of restoring groundwater aquifers to drinking water quality. The CVDRMP recommends that the Basin Plan shift in policy should be addressed in the revised Dairy General Order, and that a staged, collaborative effort between the dairy community, various government agencies, academia and supporting industries is required to implement these changes to the dairy industry.

It is not feasible for one dairy operation in Merced County, such as the Vierra Dairy Expansion project, to develop and implement appropriate measures identified by the CVDRMP before a unified approach is adopted by the CVRWQCB. It is unlikely that any such measures could be determined effective based on the uncertainty of project-level impacts to the larger aquifer. CEQA Guidelines Section 15130(c) notes that sometimes the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis. Given the uncertainties in identifying, let alone quantifying the impact of any single project on groundwater quality, and the good-faith efforts made to reduce water quality impacts from the project through implementation of the ACO and existing General Order regulations, in accordance with CEQA Section 15130, any further feasible water quality controls would be accomplished through CVRWQCB regulations adopted in a revised Dairy General Order.

Conclusion

The proposed project as planned would be required to use BMPs, and engineering, and design measures consistent with existing local and state regulations. Construction of the proposed dairy facilities ~~expansion~~ is not anticipated to significantly increase the potential for

impacts to groundwater quality. However, because of the elevated nitrate levels from agricultural operations in general in the Central Valley, the following Mitigation Measure HYD-3a should be implemented by the CVRWQCB. In the absence of effective regulation by the CVRWQCB as required under Mitigation Measure HYD-3a, the project applicant or any successor in interest shall implement Mitigation Measures HYD-3b through HYD-3j to reduce, but not eliminate, adverse effects. ~~The CVRWQCB should incorporate the following mitigation measures into the individual WDR permit requirements for the Vierra Dairy Expansion project.~~

Significance of Impact: Significant.

Mitigation Measure HYD-3a:
Based on the results of the CVDRMP study, the CVRWQCB should develop a revised Dairy General Order, or similar regulation, with updated standards that apply to all confined animal facilities within the Central Valley. The revised Dairy General Order should re-examine seepage rates from all areas, including but not limited to corrals, treatment ponds, and application fields; maximum permeability rates for areas that require lining to prevent groundwater degradation; and implementation of an antidegradation policy for groundwater. The revised Dairy General Order requirements would apply to the Vierra Dairy Farms Expansion project. The revised Dairy General Order, individual WDRs, or similar discretionary entitlements shall be issued by the CVRWQCB prior to the proposed expansion of the herd.

Should the CVRWQCB not develop and implement a revised General Order, or similar discretionary entitlements, then HYD-3b through HYD-3j below must be implemented.

Mitigation Measure HYD-3b:
The following Best Management Practices shall be implemented as applicable:

1. Positive drainage shall be included in project design and construction to ensure that excessive ponding does not occur. The design shall comply with Title 3, Division 2, Chapter 1, Article 22, Section 646.1 of the Food and Agriculture Code for construction and maintenance of dairy or facility surroundings, corrals, and ramps, as described below.
2. Dirt or unpaved corrals, or unpaved lanes, shall not be located closer than 25 feet from the milking barn or closer than 50 feet from the milk house. Corral drainage must be provided.
3. A paved (concrete or equivalent) ramp or corral shall be provided to allow the animals to enter and leave the milking barn. This paved area shall be curbed (minimum of 6 inches high and 6 inches wide) and sloped to a drain. Cow washing areas shall be paved (concrete or equivalent) and sloped to a drain. The perimeter of the area shall be constructed in a manner that will retain the wash water to a paved drained area. Paved access shall be provided to permanent feed racks, mangers, and water troughs. Water troughs shall be provided with: (1) a drain to carry the water from the corrals; and (2) pavement (concrete or equivalent) which is at least 10 feet wide at the drinking area.
4. The cow standing platform at permanent feed racks shall be paved with concrete or equivalent for at least 10 feet back of the stanchion line.

5. As unpaved areas are cleaned, depressions tend to form, allowing ponding and increased infiltration. Regular maintenance shall include filling of depressions. Personnel shall be taught the correct use of manure collection machines (wheel loaders or elevating scrapers).

Mitigation Measure HYD-3c:
The CVRWQCB should issue interim individual WDRs or other type of discretionary permit for the proposed dairy expansion based on the CVDRMP study. The applicant shall comply with requirements of the NMP/WMP, implement CVRWQCB requirements included in the interim individual WDR for the proposed dairy expansion, and with all Merced County ACO requirements not superseded by the conditions of the individual WDR. The interim individual WDRs or similar requirements shall be issued by the CVRWQCB prior to the proposed expansion of the herd.

Mitigation Measure HYD-3d:
As set forth in the NMP, proposed application rates of liquid and/or solid manure shall not exceed agronomic rates. Nutrient samples shall be collected prior to and during applications periods to confirm agronomic rates within all portions of cropped areas receiving manure, and to protect water supplies. Soil testing frequency for nitrogen, potassium, phosphorus, and salts are described in the NMP. Modifications to the NMP may be required as outlined in the interim individual WDR for the proposed dairy expansion to be issued by the CVRWQCB.

Mitigation Measure HYD-3e:
The applicant shall comply with the permit requirements to protect surface waters and groundwater from salts in wastewater, to be issued by the CVRWQCB as set forth in Board Resolution R5-2018-0034 and Resolution R5-2020-0057 (Basin Plan Amendments implementing CV-SALTS). Since the dairy is a member of the Central Valley Dairy Representative Monitoring Program, and the CVDRMP has committed to participate in the Salt Control Program on behalf of its members, the applicant is not required to take further action to comply with the Salt Control Program as of the date of this EIR, but may be required to do so in the future.

Mitigation Measure HYD-3f:
Because the Vierra Dairy is a member of a Groundwater Monitoring Coalition, no site-specific shallow groundwater monitoring system has been implemented at the Vierra Dairy. As a condition of the interim individual WDR issued for the facility, the CVRWQCB may require shallow groundwater monitoring wells to be installed and monitored or require the facility to contribute to a regional representative groundwater monitoring system to confirm water table gradients and water quality variations. Monitoring well requirements and a monitoring schedule shall be included in the interim individual WDR issued for the facility. The resulting groundwater monitoring objectives for either the regional program or individual site shall be used to assess and mitigate groundwater impacts.

Mitigation Measure HYD-3g:
Groundwater monitoring of the on-site domestic and irrigation wells as required under the General Order shall be completed by the dairy operator. Potential future groundwater monitoring wells may be sampled as required by the interim individual WDR, or depending

on the success of the regional representative monitoring program. If appropriate, surrounding properties with domestic water supply wells within 500 feet of the land application property could be considered for sampling for nitrate and E.C. at a minimum. A well monitoring schedule shall be incorporated into the interim individual WDR issued for the facility.

Mitigation Measure HYD-3h:
After project implementation and subsequent groundwater monitoring, if the dairy shows increased concentration in groundwater of constituents of concern, additional manure exportation, a reduction in herd size, or additional crop acres may be necessary to accommodate the proposed dairy expansion. A new Report of Waste Discharge (ROWD) may be required by the CVRWQCB. The ROWD shall clearly demonstrate that the herd size will not constitute a threat to groundwater quality. If necessary, the CVRWQCB shall revise the interim individual issued to the facility.

Mitigation Measure HYD-3i:
The Department of Community and Economic Development and the Division of Environmental Health shall make a final inspection of the facility prior to the commencement of expanded operations to confirm the dairy meets local and state requirements.

Mitigation Measure HYD-3j:
During construction, all soils that contain manure or process water residue shall be maintained on the project site.

~~**Mitigation Measure HYD-3k:**~~
~~Based on the results of the CVDRMP study, the CVRWQCB should develop a revised Dairy General Order with updated standards that apply to all confined animal facilities within the Central Valley. The revised Dairy General Order should re-examine seepage rates from all areas, including but not limited to corrals, treatment ponds, and application fields; maximum permeability rates for areas that require lining to prevent groundwater degradation; and implementation of an antidegradation policy for groundwater.~~

Potential Environmental Effects of Measure: Most physical improvements or activities that could result in changes to the physical environment required by this measure will be located within the project site, though some components of Mitigation Measure HYD-3g may have components that would be located outside the project site. The impacts of implementing such measures, if any, would be similar to those identified for the project in Chapters 5-11 of this EIR, or construction of surface water protection, such as berms, or installation of well backflow protection at additional cropland locations would result in less-than-significant environmental effects.

Significance after Mitigation: Significant and Unavoidable.

As stated above, construction of the proposed dairy facilities ~~facility expansion~~ would not increase the potential for impacts to groundwater quality. Mitigation Measures HYD-3a-j reinforce ACO and General Order requirements to quantify and evaluate water quality and determine necessary measures to remediate water quality conditions as required to meet

water quality standards. It includes monitoring of the effectiveness of implemented measures, and modification or addition of measures if water quality problems persist. Compliance with applicable requirements would reduce project impacts to groundwater quality. However, because of the demonstrated history of groundwater contamination as a result of animal confinement facilities, and the above-stated mitigation measures are within the responsibility and jurisdiction of other public agencies and not the County of Merced, potential impacts to groundwater quality would be significant and unavoidable.

Implementation/Monitoring: Implementation of MM HYD-3a would be the responsibility of the CVRWQCB. The timing of implementation of HYD-3a is currently unknown. Should the CVRWQCB not develop and implement a revised General Order, then HYD-3b through HYD-3j must be implemented. Implementation of these remaining measures would be the responsibility of the project applicant. The Merced County Division of Environmental Health, Department of Community and Economic Development, and the CVRWQCB shall monitor for compliance. Implementation of HYD-3b and HYD-3c shall occur prior to herd expansion and throughout ongoing operations. Implementation of HYD-3d, HYD-3f, HYD-3g, and HYD-3h shall occur throughout ongoing operations. Implementation of HYD-3e shall occur prior to final inspection or initiation of new operations, and throughout ongoing operations. Implementation of HYD-3i shall occur prior to final inspection or initiation of new operations. Implementation of HYD-3j shall occur during construction.

The following text of *Impact HYD-4: Decrease groundwater supplies* of the DEIR Chapter 10, *Hydrology and Water Quality*, Section 10.3.2, *Environmental Impacts*, page 10-36 to 10-38, is hereby amended to clarify changes in water use as a result of the project and potential impacts to groundwater supplies. The environmental conclusions of Impact HYD-4 presented in the DEIR would be unchanged by these modifications. The below revision is for clarification purposes only and does not alter the conclusions of the EIR. Therefore, no further revision to the EIR would be required.

Impact HYD-4: Decrease groundwater supplies (Criterion X.b)

Implementation of the proposed project may result in the decrease of groundwater supplies since there would be a small increase in groundwater use with the proposed dairy expansion. However, because the majority of the water would be used for irrigation and would contribute to groundwater recharge, this would be a less-than-significant impact.

According to the GSP, groundwater elevations in the Western Upper Principal Aquifer (the area of the Vierra Dairy) have been relatively stable during the GSP study period, with declines during the recent drought of less than 15 feet, followed by water level recovery (TSGSA 2022). Irrigation return flows, including recharge of applied surface water in the western Subbasin, are the primary source of recharge to the Turlock Subbasin (TSGSA 2022). Overall, the western portion of the subbasin is considered an area of net recharge, primarily from TID surface water supply (Cooke, Michael, TID, *pers. comm.* 2023).

Dairy cows require large amounts of water daily. While 10 to 20 percent of the daily water requirements come from feed, lactating cows require anywhere from 18 to 40 gallons of drinking water per day, depending on the type of feed, as higher levels of water intake would be required for an all-hay ration. Severe water restriction can have a marked impact on productivity and feeding behavior of the herd. For the Vierra Dairy, drinking water for the dairy herd would continue to be derived from groundwater. Based on the proposed increase in 1,520 milk cows, and using an average estimated water consumption, there would be an estimated associated increase of 44,080 gallons/day of drinking water required over existing conditions, or approximately 16 million gallons annually (Kononoff, J. and J. Clark 2017) (see Table 10-1). ~~there would be an estimated associated increase of 27,360 gallons/day of drinking water required over existing conditions, or approximately 10 million gallons annually~~

Table 10-1 Estimated Drinking Water Requirements for the Herd for the Vierra Dairy Expansion

Livestock Class	Water Requirements (gallons/day)			Existing Herd	Estimated Water Consumption (gallons/day)	Proposed Herd	Estimated Water Consumption (gallons/day)
	(min)	*(max)*	*(ave)*		*(ave)*		*(ave)*
Milk Cows	18.0	40.0	29	2,650	76,850	4,170	120,930
Dry Cows	9.0	13.0	11	550	6,050	550	6,050
Bred Heifers (15-24 mo.)	5.9	9.6	7.75	797	6,177	797	6,177
Heifers (7-14 mo.)	3.8	4.6	4.2	800	3,360	800	3,360
Calves (4-6 mo.)	3.0	3.5	3.25	400	1,300	400	1,300
Calves (0-3 mo.)	1.3	2.8	2.05	400	820	400	820
Total					*94,557*		*138,637*
					Gallons/Day		**Gallons/Year**
Increment of Increase					**44,080 (ave)**		**16,089,200 (ave)**

Notes: min = minimum; max = maximum; ave = average

Source: Kononoff, J. and J. Clark 2017; Planning Partners 2023.

There is a significant amount of water used in the milking cycle. Water use in the milk parlor generally includes washing cow udders before milking, using sprinklers to keep cows cool in order to enhance milk production, cleaning holding pens and parlor areas, and washing milk lines and equipment. These actions are repeated with each milking cycle. There are several options for dairy farms to improve water use efficiency and conservation, depending on the farm operations and overall needs. By maintaining clean stalls and alleys and practicing good bedding management, the animals are cleaner and the need for udder rinsing is reduced. Additional best management practices in the milk parlor can include regular inspections of water hoses, scraping manure from the parlor floors before spraying, and using recycled water from the plate coolers or from the pipeline wash in the milk house (Castillo and Burrow 2008; Holmes and Struss 2009).

Currently, the process wastewater generated from daily water use from the milkhouse equipment and floor wash at the Vierra Dairy is 19.9 million gallons annually[9]. With the proposed expansion, process wastewater generated would increase to 23.1 million gallons annually due to an increase in plate cooler water and other reusable water. This water is sourced from the domestic dairy groundwater well at the milk barn. While there would be an increase of approximately 3.2 million gallons annually in process wastewater[10] generated and overall groundwater use at the milkbarn, the increased volume of diluted process wastewater would be used for continued irrigation of dairy cropland[11]. Therefore, the increase in water use at the dairy production area would result in a minor offset in irrigation deliveries at the cropland. Using the existing 66 million gallons and proposed 79 million gallons of wastewater from the ponds annually, the total irrigation demand provided from wastewater from the milkbarn would increase from 6.6 percent to 10.7 percent of total water volume with the proposed dairy expansion, not accounting for pond evaporation and evapotranspiration. ~~In other words, the total irrigation demand provided from wastewater would increase from 6.6 percent to 7.9 percent of total water volume to with the proposed dairy expansion.~~

The Vierra Dairy Expansion would continue to rely on surface water (from TID canals), groundwater, and wastewater recycling for irrigation. No new irrigation wells are proposed as part of the dairy expansion project. For the proposed dairy expansion, the applicant purchased additional cropland to be used for wastewater and manure application. With implementation of the proposed dairy expansion, the overall acreage for the land application area would increase from 582 acres to 770 acres. However, the cropped acres within recently acquired fields are currently irrigated and would continue to be irrigated, and these acres were not included in project calculations for change in irrigation water use. Therefore, this analysis considers the change in the existing 582 acres of cropland currently irrigated, which would decrease by approximately 15 to 567 acres under proposed conditions. With the proposed changes in cropping patterns as detailed above, the estimated crop water demand would decrease from 1.0023 to billion gallons to 739 million gallons of water annually, or a decrease of approximately 263.3 million gallons annually. ~~With the proposed changes in cropping patterns as detailed above, the estimated crop water demand would increase from 1.0023 to 1.0036 billion gallons of water annually, or an increase of approximately 1.3 million gallons annually.~~

Considering the increased groundwater use for drinking water (16 million gallons per year) and at the milkbarn (increase of 3.2 million gallons per year), there would be a potential overall increase in groundwater extraction of 19.3 million gallons per year at the milkbarn. On the other hand, the proposed project would result in a decrease in water required for irrigating cropland (decrease of 263.3 million gallons per year).Therefore, while the proposed dairy expansion would result in an overall increase in groundwater extraction per year, there would be a decrease in water required for irrigating cropland, and the 3.2 million gallons of

9 Animal wastes from animal barns and other concrete-surfaced areas are flushed with recycled water to the on-site waste management system, and recycled water is used to clean the milk parlor floor and is the source of sprinkler pen water.

10 This includes process water from the milkbarn and manure and bedding, rainfall runoff into ponds, and direct rainfall onto ponds.

11 As noted above, the proposed nutrient application rates meet required agronomic rates of 1.4 or less for best management farming practice mandated by the CVRWQCB.

increased process wastewater available would be used for continued irrigation of dairy cropland and would contribute to groundwater recharge via irrigation percolation.

~~Considering the increased groundwater use for drinking water (10 million gallons per year) and at the milkbarn (increase of 3.2 million gallons per year), there would be an overall increase in groundwater extraction of 13.2 million gallons per year at the milkbarn. While the proposed project would result in an increase in water required for irrigating cropland (increase of 1.3 million gallons per year), there would be an increase in process wastewater[19] generated with the proposed dairy expansion and sent to the pond (13 million gallons per year) as outlined above, and then mixed with irrigation water and applied to cropland. Therefore, while the proposed dairy expansion would result in an overall increase in groundwater extraction of 13.2 million gallons per year, the 13 million gallons of increased process wastewater available would be used for continued irrigation of dairy cropland[20] and would contribute to groundwater recharge via irrigation percolation~~.

The Turlock Subbasin is identified by the California Department of Water Resources as a high priority groundwater basin. While not in a condition of critical overdraft, the subbasin is experiencing declining groundwater levels over the long term. The Sustainable Groundwater Management Act (SGMA) of 2014 (as amended) allows customized groundwater sustainability plans (GSP) to be designed by groundwater sustainability agencies (GSA) to manage groundwater resources while being sensitive to local economic and environmental needs. The goal of SGMA is to have sustainably managed groundwater within 20 years of the initial GSP submittal and maintain sustainability for a 50-year planning and implementation horizon.

The Turlock Subbasin Groundwater Sustainability Plan was adopted in January 2022 and submitted to the California DWR. While the public comment period ended in April 2022, DWR has through the end of 2024 to review the Plan. The Turlock subbasin is not a critically overdrafted subbasin as defined by the DWR. The WTS GSA's current knowledge and understanding is that it is, on average, the western area is a net recharger of the aquifer, and individual project increases such as the Vierra Dairy Expansion are not anticipated to have significant impacts to the overall groundwater basin (Cooke, Michael, TID, *pers. comm.* 2023). While water resources and water use in the subbasin may change over time, the proposed project would be subject to the requirements of the GSP as adopted and revised in the future, to be implemented by the GSA in order to achieve the sustainability goals for the Turlock Subbasin by 2024, and to avoid undesirable results as required by SGMA regulations. The GSP identifies 23 projects and management actions to achieve its sustainability goal. The GSP plans include primarily groundwater recharge projects.

While the proposed dairy expansion would result in an increase in ~~overall~~ water use ~~predominantly~~ from drinking water for the cows, there would be a decrease in irrigation water demand. Further, the increased process wastewater generated at the dairy would be used for irrigation, which could result in groundwater recharge via irrigation percolation; therefore, it is not anticipated that the dairy expansion project would affect the broader groundwater basin levels or overdraft conditions. In addition, the proposed dairy expansion would be required to comply with any applicable measures or programs of the GSP, as adopted or revised in the future. ~~subject to the requirements of the GSP for the region, as adopted and revised in the future, which would further minimize impacts to groundwater~~

~~supplies~~. Therefore, impacts from groundwater depletion from this operation would be considered less than significant.

Significance of Impact: Less than significant.

Mitigation Measure HYD-4: None required.

The following text of *Impact HYD-5: Modification of surface water drainage patterns and an increase in runoff* of the DEIR Chapter 10, *Hydrology and Water Quality*, Section 10.3.2, *Environmental Impacts*, pages 10-38 to 10-39, is hereby amended to recognize State requirements to protect surface water. The environmental conclusions of Impact HYD-5 presented in the DEIR would be unchanged by these modifications. The below revision is for clarification purposes only and does not alter the conclusions of the EIR. Therefore, no further revision to the EIR would be required.

Chapters 18.64.050 E and I of the ACO require that all wastewater or stormwater that has come into contact with manure be maintained on the project site, or applied to other sites only upon written approval of the landowner. Chapter 18.64.050 G requires notification of Merced County Division of Environmental Health for any off-site discharge of wastewater. Chapter 18.64.050 BB requires application of manure at agronomic rates. Additionally, Chapter 18.64.050 O requires a separation of at least 100 feet between waste application areas and any surface water feature. However, application of manure (liquid or dry) may be closer than 100 feet to a surface water body or irrigation well if adequate protection to the surface water body or irrigation well is provided. <u>The CVRWQCB's Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies (Order R5-2013-0122) requires a 100 foot buffer between land application areas, or if not, it requires that "a 35-foot wide vegetated buffer or physical barrier is substituted for the 100-foot setback or alternative conservation practices or field-specific conditions will provide pollutant reductions equivalent or better than the reductions achieved by the 100-foot setback.</u> Chapter 18.64.070 M requires a separation of at least 50 feet between waste management ponds and settling basins and any public irrigation facilities, with a maintained drainage area between the two facilities. As noted in the DEH inspection, the Vierra Dairy is in substantial compliance with ACO requirements.

Draft EIR Appendix I

Hydrogeologic Assessment Summary for CEQA
January 2024 – Revision 2

HYDROGEOLOGIC ASSESSMENT SUMMARY FOR CEQA

for the

VIERRA RANCH DAIRY

23160 W WILLIAMS AVENUE, HILMAR, CA

prepared for

VIERRA RANCH DAIRY

and

ENVIRONMENTAL PLANNING PARTNERS

January 2024

Revision 2

(Response to Comments)

(Revision 0 dated September 2013)

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1 GENERAL INFORMATION

NV5 on behalf of the Vierra Ranch (Vierra) Dairy and Environmental Planning Partners, Inc. has prepared the following Hydrogeologic Assessment Summary for CEQA. This report documents existing hydrogeologic conditions at the Vierra Dairy and assesses potential hydrogeologic impacts related to the proposed dairy expansion project. NV5 has prepared this report to comply with County CEQA requirements and support the Draft Environmental Impact Report (DEIR) for the proposed expansion project.

The existing Vierra Dairy is located southwest of Hilmar, CA at 23160 W Williams Avenue in Merced County. Figure 1 provides the Site location. The dairy facility lies within Section 19 of Township 06 South, Range 10 East of the Mount Diablo Baseline and Meridian. Per the Merced County Conditional Use Permit (CUP) 20-009 and the Project Description contained in the Initial Study – Vierra Dairy Expansion, dated October 2021 Notice of Preparation (IS/NOP or IS/NOP, 2021), the main project site is located on five parcels, identified as Merced County Assessor's Parcel Numbers (APN) 045-190-015 (39.4 acres), 045-190-052 (9.4 acres), 045-190-063 (9.7 acres), 045-190-077 (63.7 acres), and 045-190-017 (39.4 acres). The project cropland application area consists of 582± acres located on portions of 12 additional parcels associated with the project, see Figure 2 (see IS/NOP Figure 3a, Figure 3b, and Table 1 for Merced County APNs). With the recent purchase of surrounding farmland over nine additional parcels, there would be approximately 770± acres of cropland available for wastewater and manure application with the proposed dairy expansion.

Dairy facilities, field application and site cross-section lines locations are shown on Figure 2. The proposed expansion would convert 15 acres of existing crop land to active dairy facilities.

This hydrogeologic assessment was completed based on desktop review of existing data. Facility or crop area environmental boring investigations have not been completed nor has a Monitoring Well Installation and Sampling Plan (MWISP) been prepared for the Vierra Dairy.

This revision 2 has been compiled to address comments from the Central Valley Regional Water Quality Control Board (CVRWQCB) on the Vierra Dairy Expansion Project Draft Environmental Impact Report (EIR) and this report. Shaded text indicates additions to the text of the hydrogeologic assessment, or modifications of text set forth in the assessment.

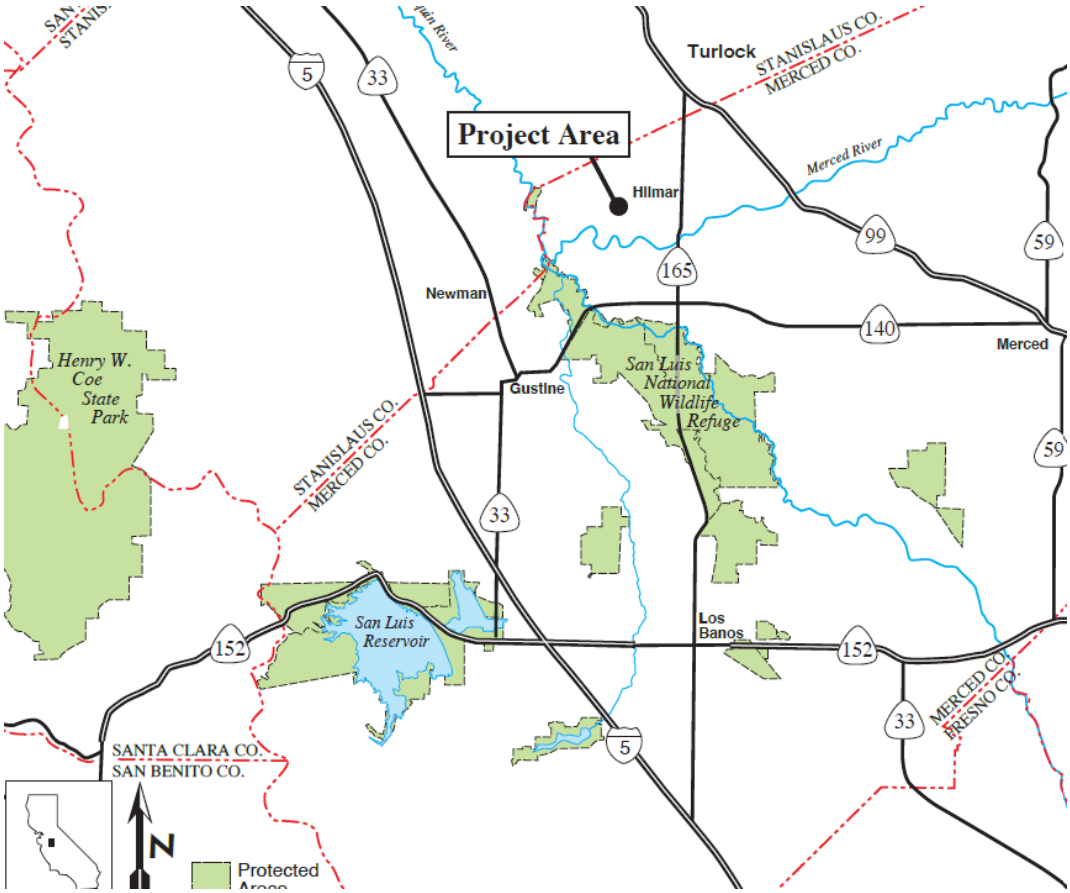


Figure 1 – Facility Location Map (Map Taken from the IS/NOP)

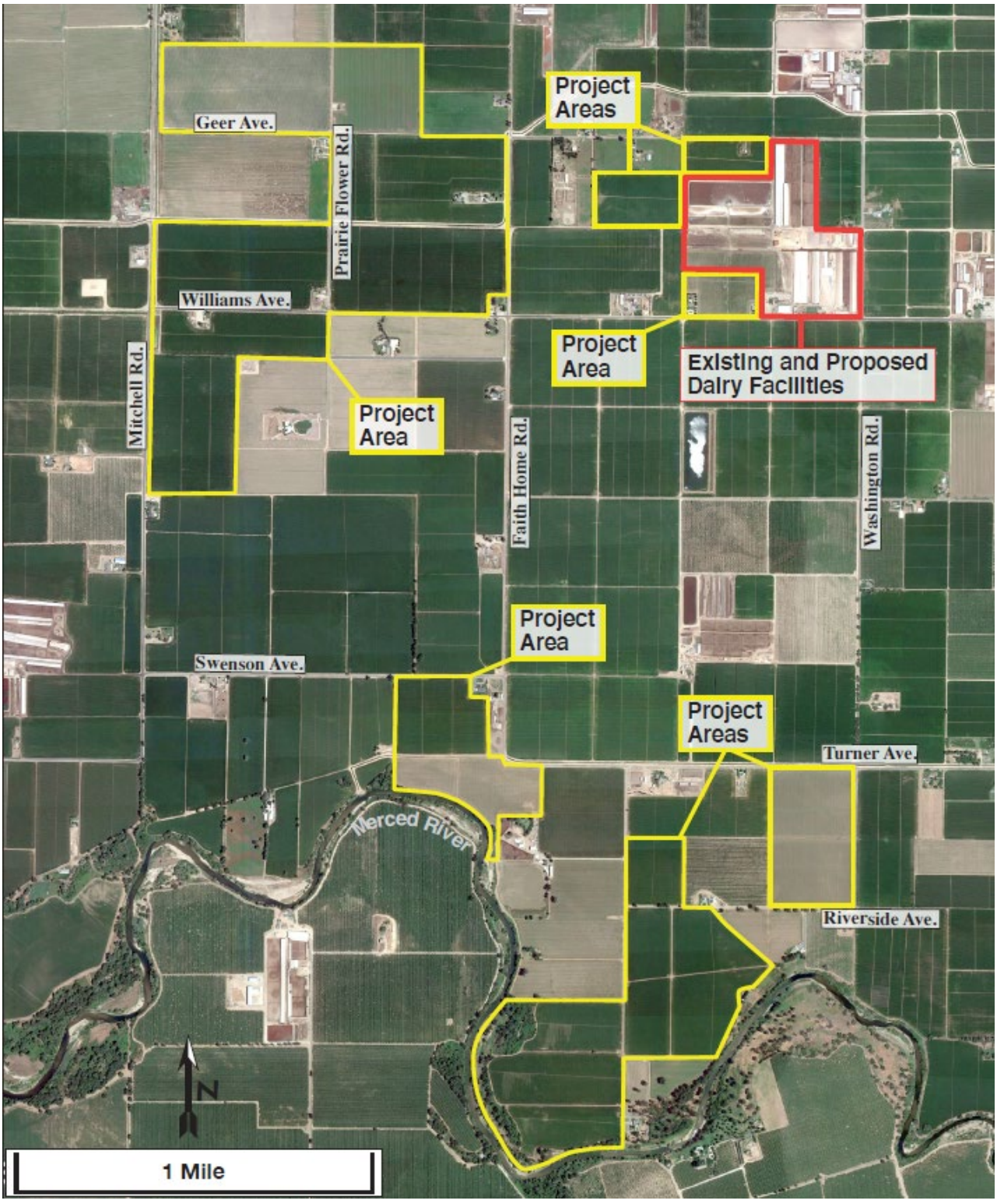


Figure 1 - Facility, Field Application Map (Map Taken from the IS/NOP)

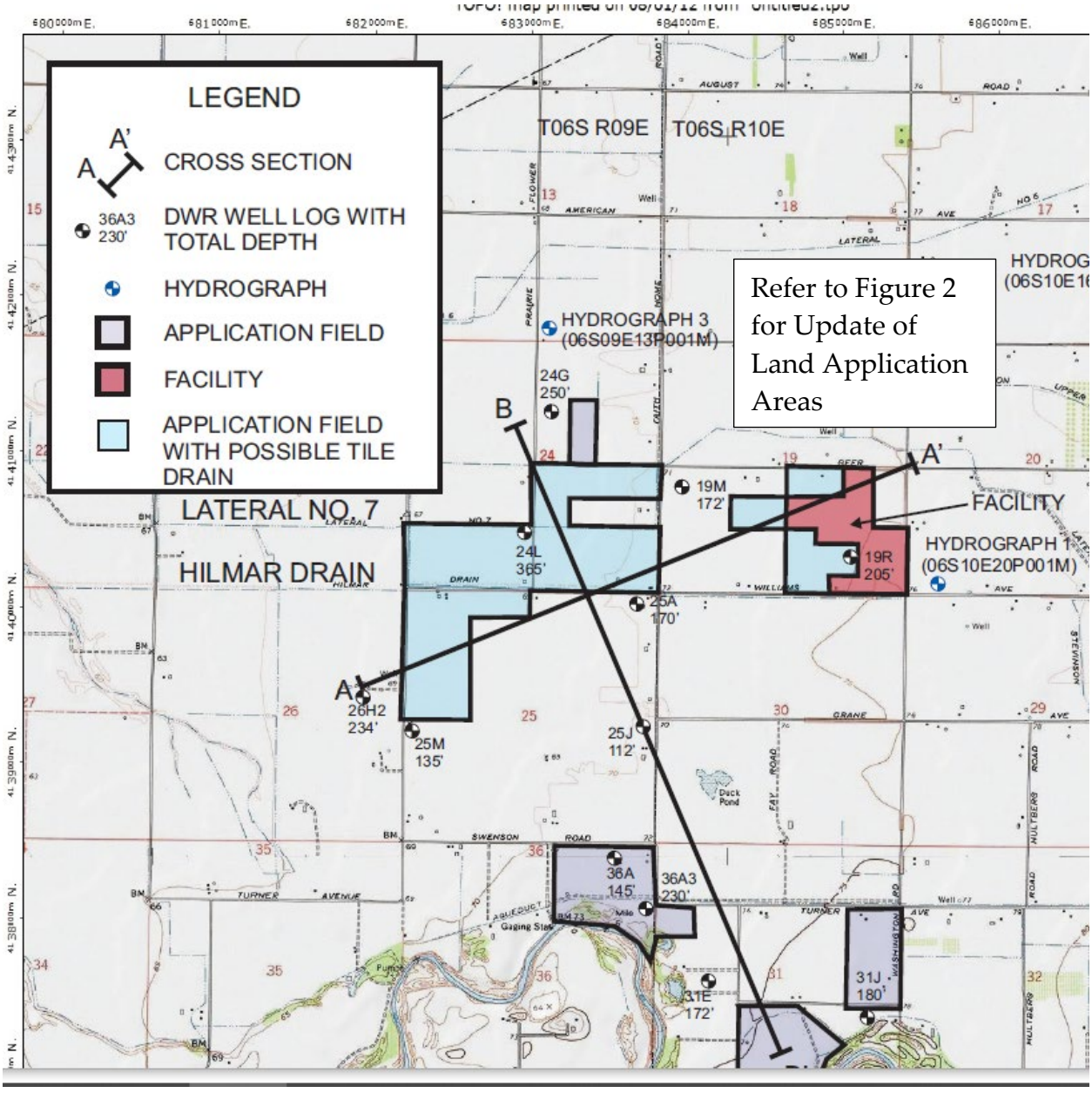


Figure 3 - Site Hydrogeologic Cross-Section Line Map (Taken from Dunn 2013)

2 PHYSICAL SETTING AND EXISTING CONDITIONS

2.1 EXISTING HERD AND RANCH FEATURES

The IS/NOP and Environmental Evaluation which contains the Project Description, dated October 2021, contains project details. The existing herd is approximately 5,597 animals at the dairy with 2,650 milk cows, 550 dry cows and 2,397 support stock. The proposed expansion will increase herd size by a total of 1,520 animals, with approximately 4,170 milk cows, 550 dry cows, 797 bred heifers 15-24 months, 800 large heifers 7-14 months, 400 calves 4-6 months, and zero calves 0-3 months. Refer to Section 4 for additional details regarding the existing herd and ranch features as well as details related to the Turlock Irrigation District (TID) water use/drainage, and proposed dairy expansion and hydrologic impacts.

2.2 SURROUNDING LAND USE

From the IS/NOP, there are off-site single-family residences associated with neighboring agricultural operations surrounding the project site to the north, west, and east. There are several off-site residences located within the windshed of the dairy (defined as an area of 1,320 feet upwind to 2,640 downwind of the periphery of the animal facility). Table 2 lists the immediate surrounding land uses and corresponding General Plan and zoning designations to the Vierra Dairy active animal confinement facilities.

Location	Land Use	General Plan	Zoning
ON-SITE	Dairy / Agriculture / 5employee residences / Office	Agricultural	General Agricultural A-1
NORTH:	Agriculture / Residences / Dairies	Agricultural	General Agricultural A-1
EAST:	Agriculture / Dairy / Residences / Hilmar	Agricultural	General Agricultural A-1
SOUTH:	Agriculture / Residences / Dairies / Merced River	Agricultural	General Agricultural A-1
WEST:	Agriculture / Residences / Dairies / San Joaquin River	Agricultural	General Agricultural A-1

2.3 PROJECT SETTING, PHYSIOGRAPHY AND TID DRAIN SYSTEM

The project site is located in an active agricultural district within the San Joaquin Valley and the larger Central Valley of California. The topography of the site is nearly flat with surface elevations ranging from 67 to 78 feet above mean sea level (MSL). There are no natural water features on the site. The community of Hilmar is located approximately 2.5

miles to the east of the project site (see Figure 1). As noted on USGS topographic maps, Lateral No. 7 passes through the northwestern application fields. The San Joaquin River is located approximately 3.5 miles to the west and the Merced River lies adjacent to and to the south of the southern application fields. The Dahlquist, Brynteson, and Hilmar Drains run adjacent to or pass through the application fields, and several laterals exist within one mile of the application fields.

Irrigation water for the project farming operations is obtained from Turlock Irrigation District (TID) canal water and two on-site irrigation wells. The TID also acts as a local improvement district to maintain drainage facilities. An existing private ditch system operated by the project applicant is used to distribute fresh irrigation water and wastewater (manure) mix to cropped fields. This existing irrigation system would continue to be used to mix and apply wastewater in the future. Receiving fields have been graded and developed with tailwater return systems to circulate irrigation water across the project site and individual application fields.

TID also maintains a tile drain system to reduce groundwater levels beneath the root zone of agricultural crops. For a significant portion of the Vierra Dairy land application area (shown in Figure 2), there is a tile drain system that was installed by the private landowner in 1999. The tile drains are composed of corrugated 6- to 12-inch pipes surrounded by a gravel envelope. The number and depth of these lines vary based on soil drainage capacity and field slope. The depths range from 6 to 12 feet, and typically one to three pipes are installed per field using a deep rip backhoe. These pipe systems control shallow groundwater levels. Drainage water obtained from the tile drain systems is discharged to the TID irrigation lateral system in the area.

2.4 REGIONAL HYDROGEOLOGY

As referenced in Section 3, the 2022 Turlock Subbasin Groundwater Sustainability Plan (GSP) has been cited extensively to update the regional hydrogeologic setting and utilize significant surface water and groundwater data.

The project site lies within the San Joaquin Valley and the larger Central Valley of California. The Central Valley is composed primarily of alluvial deposits from erosion of the Sierra Nevada located to the east and the Coastal Ranges located to the west. In addition to the alluvial deposits that comprise the majority of the geology within the Central Valley, lacustrine[1] and marsh deposits also exist. Lacustrine deposits are composed of fine-grained material (clay and silt interbedded with sands and conglomerates) and were formed during a time when lakes and marshes existed within the Valley. Geologic units located east of the San Joaquin River consist of the Tulare

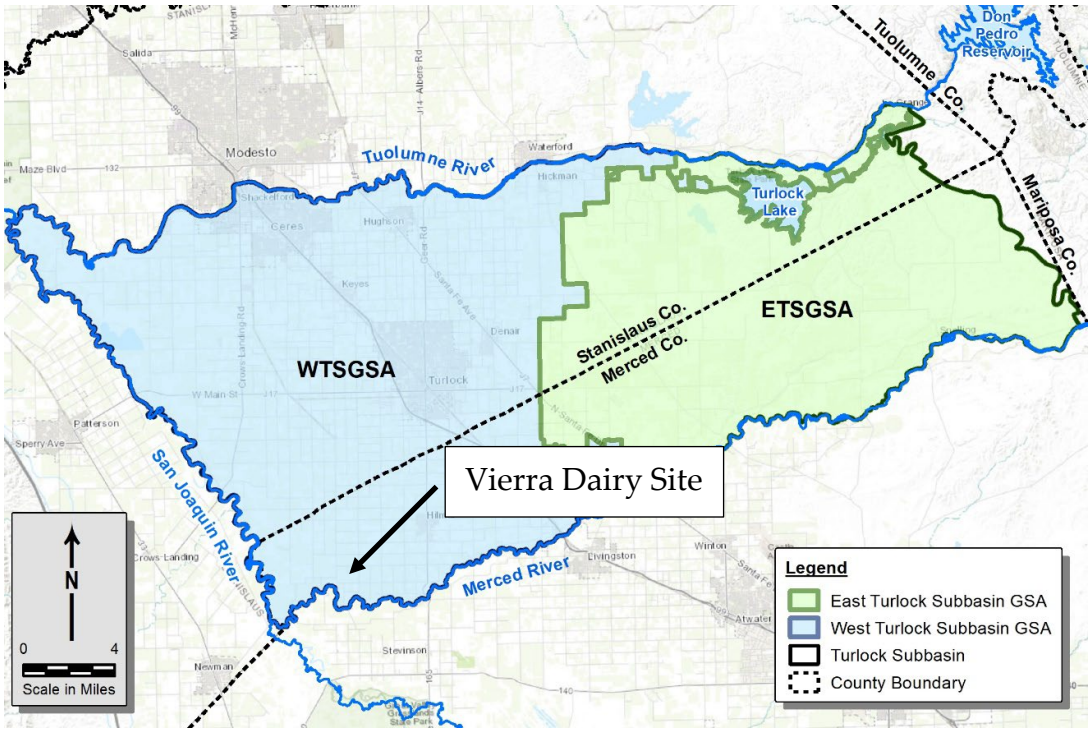
[1] Lacustrine means "of a lake" or "relating to a lake."

Formation, terrace deposits, alluvium and flood basin deposits. The Corcoran Clay Member is contained within the Tulare Formation deposits; this member is the prominent aquitard[2] found throughout the region. Quaternary river and flood plain deposits, consisting of clays, silts, sands, and gravels, overlay the Tulare Formation. The interbedded and clay-rich nature of these deposits dominates the hydrogeology.

Merced County covers four surface and groundwater subbasins within the Central Valley Groundwater Basin. As stated in the GSP that was adopted January 6, 2022, the GSP covers the Turlock Subbasin (5-22.03), which has been designated a high-priority basin by the Department of Water Resources (DWR). The Turlock Subbasin covers about 348,160 acres (about 544 square miles) in the northern portion of the San Joaquin Valley Groundwater Basin. Subbasin boundaries are defined by the Tuolumne River on the north, the Merced River on the south, and the San Joaquin River on the west. The eastern boundary approximates the contact between Subbasin sediments and the crystalline basement rocks of the Sierra Nevada foothills.

Two groundwater sustainability agencies (GSAs) have been formed in the Subbasin. The West Turlock Subbasin Groundwater Sustainability Agency (WTSGSA) is located in the western Subbasin and covers about 60 percent of the Subbasin area. The East Turlock Subbasin Sustainability Agency (ETSGSA) is located on east part of the subbasin. The two Subbasin GSAs have cooperatively developed one GSP, which covers the entire Turlock Subbasin as the Plan Area. The Subbasin and GSAs are shown on the depiction below, taken from the GSP. Vierra Dairy is located in the southcentral part of the western subbasin as shown on the map below.

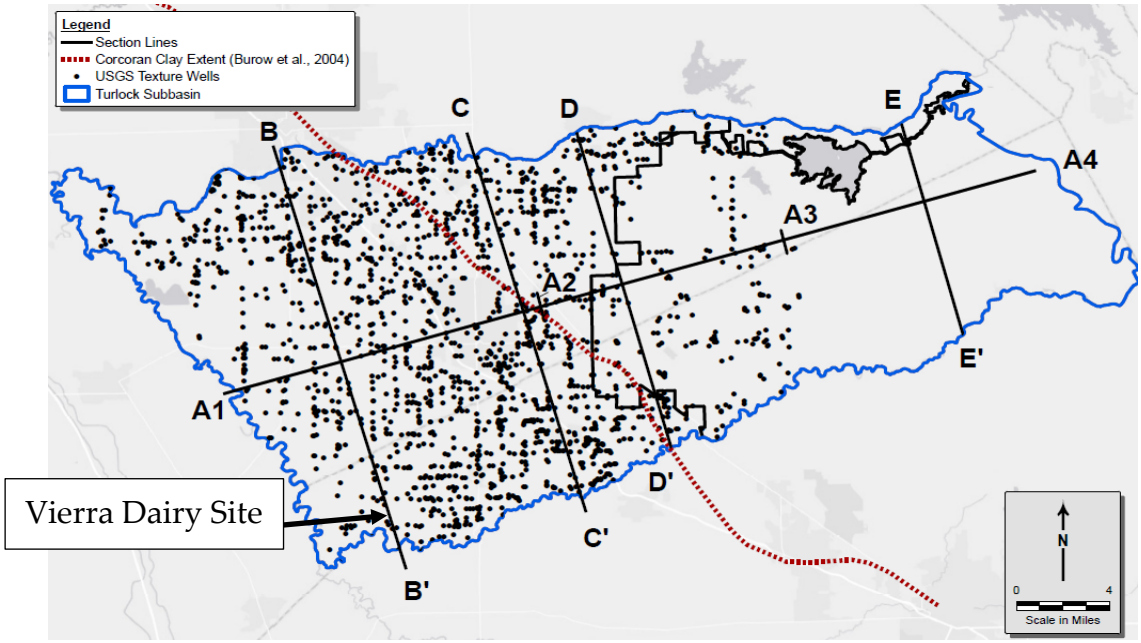
[2] An aquitard is made up of materials with low permeability, such as layers of clay and shale, which prevent any significant movement of water from the adjacent aquifer.



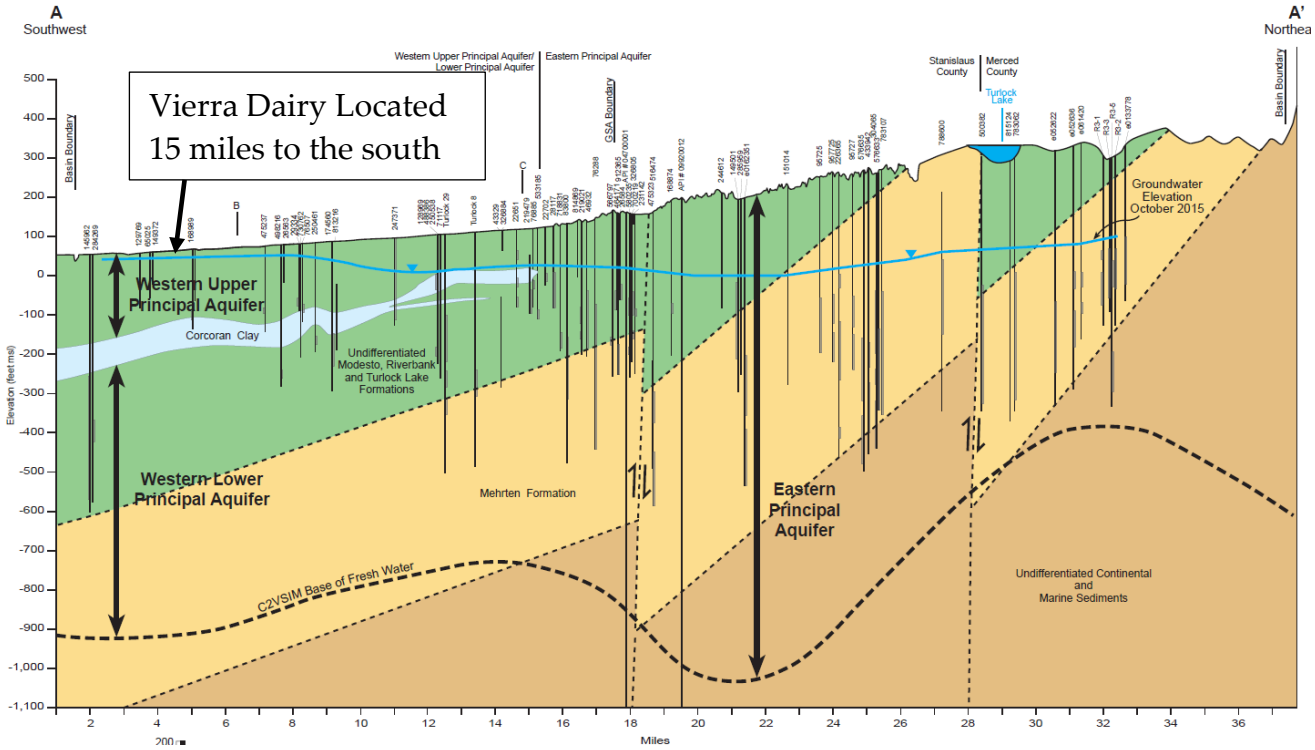
Jurisdictional Boundaries of Turlock Subbasin GSAs (Taken from GSP Figure ES-1)

As stated in the GSP, the Turlock Subbasin extends from the Sierra Nevada foothills to the San Joaquin Valley floor, with ground surface elevations sloping to the southwest and ranging from approximately 450 feet above mean sea level (msl) in the eastern foothills to less than 50 feet msl along the San Joaquin River. The western Subbasin is relatively flat with a uniform slope, and transitions to hummocky, irregular hills and intervening depressions in the eastern Subbasin. The Turlock Subbasin is in the northeastern San Joaquin Valley where valley-fill sediments overlie consolidated, westward-dipping sedimentary units and basement rock of the Sierra Nevada. Older units crop out in the eastern Subbasin and dip west into the San Joaquin Valley below younger units. Three principal aquifers were defined in the Turlock Subbasin for this GSP and future groundwater management of groundwater under SGMA. The Corcoran Clay, underlying the western Subbasin, is the primary aquitard in the Subbasin and is used to separate and define the three principal aquifers: the Western Upper Principal Aquifer is the unconfined aquifer above the Corcoran Clay, the Western Lower Turlock Subbasin GSP. Principal Aquifer is the confined aquifer below the Corcoran Clay, and the Eastern Principal Aquifer is the unconfined to semi-confined aquifer east of the Corcoran Clay. Cross sections developed for the GSP, illustrate the westerly dipping aquifer system, the principal aquifers, and the Corcoran Clay aquitard. The subbasin GSP Figures extend from the San Joaquin River on the western Subbasin boundary across the center of the Subbasin to the Sierra Nevada foothills on the eastern boundary (see cross section location on Figure 4-13). The extent of the Corcoran Clay in the

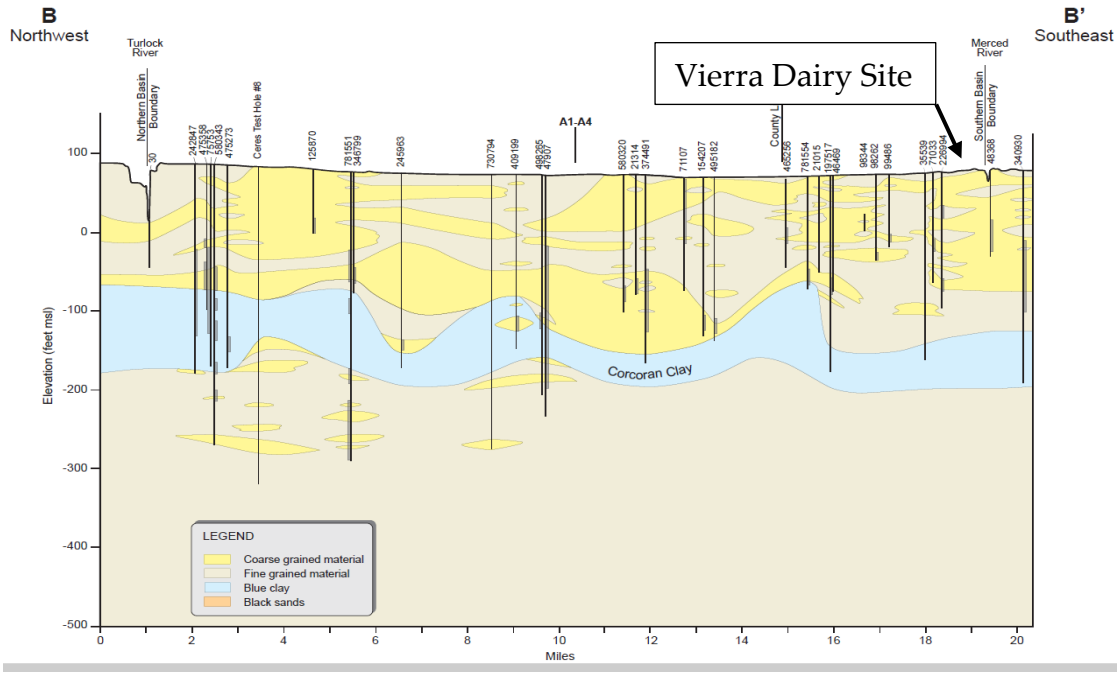
western Subbasin is shown on the cross section, ranging from depths of 90 to 240 feet below the ground surface. The unit ranges in thickness from approximately 10 feet to 110 feet. The westerly dipping aquifers are interpreted to be offset by geologic faults in the central and eastern Subbasin, but faults are not interpreted to be a barrier to groundwater flow (GSP, 2022).



Subbasin Cross-Section Line Depiction (Taken from the GSP Figure 14-3)

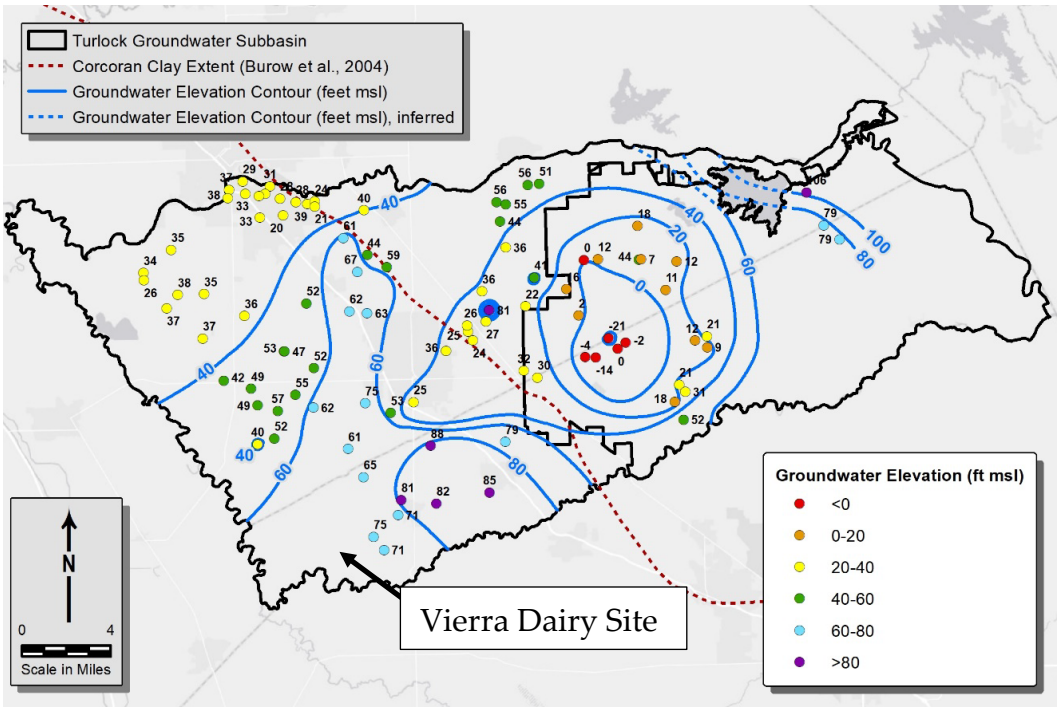


Subbasin Cross-Section Line A-A' (Taken from the GSP Figure 14-21)



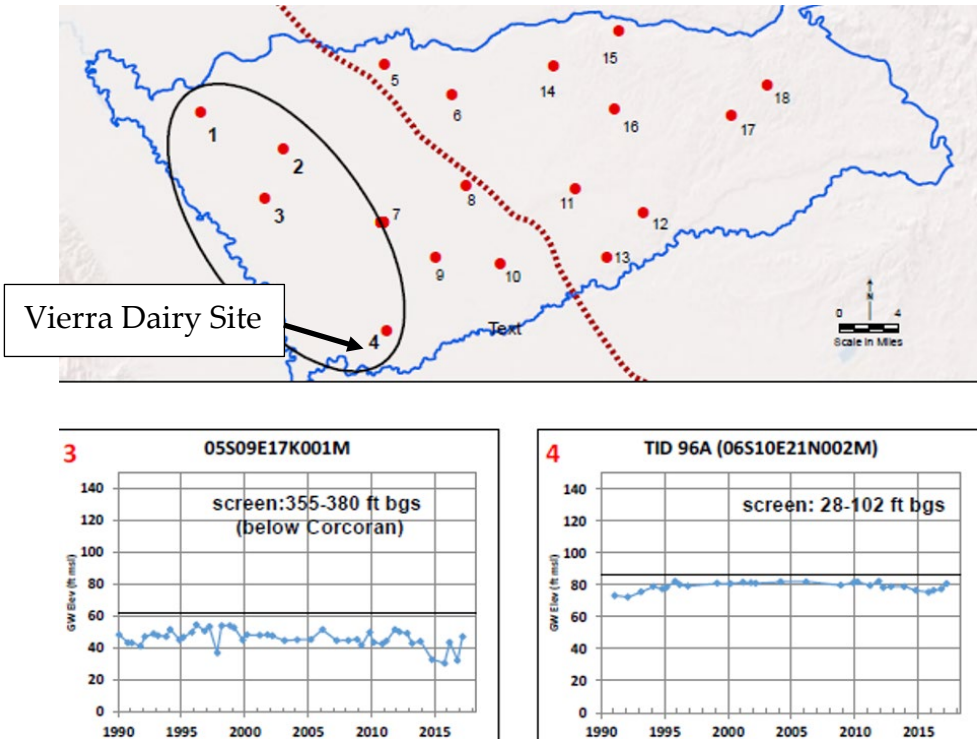
Subbasin Cross-Section Line B-B' (Taken from the GSP Figure ES-5)

As stated in the GSP, groundwater flows toward the west and southwest across the Subbasin, but flows are altered locally by pumping from wells. Vertical groundwater flow within the extent of the Corcoran Clay is downward, from the Western Upper Principal Aquifer to the Western Lower Principal Aquifer. Groundwater elevations in the Western Upper Principal Aquifer, the area of the Vierra Dairy, have been relatively stable during the GSP study period, with declines during the recent drought of less than 15 feet, followed by water level recovery. Water level declines during the 2015 drought were greater in the Eastern Principal Aquifer, especially in agricultural areas in the central and eastern Subbasin where groundwater is the primary water supply. Pumping in the Eastern Principal Aquifer has created a cone of depression in the central Subbasin that has expanded during the GSP study period. Available data in the easternmost Subbasin are sparse, but water level declines between 2006 and 2017 are observed from about 4 feet per year to about 8 feet per year, with little to no recovery since 2017 (GSP,2022). The GSP contour map for 2015 is shown below:



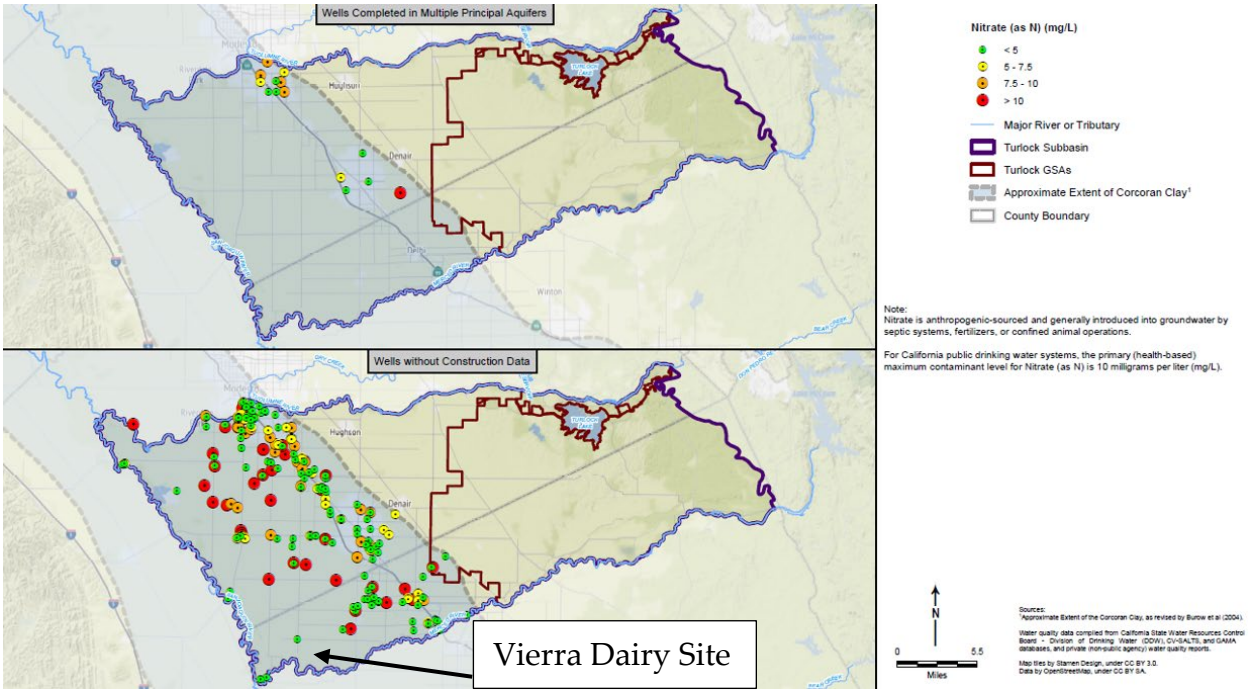
Groundwater Elevation Contours, October 2015, Above and East of Corcoran Clay.
(Taken from the GSP Figure ES-6)

As sited and depicted below on Figure 4-24 of the GSP, the groundwater elevations in the Western Principal Upper Aquifer, with declines during the recent drought of less than 15 feet. Monitoring well TID 96A (well 4 on the figure) is in close proximity to the Vierra Dairy. High recharge and lack of water level decline for the Western Principal Upper Aquifer is supported by the near surface permeable unconfined aquifer above the low permeable Corcoran Clay.



Groundwater Hydrographs (Taken from the GSP Figure 4-24)

As sited and depicted below on Figure 4-38 of the GSP, Nitrate as N in the western portion of the subbasin has significant variability with elevated values in the western most portion of the subbasin (GSP, 2022). For the one monitoring well near the Vierra Dairy, Nitrate was below 5 mg/l.



Nitrate as N in Undesignated Monitoring Wells (Taken from the GSP Figure 4-38)

2.5 SITE SPECIFIC SOILS AND HYDROGEOLOGY

Predominant soils underlying the existing and proposed Vierra Dairy Expansion facilities as classified by the Natural Resources Conservation Service (NRCS) consist of Hilmar loamy sand, 0 to 3 percent slopes (HgA), and Delhi loamy sand, silty substratum, 0 to 3 percent slopes. Soils present at the application fields include Hilmar sand, poor drained, 0 to 1 percent slopes; Dinuba sandy loam, 0 to 1 percent slopes; Grangeville loam, slightly saline-alkali, 0 to 1 percent slopes; Pachappa fine sandy loam, 0 to 1 percent slopes; and Pachappa sandy loam, deep over hardpan, 0 to 1 percent slopes. Numerous "saline spots" (defined as soils influenced by salt) are identified by NRCS within and around the application fields nearest the Merced River. Two "saline spots" were located within the northwestern application field. (For a detailed description of soil types and their properties, refer to Appendix A, *Notice of Preparation and Initial Study*.)

Near surface geology at the project site consists of Modesto Formation Alluvium underlain by Tulare Formation clay deposits. Quaternary Alluvium is present along the banks of the Merced River and Dos Palos Alluvium is present along the San Joaquin River.

Logs have been collected for DWR wells within one mile of the site and application fields. Logs for wells south of the Merced River were not collected. These well logs were used to create a west-east trending cross section and a north-south trending cross section. See Figure 2 for the site hydrogeologic cross section locations and Figures 3 and 4 for the near surface west-east and north-south hydrogeologic cross sections. The cross sections indicate that interbedded clay, sandy clay, and sand deposits dominate the near surface geology in proximity to the facility. Gravel was not identified within the selected driller's logs. Somewhat continuous sand deposits approximately 5 to 15 feet in thickness are found from near surface depths over 100 feet below ground surface (bgs). Sediments are considerably more clay dominant below 160 feet bgs and are considered to be part of the Corcoran Clay. As sited further in the GSP, compressible clay layers within and below the Corcoran Clay have been associated with land subsidence in many areas of the Central Valley. In these areas, water levels have declined, depressurizing or dewatering these clay layers. This has resulted in subsurface compaction of the clays, which allow the overlying ground surface to subside. In the Turlock Subbasin, data from remote sensing and local global positioning system (GPS) stations indicate only small amounts of vertical displacement of the land surface in local areas. No impacts from land subsidence have been identified to date in

this Subbasin (GSP, 2022). No subsidence also supports the lack of groundwater level decline in this area and recharge in the Western Upper Principal Aquifer.

A - WEST

Site boundary

Site boundary

A' - EAST

26H2
0.04 mi S

25M
0.24 mi S

24L
0.33 mi N

25A
0.10 mi S

19M
0.26 mi N

19R
0.25 mi S

19A
0.36 mi N

FT. RELATIVE TO MEAN SEA LEVEL

70

50

0

-50

-100

-150

APPROX. DEPTH OF CORCORAN CLAY

APPROX. DEPTH OF CORCORAN CLAY

CONT. TO 365 FT. BGS

LEGEND

Lithology

- Topsoil
- Sandy Clay
- Clay
- Hardpan
- Gravel
- Silty Sand
- Sand
- Shale

Well Construction

- Casing
- Screen
- Cement
- Gravel
- Bentonite

Projected surface topography

Projected clay horizons

LEGEND (CONT.)

24L — Well name

0.33 mi N — Distance from cross section line

Approximate regional water level (based upon stabilized water as reported on driller's log)

GEOLOGIC CROSS SECTION A-A'
VIERRA DAIRY
MERCED COUNTY, CALIFORNIA

DATE: 11/20/2012
SCALE: Vert 1:300, Horz 1:13,000
PROJECT NO: 103-37
DRAWN: MM
CHECKED: PHD
FIGURE: 10-3

Dunn ENVIRONMENTAL, INC.

B - NORTH

Site boundary

B' - SOUTH

24G	24L	25A	25J	36A	36A3	31E	31J	Site
0.17 mi E	0.12 mi W	0.18 mi E	0.01 mi E	0.30 mi W	0.26 mi W	0.14 mi W	0.38 mi E	boundary

FT. RELATIVE TO MEAN SEA LEVEL

70
50
0
-50
-100
-150

APPROX. DEPTH OF CORCORAN CLAY

CONT. TO 250 FT. BGS

CONT. TO 365 FT. BGS

LEGEND

Lithology	Well Construction
Topsoil	Casing
Sandy Clay	Screen
Clay	Cement
Hardpan	Gravel
Gravel	Bentonite
Silty Sand	
Sand	Projected surface topography
Shale	Projected clay horizons

LEGEND (CONT.)

24L — Well name

0.33 mi N — Distance from cross section line

Approximate regional water level (based upon stabilized water as reported on driller's log)

GEOLOGIC CROSS SECTION B-B'
VIERRA DAIRY
MERCED COUNTY, CALIFORNIA

DATE: 11/20/2012
SCALE: Vert 1:300, Horz 1:13,000
PROJECT NO: 103-35
DRAWN: MM
CHECKED: PFD
FIGURE: 10-4

Dunn ENVIRONMENTAL, INC.

SITE SPECIFIC HYDROGEOLOGY

Groundwater flow in the Turlock Subbasin (as detailed in the GSP) is generally to the west towards the San Joaquin River. Groundwater follows the dip of the crystalline and sedimentary units. Regional groundwater flow contours have been influenced because of weak groundwater depressions north of the site. The impact on water levels from localized pumping centers are minimized due to the near surface groundwater presence and resulting use of an extensive surface drainage system (see Figures above). The proximity of both the Merced and San Joaquin Rivers and TID or owner drainage laterals have influenced groundwater elevations at the Vierra Dairy. Due to the presence of near surface, semi-continuous clay layers, perched groundwater conditions also exist near surface depths.

Groundwater beneficial use in the area and on site is for domestic and irrigation purposes. Vierra Dairy has six domestic wells and two irrigation wells are located in the area and active dairy facilities and associated cropland. Like existing conditions, the proposed project would use both surface water from the Turlock Irrigation District and groundwater from the existing irrigation wells for irrigation needs.

The localized hydrogeologic cross-sections depict the extremely variable interbedded nature of the subsurface sediments (see the Dunn Figures 3 and 4). The hydrogeologic cross-sections were composed of 15 DWR well logs that were selected from a collection of over 70 individual DWR well logs in proximity to the facility. Three Vierra owned DWR well logs (24L, 36A and 19R) were used in the cross-sections. The deepest boring depiction was for well 19R, believed to be the Vierra Irrigation Well No.1. This well was installed to a depth of 360 feet with perforations from 60 to 300 feet bgs. The other domestic and irrigation water supply wells in the area are generally less than 200 feet in depth which confirms the shallow unconfined aquifer nature above the Corcoran Clay.

Area knowledge and DWR hydrographs indicate that groundwater may exist within saturated sand units found less than 25 feet bgs. First encountered groundwater is anticipated to be found shallow and unconfined within the Western Upper Principal Aquifer and within laterally extensive sands units or as isolated perched units. DWR hydrographs for nearby wells referenced in the depictions above. From the DWR water level data base two wells (state reference wells 06S10E20P001M and 06S10E16M001M) were reviewed from the records 2009 to 2014. The respective water levels showed a 13 feet and 4 feet of change respectively. Shown on Figure GSP Figure 4-24 above, the seasonal groundwater fluctuations range approximately 5 feet for the TID 96A well. These minor variations in groundwater are likely due to pump use during or immediately prior to the measurement.

2.6 FACILITY GROUNDWATER QUALITY SUMMARY

Vierra groundwater quality information was available for six on site domestic wells and two irrigation wells (see Table 1). DWR groundwater well logs have not been linked to the facility groundwater monitoring network or sampling locations. Attempts to obtain this data included contacting the owner, past owner, sampling team and laboratory. As referenced above the DWR logs in the Western Upper Principal Aquifer, groundwater wells are typically less than 200 feet bgs because of the confining nature of the underlying Corcoran Clay.

Vierra groundwater sampling dates are provided for 2011 and 2018 through 2022 which relates to the investigation periods used for permit renewals. Concentration of Nitrate as N ranged from 0.969 to 163 mg/L, with fifteen of fifty-one measurements detected above the California Title 22 Primary Maximum Contaminant Limit (MCL) of 10 mg/L. Ammonium nitrate was non-detect for the analyzed wells. Electrical Conductance ranged from 0.7 to 2.21 mmhos/cm, with forty-five of fifty-one measurements above the Title 22 Secondary MCL of 0.9 mmhos/cm. There were only two wells in 2022 that exceeded Nitrate exceedances. Nitrate concentrations are variable but have decreased over time. Regional groundwater quality also confirms the low Nitrated concerntrations in this area, see Section 2.4.

Table 1 - Historic Domestic and Irrigation Well Water Quality -Vierra Dairy

		Nitrate as Nitrogen (mg/L)	Electrical Conductance (mmhos/cm)	Ammonium Nitrogen (mg/L)
	Water Quality Standard	10†	0.900‡	
Well	Date			
D1 Milk Barn	12/27/2018	**17.5**	**0.996**	<0.50
	3/18/2019	2.82	**1.18**	<0.50
	12/22/2020	0.969	**0.988**	<0.50
	12/1/2021	3.47	**0.967**	<0.50
	12/9/2022	4.6	**1**	<0.50
D2 Angle	12/27/2018	**17.9**	**1.01**	<0.50
	3/8/2019	**10.8**	**1.02**	<0.50
	12/22/2020	**13.8**	**1.03**	<0.50
	12/1/2021	3.33	**0.932**	<0.50
	12/9/2022	**17**	0.83	<0.50
D3 Heifer	5/3/2011	**1.49**	**1.07**	<0.50
	12/27/2018	3.63	**1.09**	<0.50
	3/8/2019	<0.10	**2.21**	<0.50
	12/22/2020	5.35	**1.02**	<0.50
	12/1/2021	3.37	**0.935**	<0.50
	12/9/2022	4.32	**0.943**	<0.50
D4	5/10/2011	**21.2**	**1.27**	<0.50
D5 Abels	5/3/2011	**5.06**	**1.06**	<0.50
	12/27/2018	**163**	**1.01**	<0.50
	3/8/2019	<0.10	**1.25**	<0.50
	12/22/2020	**81.7**	**0.935**	<0.50
	12/1/2021	3.49	**0.922**	<0.50
	12/9/2022	**17.8**	0.858	<0.50
D6 Ruben	5/3/2011	**2.44**	**1.35**	<0.50
	12/27/2018	**17.4**	**0.976**	<0.50
	3/8/2019	<0.10	**1.6**	<0.50
	12/22/2020	**26.5**	**1.07**	<0.50
	12/1/2021	3.63	**0.963**	<0.50
	12/9/2022	<0.14	**1.12**	<0.50
D7 Couco/Mark	5/3/2011	**2.01**	**1.48**	<0.50
	12/27/2018	<0.30	**0.947**	<0.50
	3/8/2019	<0.10	**1.68**	<0.50
	12/22/2020	5.79	**1.04**	<0.50
	12/1/2021	3.97	**0.997**	<0.50
	12/9/2022	<0.14	0.786	<0.50
D8 Luis	5/10/2011	**1.13**	**0.808**	<0.50
	12/27/2018	**17.6**	**0.992**	<0.50
	3/8/2019	<0.10	**2.29**	<0.50
	12/22/2020	7.22	**1.04**	<0.50
	12/1/2021	<0.14	**1.23**	<0.50
	12/9/2022	<0.14	**1.29**	<0.50
IW #1	12/27/2018	0.312	**1.2**	<0.50
	3/8/2019	<0.10	**1.28**	<0.50
	12/22/2020	9.99	**1.28**	0
	12/1/2021	**15.7**	**1.61**	<0.50
	12/9/2022	<0.14	**1.39**	<0.50
IW#2	12/27/2018	0.316	**1.18**	<0.50
	3/8/2019	7.04	**1.19**	<0.50
	12/22/2020	9.93	**1.26**	0
	12/1/2021	**15.6**	**1.68**	<0.50
	12/9/2022	<0.14	**1.29**	<0.50

†: California Title 22 Primary Maximum Contaminant Limit, ‡: California Title 22 Secondary Maximum Contaminant Limit, Bold: MCL exceedance.

2.7 IMPAIRED SURFACE WATERS

The Central Valley Regional Water Quality Control Board (CVRWQCB) maintains and updates the impaired water bodies list for Central Valley. This list is required by the Clean Water Act Section 303(d) list and 305(b) report. The CVRWQCB requires that Total Maximum Daily Load (TMDL) goals are used to address long-term impairments to surface waters. Refer to Section 3.5 for more details.

2.8 FLOODING

The Flood Insurance Rate Maps (FIRM) from the Federal Emergency Management Agency (FEMA) show that the Dairy Production Area (Dairy Facility) is located partially within Zone A and partially within Zone X. Areas within the FEMA designation Zone A are defined as an area that would be inundated by a 100-year flood, but where no base flood elevations have been established. The November 2020 Flood Protection Analysis is attached to the proposed WMP. With construction of the proposed facility improvements provided in the proposed WMP attachments, the proposed Vierra Dairy site will have adequate protection from a 100 year flood event.

Project areas within the FEMA designation Zone X are outside the 0.2 percent annual chance flood zone. (FIRM 2008).

3 REGULATORY BACKGROUND

3.1 FEDERAL LAWS AND REGULATIONS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY CLEAN WATER ACT

Federal, state, and local regulations have been implemented to protect the quality of surface water and groundwater resources. The primary federal laws for protection of water quality are the Clean Water Act (CWA) and the Safe Drinking Water Act (SDWA). Federal and state regulations based on this underlying legislation range from establishing maximum contaminant levels to setting anti-degradation policies.

The primary regulatory program for implementing water quality standards is the federal National Pollutant Discharge Elimination System (NPDES) Program. The United States Environmental Protection Agency (EPA) has delegated NPDES enforcement and administration to the State of California. Under the Federal Concentrated Animal Feeding Operations (CAFO) program, owners and operators ("dischargers") of dairies are required to apply for and receive an NPDES permit if the dairy is a Large CAFO[3] and discharges or proposes to discharge pollutants to the waters of the Unites States.

FEDERAL EMERGENCY MANAGEMENT AGENCY

The Federal Emergency Management Agency (FEMA) is the federal agency that oversees floodplains and manages the National Flood Insurance Program (NFIP), adopted under the National Flood Insurance Act of 1968. FEMA's regulations establish requirements for floodplain management. FEMA prepares Flood Insurance Rate Maps denoting the regulatory floodplain to assist communities such as Merced County with land use and floodplain management decisions in order to meet the requirements of the NFIP.

3.2 CALIFORNIA LAWS AND REGULATIONS

California's primary water law is the Porter-Cologne Water Quality Control Act (Porter Cologne). The regulations that implement Porter Cologne are contained in the California Code of Regulations (CCR). The water quality control programs, plans, and policies that affect the operations of animal confinement facilities include the NPDES program, regional water quality control plans, storm water protection plans, and the Total Maximum Daily Load (TMDL) program.

[3] A large CAFO is defined has having 700 or more mature dairy cattle. Medium and small CAFOs that propose to discharge must also apply for and receive a permit under the NPDES program.

In general, the Waste Discharge Requirements (WDR) Program regulates point discharges that are exempt pursuant to Chapter 1, Article 1, Subsection 20090 of Title 27 Division 2 of the California Code of Regulations and not subject to the Federal Water Pollution Control Act. In California, the permitting authorities for WDRs are the Regional Water Quality Control Boards (RWQCB). The CVRWQCB has jurisdiction over the project site. In May 2007, the CVRWQCB adopted Waste Discharge Requirements General Order R5-2007-0035 for Existing Milk Cow Dairies (2007 General Order). In October 2013, the CVRWQCB adopted changes to the Order through the Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies R5-2013-0122 (General Order or Dairy Order), which rescinded and replaced the 2007 General Order. The General Order implements the State laws and regulations relevant to confined animal facilities. The General Order is not a NPDES Permit and does not authorize discharges of pollutants to surface water that are subject to NPDES permit requirements of the Clean Water Act. The General Order serves as general WDRs for discharges of waste from existing milk cow dairies and is intended to be compatible with the EPA's regulations for CAFOs discussed above. Under the General Order Waste Discharge Permit Program, Animal Feeding Operations are prohibited from discharging waste into surface water or into groundwater that is directly connected to surface water.

The General Order only applies to owners and operators of existing milk cow dairies (dischargers) in the Central Valley Region. For the purposes of the General Order, existing milk cow dairies are those that were operating as of October 17, 2005 and filed a Report of Waste Discharge (ROWD). Dairies that did not file a 2005 ROWD, new dairies, and existing dairies expanding the mature cow number established under the 2005 ROWD by greater than 15 percent may not be covered under the General Order and would be required to obtain coverage under Individual WDRs. Individual WDRs were not issued by the RWQCB since 2009. All dairies covered under the General Order are required to:

- Comply with all provisions of the General Order,
- Submit a Waste Management Plan (WMP) for the production area,
- Develop and implement a Nutrient Management Plan (NMP) for all land application areas,
- Monitor wastewater, soil, crops, manure, surface water discharges, and storm water discharges,
- Monitor surface water and groundwater,
- Keep records for the production and land application areas, and
- Submit annual monitoring reports.

The NMP and WMP describe the regulatory requirements for the facility, and together they serve as the primary tool to prevent groundwater contamination and poor operations. The General Order establishes a schedule for dischargers to develop and implement their WMP and NMP, and requires them to make facility modifications as necessary to protect surface water, improve storage capacity, and improve the facility's nitrogen balance before all infrastructure changes are completed. In addition, Best Management Practices (BMP) intended to minimize surface water discharges and subsurface discharges at dairies are required. The General Order also requires each dairy to fully implement a WMP and a NMP as of the date of this technical study. In compliance with the requirements of the CVRWQCB, the proponents of dairies complete the required components of the WMP and NMP of the General Order.

In November 2012, a Court of Appeals in Sacramento found that the General Order violated the State Water Resources Control Board (SWRCB) antidegradation policy (Asociacion de Gente Unida Por El Agua v. Central Valley Regional Water Quality Control Board (2012) 210 Cal.App.4th 125). The environmental group that challenged the General Order argued the poor drinking water quality in the Central Valley was due to waste discharge from dairy farms. The court found that the General Order's monitoring system of taking samples from domestic and agricultural supply wells is insufficient to detect groundwater degradation in a timely manner, and that the General Order contains no remediation measures in the event groundwater monitoring determines that degradation occurred. The case resulted in revisions to the General Order through the Reissued Dairy General Order.

The Reissued Dairy General Order enhanced 2007 General Order requirements on existing milk cow dairies. The Reissued Dairy General Order recognizes that some of the necessary improvements to existing dairies have already occurred. Improvements may include recycling flush water, grading, establishing setbacks, installing flow meters, exporting manure, leasing, or purchasing land, etc. The dairy operator may be able to make some of these improvements relatively quickly while some improvements may require more time to implement. The General Order requires dairy operators to make any necessary interim facility modifications first to prevent discharges to surface water, improve storage capacity, and improve the facility's nitrogen balance before completing any necessary infrastructure changes.

The 2007 General Order includes a provision that requires compliance with Monitoring and Reporting Program No. R5-2007-0035. With the Reissued Dairy General Order, the Monitoring and Reporting Program (MRP) was updated (Monitoring and Reporting Program R5-2013-0122). Over the next several years, this general order will be remanded, revised and reissued to address groundwater protection concerns.

As in the past, based on an evaluation of the threat to water quality at each dairy, the CVRWQCB may require the installation of monitoring wells to comply with the General Order MRP. The Monitoring and Reporting Program requires:

- Periodic inspections of the production area and land application areas,
- Monitoring of manure, process wastewater, crops, and soil,
- Recording of operation and maintenance activities,
- Groundwater monitoring,
- Storm water monitoring,
- Monitoring of surface water and discharges to surface water,
- Annual reporting,
- Annual reporting of groundwater monitoring,
- Annual storm water reporting,
- Noncompliance reporting, and
- Discharge reporting.

The General Order and Individual WDRs also established the ability for individual dairies to participate in a Groundwater Representative Monitoring Program (RMP) as an alternative to an individual requirement for groundwater monitoring. Each dairy must notify the CVRWQCB about its decision to join the RMP. Dairies that do not notify the CVRWQCB or do not intend to join an RMP will be held to individual monitoring requirements set forth in the regulations. The Vierra Family joined the RMP efforts; however, in the future, they could be treated as an individual discharger required to have an individual WDR and a separate groundwater monitoring system.

The RMP establishes a regional monitoring plan for the member dairies of the Central Valley Dairy Representative Monitoring Program (Dairy Cares). The RMP was developed in accordance with General Order requirements and with review by the CVRWQCB. The regional monitoring network is established by installing individual monitoring well networks at dairies with hydrogeologic and land use characteristics typical of the area. Groundwater monitoring results for these dairies is then extrapolated to other member dairies of the RMP, theoretically removing the need to install monitoring well networks on an individual basis. Phase I of the RMP was completed during 2011 and consisted of installing monitoring well networks at 18 dairies within the Highway 99 and Interstate 5 corridor of Stanislaus and Merced County. The Phase II workplan proposed further monitoring networks in San Joaquin, Fresno, Kings, and Tulare counties, and completed the public review process in July 2012. Monitoring efforts of 42 newly selected dairies were initiated in 2013. The RMP currently monitors 443 monitoring wells at 42 representative dairies to cover their 1,100+ dairy members. Annual reports are submitted to the CVRWQCB. Summaries of these reports are provided below.

The Year 1 (2012) Report initial findings for the Central Valley Dairy Representative Monitoring Program (CVDRMP) included 18 dairies in the Stanislaus and Merced Counties. The summary of findings for the first encountered groundwater quality indicated that high nitrate and TDS concentrations are widespread beneath application fields and dairy facilities, with higher nitrate concentrations found in coarse sandy soils and higher TDS concentrations in silt or clay soils. Loading rates of salts to individual fields were tracked and additional refinement in this tracking will increase the effectiveness of the analysis of the data derived from the monitoring program. Additional examination of the dairies, including field assessment, was recommended to more accurately determine the performance of dairy lagoons.

The Year 2 (2013) report expanded the dairy network to 42 total dairies from Tehama County to Kern County. The monitoring data indicated that application of fertilizer to crops (either manure or commercial fertilizer) may be a major source for impacts observed in first encountered groundwater. Elevated nitrate concentrations observed in the 2012 Report were observed in the 2013 Reporting period as well, especially for coarse-grained soil, but was also observed in other soil types. Groundwater data collection efforts for 2013 observed groundwater responses to irrigation events. As part of the continued monitoring effort, the CVDRMP proposed to refine the well network in the central area, continue collecting automated data from 10 wells at 4 dairies, continue collecting lagoon seepage testing data with memoranda submitted to the CVRWQCB, complete subsurface hydrogeologic investigation in the central area around lagoons at 12 dairies, collect age date samples from groundwater in the dairy network, and continue to suggest a framework to improve nutrient management for dairies to minimize farming effects to the environment.

The Year 3 (2014) report confirmed that the 42 dairies used for monitoring are representative of a range of site conditions and farming practices observed in Central Valley dairies. The findings for January 2012 through December 2014 confirmed that first encountered groundwater was affected by historic and current dairy farming practices and indicates that crop fields are the primary source of nutrient emissions to groundwater. Assessment of lagoon effects on groundwater is limited as the CVDRMP determined that groundwater monitoring provides more qualitative assessment for lagoon and crop field nutrient loading. CVDRMP continues to work towards development of evidence-based industry recommendations to improve groundwater protection.

The Year 4 (2015) report provides cumulative data collected from January 2012 through December 2015 and confirms findings are consistent with previous studies. The data confirms that first encountered groundwater is affected by current and/or historic dairy practices and indicates that crop fields are the primary source of contaminant

migration. In addition to the regulatory monitoring, the program initiated an investigation of lagoon seepage and testing was completed during the winters of 2013/2014 and 2014/2015. Based on data collected to date, the report indicates that most dairies likely will not be able to meet CVRWQCB standards for groundwater protection. The RMP teamed with University of California researchers to determine a path to improve nutrient management and determine Nitrogen Use Efficiency (NUE). While the concept of NUE is universal, actions to achieve optimal NUE will be site-specific. The report determined seven major findings: 1) Groundwater monitoring with respect to lagoon performance is not especially useful and can only be used in a qualitative approach, i.e., water quality can indicate impacts but cannot provide seepage rates, etc., 2) Improvements to NUE aim to reduce subsurface nutrient contamination; however, water quality does not necessarily reflect the improved NUE, 3) Whole-lagoon seepage rates ranged from 0 to 2.2 mm/day with mean seepage of 1.1 mm/day and median seepage of 0.7 mm/day. Ten of the seventeen lagoons reported seepage rates of less than 0.8 mm/day. The results are consistent with academic research and confirms that small seepage rates and a narrow range of seepage rates were observed across fine and coarse sediments, likely due to the presence of a low hydraulic conductivity sludge layer, 4) Nitrogen loading rates strongly indicate that nitrogen emissions originate from croplands and not lagoons, 5) Management measures for lagoons tend to be common-sense based but the effectiveness of such measures lack quantitative evaluation and data, 6) While the injection of liquid manure into irrigation systems is conceptually similar to the use of synthetic fertilizers, there does not appear to be a method or technology to make real-time adjustments to maintain a constant application rate of nitrogen, 7) The methodology for application ratio calculation is very sensitive and inaccuracies of +/- 15% can yield a great variance in application ratios and may explain year over year field-specific variabilities.

The Year 5 (2016) report confirmed the continued observed impacts to shallow groundwater from the previous reports. The RMP continued to implement research projects for investigations of different portions of dairy components. In 2016, the RMP launched NUE research projects in Merced, Madera and Fresno Counties. Key findings for the 2016 report were similar to the 2015 report key findings, emphasizing that groundwater monitoring, while a useful tool to determine the extent of contamination, is not beneficial for determining point source or management for pollution sources.

The Year 6 (2017) report provides cumulative data collected from January 2012 through December 2017 and confirms the continued observed impacts to shallow groundwater due to historical and/or current farming practices. In addition to the regulatory monitoring, the program continues the voluntary investigation of lagoons, croplands, and earthen floored animal housing. In summer of 2017, the RMP launched a two-year NUE research project in Tulare County. Key findings for the 2017 report emphasize that

groundwater monitoring alone is not suitable for evaluation of on-farm management practices or for recommendation of solutions and/or upgrades. Furthermore, many annual reports do not attempt to explain groundwater quality based on management practices or to infer the adequacy of these management practices in protecting groundwater based on groundwater quality. The RMP is developing recommendations for management practices, solutions, and upgrades to help reduce subsurface nitrogen and salt emissions. The RMP made steady progress toward developing industry recommendations to meet the April 1, 2019 schedule mandated by the 2013 General Order.

The Year 8 (2019) report provides cumulative data collected from January 2012 through December 2019, the RMP observations confirm that first encountered groundwater is affected by historical and/or current dairy farming practices. With few exceptions, nitrate-N concentrations beneath lagoons, animal housing, and crop fields are greater than 10 mg/L. From quarterly observations (first quarter 2012 to the third quarter 2019) collected from CVDRMP's dedicated monitoring wells indicate the following groundwater TN concentration trends:

a. 34% (88 data sets) increasing,
b. 26% (63 data sets) decreasing,
c. 41% stable conditions (106 data sets).

The 2019 mean TN concentration across all dairies was 46 mg/L; it was the highest in light soils and in shallow groundwater (55 and 49 mg/L, respectively); and 33 mg/L in both deep groundwater and heavy soils.

Of the three management units, the 2012-2019 TN concentration increase in wells associated with fields was similar to the Comprehensive (All) subgroup (11 mg/L compared to 13 mg/L). This is consistent with the fact that field wells contribute the largest subset of data points. Groundwater near lagoons exhibited the greatest concentration increase over the 8-year monitoring period (30 mg/L; p=0.02).

The Year 9 (2020) report provides cumulative data collected from January 2012 through December 2020, the RMP observations confirm that first encountered groundwater is affected by historical and/or current dairy farming practices. With few exceptions, nitrate-N concentrations beneath lagoons, animal housing, and crop fields are greater than 10 mg/L. From quarterly observations (first quarter 2012 to the third quarter 2020) collected from CVDRMP's dedicated monitoring wells indicate the following groundwater TN concentration trends:

a. 35% (92 data sets) increasing,
b. 23% (60 data sets) decreasing,
c. 42% stable conditions (109 data sets).

The 2020 mean TN concentration across all dairies was 44 mg/L; it was the highest in light soils and in shallow groundwater (55 and 46 mg/L, respectively); and 34 mg/L in deep groundwater and 28 mg/l in heavy soils.

Of the three management units, the 2012-2020 TN concentration increase in wells associated with fields was similar to the Comprehensive (All) subgroup (12 mg/L compared to 14 mg/L). This is consistent with the fact that field wells contribute the largest subset of data points. Groundwater near lagoons exhibited the greatest concentration increase over the monitoring period (28 mg/L; p=0.02).

The Year 10 (2021) report provides cumulative data collected from January 2012 through December 2021, the RMP observations confirm that first encountered groundwater is affected by historical and/or current dairy farming practices. With few exceptions, nitrate-N concentrations beneath lagoons, animal housing, and crop fields are greater than 10 mg/L.

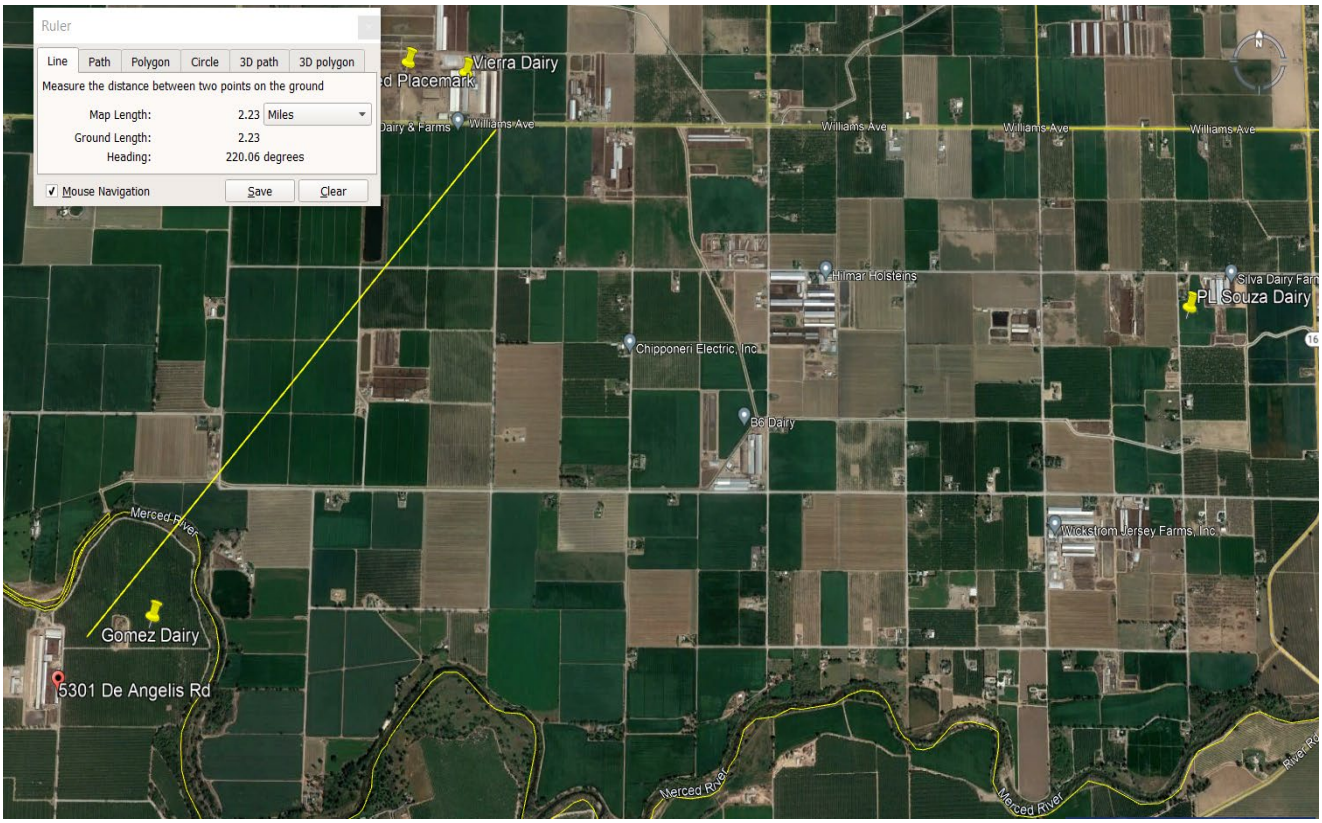
- TN concentrations associated with wells that have onsite sources increased by 16 mg/l from 2012 to 2021.
- TN concentrations associated with wells that have off site sources increased by 8 mg/l from 2012 to 2021.

The 2021 mean TN concentrations across all dairies were higher in shallow and light soil wells (47 and 57 MG/l, respectively) than in deep and heavy soils (34 and 28 Mg/l respectively). Of the three management units, the 2012-2021 TN concentration increase in wells associated with fields (17 mg/l) was similar to the Comprehensive (All) subgroup (16 mg/L). This is consistent with the fact that field wells contribute the largest subset of data points. The 2021 mean TN concentration was 40 mg/l. (Luhdroff, 2022)

The CVDRMP site specific information provides another assessment of the area near the Vierra Dairy. The CVDRMP nearby dairies include: P. and L. Souza Dairy (PLS) located at 20633 Crane Avenue in Hilmar, CA and the Fran J. Gomes Dairy #1 Dairy (FG1) located at 5301 North DeAngelis Road, Stevinson, CA. Both of the sites are approximately two miles to the east and southwest respectively from the Vierra Dairy, see the aerial depiction below.

As stated in the Year 10 RMP report, PLS has seven monitoring wells that have been sampled over the monitoring period. Groundwater levels have remained stable and Nitrate ranges from 35 to 120 mg/l over the monitoring period. As stated in the Year 10 RMP report, FG1 has nine monitoring wells that have been sampled over the monitoring period. Due to the close proximity to the river, groundwater levels have had some variability and Nitrate ranges from non-detect to 120 mg/l over the monitoring period. These nearby individual site Nitrate as N concentrations have

higher concentrations but the mean concentrations are similar to the values presented in the executive summary.



Aerial Locations of RMP Dairies (GoogleEarth, 2023)

Luhdorff and Scalmanini, as part of the Dairy RMP program, published an extensive report related to earthen liquid dairy lagoons. The report compiled groundwater quality data from the RMP network, data from whole-lagoon seepage testing, lagoon liquor quality, and perimeter soil borings around lagoons and groundwater quality and geophysical surveys. Conclusions were provided for seepage rates and nitrogen mass emissions, salinity effects on soils and groundwater and utility of concentration-based assessment of lagoons. The report determined that a majority of nitrogen loading was related to cropland and not lagoon operations. Salinity effects tended to be near the lagoons in most cases and little to no impact was observed at a distance of 50 to 150 feet from the lagoon perimeter. Furthermore, the RMP concluded field work associated with its Corral Subsurface Hydrogeology.

In accordance with Provision 29 of the General Order, all dairies must comply with Title 27. As explained in the General Order Information Sheet, the Title 27 design standards for ponds were determined to not be protective of groundwater quality, and there are technologies available which can provide greater groundwater protection. Because

Section 13360 of the California Water Code (CWC) requires that WDRs not specify the design, location, type of construction, or particular manner in which compliance may be had with the requirements, the General Order cannot specify any particular pond design. However, the General Order establishes performance standards for new wastewater ponds that are more stringent than Title 27 to provide increased groundwater protection.

The Vierra Dairy was previously regulated under the 2007 General Order with 2011 revisions, which was replaced by the Reissued Dairy General Order (R5-2013-0122). Since the proposed expansion would increase the mature cow number established under the WDR by greater than 15 percent, the proposed expansion may require a new individual WDR. Significant operational and reporting requirements will be required as part of the individual WDR process. Nutrient management practices required by the individual WDR will continue as follows:

- Discharge reporting.
- Groundwater monitoring,
- Wastewater sampling and application monitoring,
- Irrigation application monitoring,
- Facility and land application visual inspections,
- Crop nitrogen/phosphorus uptake monitoring, and
- Field specific nutrient budgeting.

REGIONAL WATER QUALITY CONTROL PLAN

Individual RWQCBs regulate animal confinement facilities, including dairies and other types of facilities, by developing and enforcing a Basin Plan that identifies beneficial uses of waters in the region and establishes policies to protect those uses. Agriculture and dairies are designated as beneficial uses of water resources in the Basin Plan.

The RWQCB regulates dairies under the provisions of Article 1, Subchapter 2, Chapter 7, Division 2, Title 27 of the California Code of Regulations, and the Porter Cologne Water Quality Control Act. The Basin Plan for the Sacramento-San Joaquin Valley (Basin Plan) developed by the Central Valley RWQCB generally regulates agriculture practices.

One mechanism used to protect water quality is for RWQCBs to issue WDRs that specify waste management practices and impose reporting requirements as discussed above. The CVRWQCB regulates some animal confinement facilities under individual WDRs depending upon site-specific conditions and regulatory assessment, as described above. Planning documents related to these permits include a Nutrient Management Plan and Waste Management Plan.

NUTRIENT MANAGEMENT PLAN AND WASTE MANAGEMENT PLAN

The NMP/WMP planning process is used to implement best management practices for dairies. The NMP/WMP are planning documents used to describe facility operations, develop wastewater disposal options, and outline mitigation measures for each dairy. These documents are required to be revised as appropriate for the operation. Specific elements related to the number and type of animals dictate the size of a facility, fresh/flush water needs, and wastewater generation. Nitrogen and salt balance calculations based on the herd description, housing requirements (i.e., flush freestalls or dry lots), acreage available for land application, and crop nutrient removal rates are made to determine the nitrogen and salt uptake for the proposed cropping pattern. On-site wastewater plans, storage elements, and storm water planning may be modified based on the calculations contained in the NMP/WMP.

As mandated by the ACO, a NMP/WMP in place of a Comprehensive Nutrient Management Plan (CNMP)[4] for the Vierra Dairy facility was prepared pursuant to the requirements of the CVRWQCB (see Appendix J of the Environmental Impact Report for the expansion Project). The NMP and WMP for the proposed dairy expansion, referenced, were used for the evaluation in this technical study. To establish a baseline, the referenced NMP and WMP were used to represent existing conditions.

CALIFORNIA STATEWIDE SUSTAINABLE GROUNDWATER MANAGEMENT ACT

The Sustainable Groundwater Management Act (SGMA) was signed into law on September 16, 2014 and is a package of three groundwater laws. The law was then amended in 2015 and these changes were effective as of January 1, 2016.

The SGMA allows customized groundwater sustainability plans to be designed by groundwater sustainability agencies (GSA) to manage groundwater resources while being sensitive to local economic and environmental needs. GSAs were formed and plans were developed addressing basins in critical overdraft and by January 31, 2022 for all other basins.

The GSAs are responsible for submitting an annual report summarizing groundwater elevation data, groundwater extraction, groundwater recharge (from surface water supply used or available for use), total water use, and change in groundwater storage. As part of the annual reporting effort, individuals who are outside groundwater adjudication boundaries and within medium or high priority basins and who use more

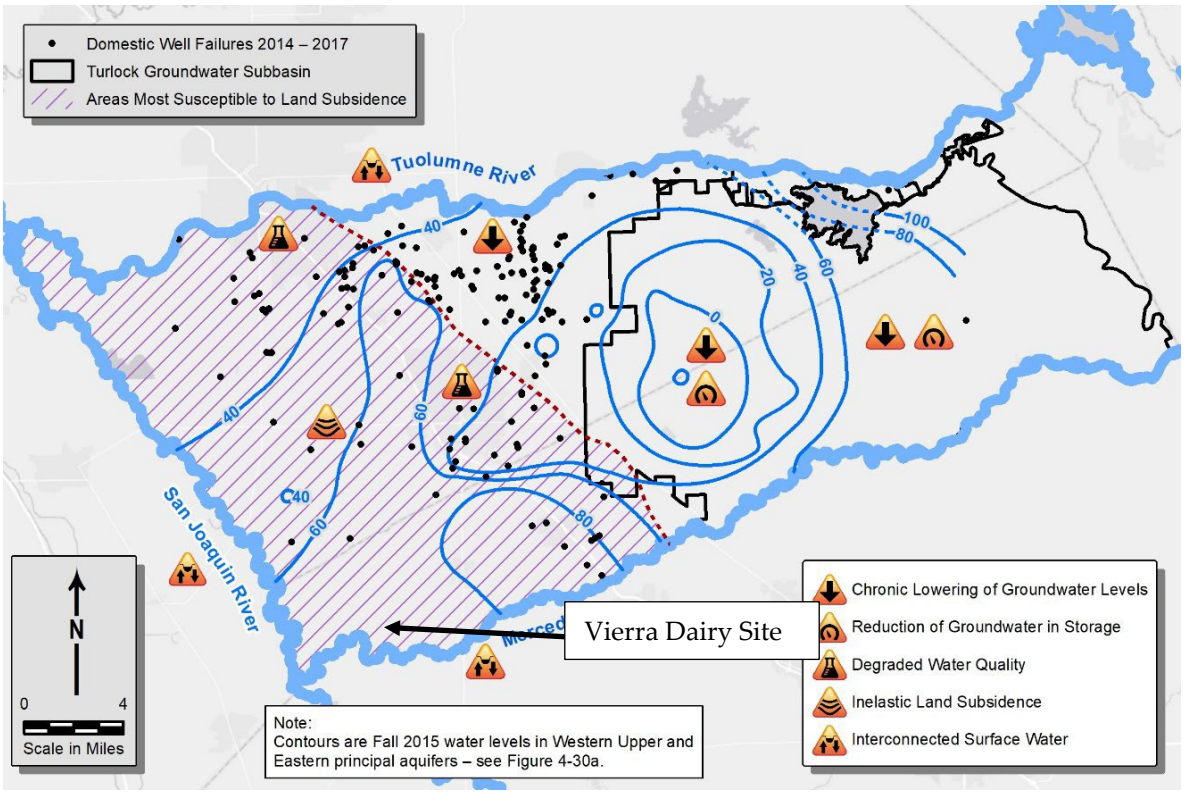
[4] Since adoption of the ACO, the CVRWQCB required the preparation of a NMP and WMP, which would serve in place of the CNMP as allowed by Merced County Code Chapter 18.64.060 K.

than 2 acre-feet (651,702 gallons) per year of groundwater may be required to track their usage and provide an annual report to their respective GSA and SWRCB.

As referenced in Section 1, the Vierra Dairy is located in the jurisdiction of the West Turlock Subbasin Groundwater Sustainability Agency. The west and east GSAs developed the one referenced GSP.

After years of implementation efforts under the GSP, the SWRCB will be authorized to intervene if local agencies prove unable or unwilling to correct groundwater management problems. The goal of the implementation of the GSP is to help avoid chronic lowering of groundwater levels, avoid significant and unreasonable groundwater storage reduction, seawater intrusion, water quality degradation or land subsidence, and avoid surface water depletions that have adverse impacts on surface water beneficial uses. Sustainable groundwater management, with successful implementation of GSP, should be reached by 2040 for basins in critical overdraft and by 2042 for other basins.

As stated in the GSP and depicted on Figure ES-7, a summary depiction is provided of the primary hydrogeological considerations across the Subbasin with respect to sustainable management criteria selection. Icons of the five applicable sustainability indicators have been generally placed around the Subbasin for illustration purposes. As indicated on Figure ES-7, chronic lowering of groundwater levels and reduction of groundwater in storage (overdraft) occur primarily in the Eastern Principal Aquifer. Associated water level declines led to adverse impacts to public supply wells and domestic drinking water wells during recent drought conditions. Characterization of groundwater quality identified six constituents of concern to track and analyze from existing drinking water monitoring programs for potential water quality impacts from future GSA management activities. Interconnected surface water criteria have been selected to protect each river boundary, with the most stringent criteria along the Merced River. No impacts from land subsidence have been documented to date in the Turlock Subbasin, although the area within the extent of the Corcoran Clay may be susceptible to future subsidence if water levels continue to decline (striped area on Figure ES-7 of the GSP, 2022).



Sustainability Considerations (Taken from the GSP Figure ES-7)

As stated in the GSP, to achieve the sustainability goal for the Turlock Subbasin by 2042, and to avoid undesirable results over the remainder of a 50-year planning horizon, Projects and Management Actions have been developed by the GSAs. A total of 23 GSP projects were identified and categorized into three groups: Group 1 projects are already being constructed and will continue to be implemented, Group 2 projects are planned and will be implemented, and Group 3 projects have been identified and may be implemented in the future, as needed. Groups 1 and 2 include 11 projects, which were analyzed using the C2VSimTM model to estimate their benefits over the projected implementation and planning horizon (GSP, 2022). Most projects and management actions relate to the increase of aquifer recharge. Specifically, the TID On-Farm Recharge, Project 6, has the components to reward the tracking of land application projects and use of mix water like the Vierra Dairy Expansion Project. The GSA has confirmed the recharge success in the Western Upper Principal Aquifer. The GSP Annual reports provide a summary of the results from projects and management actions using the following elements: A) Groundwater Extraction, B) Groundwater Extraction Methods, C) Surface Water Supply, D) Total Water Use, E) Change in Storage and F) Monitoring Network Modules.

IRRIGATED LANDS REGULATORY PROGRAM

A range of pollutants can be found in runoff from irrigated lands, such as pesticides, fertilizers, salts, pathogens, and sediment. The Irrigated Lands Regulatory Program (ILRP) of the CVRWQCB regulates discharges from irrigated agricultural lands. Its purpose is to prevent agricultural discharges from impairing the surface waters that receive the discharges. To protect these waters, RWQCBs issued conditional waivers of WDRs to growers that contain conditions requiring water quality monitoring of receiving waters and corrective actions when impairments are found. The development of the Long-term Irrigated Lands Regulatory Program General Orders, which will protect both surface water and groundwater, are underway, and the following Orders were adopted by the RWQCB in preparation of this report:

- Eastern San Joaquin River Watershed General Order (Order R5-2012-0116-09) – includes revisions through February 28, 2020. This Order provides WDRs and MRP for discharges from irrigated lands within the eastern San Joaquin River watershed.
- Grassland Drainage Area General Order (Order R5-2015-0095 -04) includes revisions through February 28, 2020. This program regulated discharge to groundwater in the Grassland Drainage Area and is similar to other IRLP orders.
- Individual Discharger General Order (Order R5-2013-0100) - adopted in July 2013. This Order regulates waste discharges from irrigated lands for individuals who are not enrolled under WDRs administered by a third-party.
- Tulare Lake Basin Area General Order (Order R5-2013-0120 - 08) – adopted in September 2013 and includes revisions through February 28, 2020. This Order provides WDRs and MRP for discharges from irrigated lands within the Tulare Lake Basin.
- Western San Joaquin River Watershed General Order (Order R5-2014-0002-09) includes revisions through February 28, 2020. This Order provides WDRs and MRP for discharges from irrigated lands within the western San Joaquin River Watershed.
- San Joaquin County and Delta Area General Order (Order No. R5-2014-0029 - 05) includes revisions through February 28, 2020.

In implementing the ILRP, the CVRWQCB allowed growers to combine resources by forming water quality coalitions. The coalition groups work directly with their member growers to assist in complying with CVRWQCB requirements by conducting surface water monitoring and preparing regional plans to address water quality problems. Of the estimated 35,000 growers in the Central Valley, there are approximately 25,000 landowners/operators who are part of one of eight water quality coalition groups. If growers do not obtain regulatory coverage with payment of a membership fee for their

waste discharges as a part of a Coalition Group, they must file a ROWD and filing fee with the CVRWQCB to obtain a grower-specific permit. The Conditional Waiver requires that coalition groups comply with General Order WDRs, implement Monitoring and Reporting Program plans, and submit periodic monitoring reports and monitoring data. When there were two or more exceedances of the same pollutant at the same site within a three-year period, Management Plans must be prepared and implemented.

There is significant overlap between the ILRP and the Dairy Programs with regard to regulatory requirements, monitoring, and best management practices. The Vierra Dairy may be regulated under the ILRP program if regulations change. If site conditions change (i.e., the Dairy Program regulations no longer apply, or if project area cropland is not included in the dairy's NMP) and a regulatory assessment warrants action under the ILRP, the farm could potentially participate in the East San Joaquin Water Quality Coalition by paying a membership fee. This Coalition represents all member dischargers as the monitoring and reporting entity for the Eastern San Joaquin River Watershed General Order (Order R5-2012-0116-09).

CENTRAL VALLEY SALINITY ALTERNATIVES FOR LONG TERM SUSTAINABILITY (CV-SALTS) ALONG WITH THE NITRATE CONTROL PROGRAM (NCP)

In 2018, the CVRWQCB adopted Basin Plan amendments (Resolution R5-2018-0034) (and as amended in the 2020 Resolution R5-2020-0057) that established valley-wide Salt and Nitrate Control Programs. Central Valley Salinity Alternatives for Long Term Sustainability (CV-SALTS) is a collaborative stakeholder driven and management effort to develop sustainable salinity and nitrate management planning. The long-term solutions for managing salt in the Central Valley will be developed and implemented through a phased Salt Control Program. The three phases of the Salt Control Program include: (1) Complete a comprehensive study and analysis to define long-term salt management actions, beginning in 2021 over 10 to 15 years; (2) Complete design and permitting of projects identified in Phase 1; and (3) Construct projects to manage salts. The program approach is intended to protect beneficial uses by maintaining water quality that meets applicable objectives, allow some salt accumulation in areas where salt can be stored without impairing beneficial uses of water, and through long-term management, restore water quality where reasonable, feasible, and practicable. In 2020 and 2021, initiatives were made through the IRLP coalitions, the CVDRMP, and private WDR holders to fund the 20-year salinity study. The CVDRMP is paying the fee for participation in the CV-SALTS Salt Control Program on behalf of its members.

The Nitrate Control Plan (NCP) collaboratives were developed in Merced County within the 2020 Priority 1 subbasins (Turlock and Chowchilla). The collaboratives were charged with developing and implementing action plans to provide safe drinking water, reducing nitrate impacts and restoring groundwater quality. Discharges off site would have to comply with discharge limits outlined in the Basin Plan and the 2020 Revised Salt and Nitrate Program Resolution R5-2020-0057.

Vierra Dairy (by membership in the CVDMRP) and Turlock Subbasin CVSALTS concerns have been included in the Valley Water Collaborative (VWC) directive in 2021. In March 2021 the Turlock Management Zone (MZ) and Early Action Plan (EAP) efforts were completed. The depiction from the EAP Figure ES-2 provides the nitrate levels reported by the VWC. The ES-2 map depicts the area near the Vierra Dairy as elevated above >10 mg/l. MZ pathway updates are detailed below.

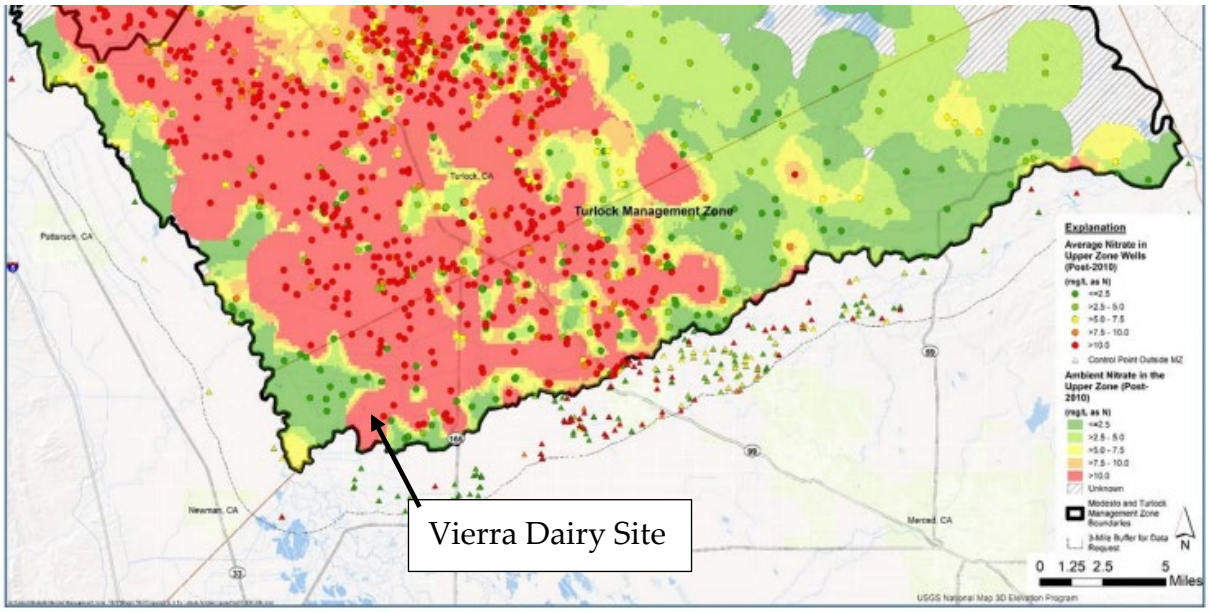
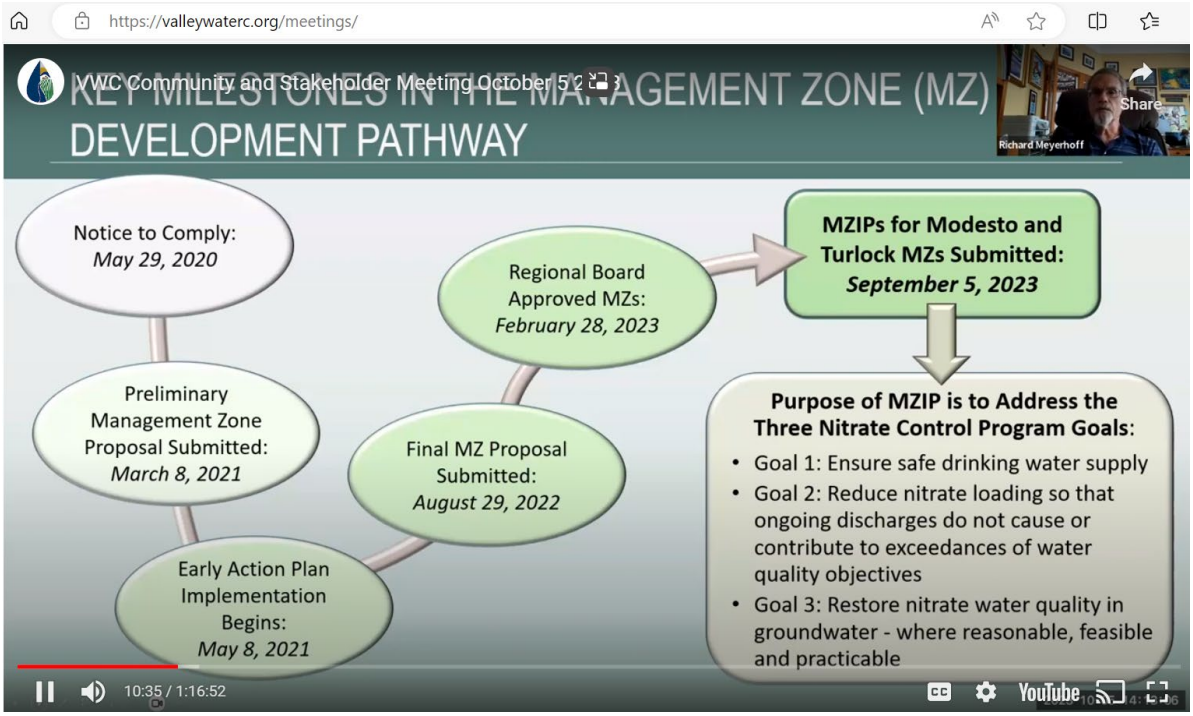


Figure ES-2. Areas in the Turlock Management Zone where Nitrate Levels in Groundwater Are Most Likely To Be > 7.5 mg/L-N (Orange and Red Areas) (Note: This map is subject to change as more Upper Zone nitrate data become available)

Nitrate Levels (Taken from the VWC EAP Figure ES-2)

As referenced in the video screen shot from the Valley Water Collaborative web site, the milestones and management development pathway is provided.



TMDL AND IMPACTED WATERWAYS NEAR THE PROJECT SITE

Under Section 303(d) or §303(d) of the CWA, states are required to identify and list water bodies that do not meet applicable water quality standards. Such water bodies receive a ranking for the establishment of TMDL for all listed water contaminants that do not meet water quality standards. States are required to establish a TMDL for these water bodies that will lead to achieving the applicable water quality standards, and to allocate the TMDL among all contributing sources. The assessment of sources may indicate that a water body is impaired because of nutrient or pathogen problems attributable to animal manure or wastewater, or because a watershed has more manure generated than there is land available for application. The TMDLs will be implemented through NPDES permits, nonpoint source control programs, and other local and state requirements.

Several streams or rivers in this area of Merced County have §303(d) listing as per the California 2020-2022 Integrated Report (Appenidix A 303(d) List) and web link:

2020-2022 California Integrated Report | California State Water Resources Control Board

The Merced and San Joaquin Rivers are 303d listed. See Section 3.5 for more specific details.

3.3 CALIFORNIA DEPARTMENT OF WATER RESOURCES FLOOD MANAGEMENT

The California Department of Water Resources Division of Floodplain Management constructs and operates regional scale flood protection systems in partnership with federal and local agencies, and provides technical, financial, and emergency response assistance related to flooding. The DWR prepared non-regulatory Best Available Maps showing 100, 200, and 500-year floodplains using data compiled from various sources intended to support community-based planning and flood risk management. The 100-year areas are similar to those of FEMA maps, with some additional areas and localized differences. Refer to Section 2.8 for specific site details.

3.4 MERCED COUNTY

ANIMAL CONFINEMENT ORDINANCE

The Merced County Animal Confinement Ordinance regulates the design, construction, and operation of animal confinement facilities within the county. Because the ACO is regulatory rather than permissive, all existing and proposed animal confinement facilities within the county are required to comply with the terms of the ACO, including Vierra Dairy projects. The Merced County ACO is included as article 4 of Title 18 Zoning of the Merced County Code.

Merced County regulations under the ACO maintain water quality standards that are consistent with the CVRWQCB Basin Plan. The Merced County ACO addresses potential impacts to water quality primarily through preparation and implementation of a CNMP. If a site-specific CNMP is followed and if best management practices are used, nitrogen loading and salt loading to groundwater will be minimized. Since adoption of the ACO, the CVRWQCB required the preparation of a NMP and WMP as described above, which would serve in place of the CNMP as allowed by County Code Chapter 18.64.060.

The Merced County ACO contains additional provisions to protect water quality. For example, ACO require that all wastewater or storm water that comes into contact with manure be maintained on the project site, or applied to other sites only upon written approval of the landowner. ACO requires that off-site property owners accepting wastewater (liquid manure) complete written agreements to accept responsibility for proper land application. As per the ACO notification of Merced County Division of Environmental Health (DEH) for any off-site discharge of wastewater and application of manure at agronomic rates. For the permanent closure of an animal confinement facility, ACO requires that DEH to review and approve specific collection of soil samples from underneath existing ponds to be abandoned after liquid and solids are

removed. Permits must be obtained from DEH prior to construction and an inspection must be performed prior to use of a newly constructed pond or basin. Portions of the ACO that specifically apply to protection of water quality (see the appendices of the Environmental Impact Report for the Vierra Dairy Project) for the full text of the ACO or web search

< http://www.qcode.us/codes/mercedcounty/>).

To address potential impacts to water resources, the EIR prepared for the ACO contains mitigation measures to be implemented during environmental review of animal confinement facility projects such as the proposed project. Mitigation measures adopted as policy in the EIR for the ACO include:

- Measures to reduce groundwater contamination; and,
- Measures to reduce the risk of contamination of surface waters during flood events.

These mitigation measures as contained in the EIR for the ACO, are incorporated as study protocols for this technical study and serve as the basis for mitigation measures identified in this document.

MERCED COUNTY WELL ORDINANCE

The Merced County Code Chapter 9.28, *Wells* contains Water Well Standards (Chapter 9.28.060) that would minimize the potential for contaminated water to enter the well and contaminate groundwater. The standards include well setback distances from potential sources of contamination and pollution, and standards for construction as set forth below:

Merced County Code, Chapter 9.28.060 - Water Well Standards

C. Well Construction

1. Well location. All wells shall be so constructed as to prevent the entrance of surface water and contaminated groundwater into the well or into the producing aquifer, and shall be separated a safe distance from potential sources of contamination and pollution. The following minimum horizontal distances shall be maintained for all wells furnishing potable water for human consumption:

	Water Well (feet)	Public Well (feet)
Septic tank or sewer line	50	100
Leach line or disposal field	100	150
Leaching/seepage pit	150	200
Areas of intense animal confinement	100	150
Agricultural well	300	300
Unlined canals, surface body or course or drainage water pond	100	100
Swimming pool	10	10

2. Property Line Setback. All wells shall be located with a minimum setback of fifteen (15) feet from a property line. The health officer may authorize an exception to this requirement where space restrictions on existing small lots necessitate, but in no case shall the minimum setback of the well from the property line be less than five feet.

3. Casing perforations. All wells supplying water for human consumption shall be constructed with a fifty (50) foot minimum continuous, unperforated casing, except in areas where the only potable water is at a depth of less than fifty (50) feet. In such instances, the depth to the first perforations in the well may be reduced to less than fifty (50) feet below ground surface if prior approval is granted by the Health Officer. In no case shall the depth of the annular seal or the depth of the first perforations be reduced to less than twenty (20) feet below ground surface.

   a. Corcoran clay. All wells penetrating Corcoran clay shall be constructed in a manner such as to prevent the intermixing of waters above and below the Corcoran clay layer. There shall be no perforations above and below the Corcoran clay layer in the same casing.

Sections C.4 – C.12 have been modified.

MERCED COUNTY GENERAL PLAN

The Water Element of the 2030 Merced County General Plan, data December 10, 2 013 contains goals and policies pertaining to protection of water resources in Merced County. Those water policies that are relevant to the project site are presented below:

Policy W-2.4: Agricultural and Urban Practices to Minimize Water Contamination

Encourage agriculture and urban practices to comply with the requirements of the Regional Water Quality Control Board for irrigated lands and confined animal facilities, which mandate agricultural practices that minimize erosion and the generation of contaminated runoff to ground or surface waters by providing assistance and incentives.

Policy W-2.5: Septic Tank Regulation

Enforce septic tank and onsite system regulations of the Regional Water Quality Control Board to protect the water quality of surface water bodies and groundwater quality.

Policy W-2.6: Wellhead Protection Program

Enforce the wellhead protection program to protect the quality of existing and future groundwater supplies by monitoring the construction, deepening, and destruction of all wells within the County.

Policy W-3.13: Agricultural Water Reuse

Promote and facilitate using reclaimed wastewater for agricultural irrigation, in accordance with Title 22 and guidelines published by the State Department of Public Health.

These policies were considered in the evaluation of the proposed project and the formulation of appropriate mitigation measures below.

MERCED COUNTY ZONING CODE

Merced County is responsible for implementing FEMA floodplain management regulations. The Zoning Code Section 18.26.050, Provisions for Flood Hazard Reduction (Flood Ordinance) contains specific requirements limiting and discouraging development in various flood zones, as designated on FIRMs. The County's Flood Ordinance defines areas of special flood hazard as Zones A, AO, AE, or AH. For areas in a special flood hazard zone, no development may occur on the site until all relevant requirements of the Flood Ordinance are satisfied. These requirements as set forth in the Zoning Code include construction standards for both occupied and non-occupied structures, utilities, mobile homes, and for non-residential structures. These standards include anchoring structures to prevent flotation, collapse or movement, raising structures above the base flood elevation or otherwise flood proofing them,

constructing adequate drainage paths around structures to guide floodwaters around and away from proposed structures, providing a determination of the base flood elevation as determined by a licensed engineer, and drafting all subdivision plans so that they identify the flood hazard area and elevation of the base flood, and provide an update to the elevation of proposed structures and pads.

REGULATORY COMPLIANCE AUDIT

The Merced County Planning and Community Development Department requests regulatory compliance audits of expanding dairies from the Division of Environmental Health (DEH) as part of the Conditional Use Permit (CUP) evaluation process prior to project approval. As referenced in the DEH letter dated March 2, 2021, DEH staff completed a regulatory compliance audit of the Vierra Dairy. The dairy inspection included an evaluation of the facility for compliance with the operations, nutrient and waste management as per Merced County Animal Confinement Ordinance (Merced County Code Chapter 18.64). The facility was found to be in compliance and they gained approval to proceed with the conditional use permitting process.

3.5 TMDL AND IMPACTED WATERWAYS NEAR THE PROJECT SITE

Under Section 303(d) of the CWA, states are required to identify and list water bodies that do not meet applicable water quality standards. Such water bodies receive a ranking for the establishment of Total Maximum Daily Load[5] for all listed water contaminants that do not meet water quality standards. States are required to establish a TMDL for these water bodies that will lead to achieving the applicable water quality standards, and to allocate the TMDL among all contributing sources. The assessment of sources may indicate that a water body is impaired because of nutrient or pathogen problems attributable to animal manure or wastewater, or because a watershed has more manure generated than there is land available for application. The TMDLs will be implemented through NPDES permits, nonpoint source control programs, and other local and state requirements.

The Merced and San Joaquin Rivers are located approximately 2 and 4 miles to the south and west of the project site, respectively. Both the rivers and the nearby laterals are listed as impaired under Section 303(d). As listed under the 2020-2022 California Section 303(d) List of Water Quality Limited Segments of the San Joaquin River, the segment is impaired for the pollutants/stressors of boron, chlorpyrifos, DDE, DDT,

5 A Total Maximum Daily Load, or TMDL, is a calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards.

electrical conductance (E.C.), Group A Pesticides, mercury, temperature, unknown toxicity, and alpha BHC - the likely source of pollutants is agriculture. The Merced River is adjacent to the southern application fields. The Merced River is listed as impaired under Section 303(d). As listed under the 2020-2022 California Section 303(d) List of Water Quality Limited Segments, the segment is impaired for the pollutants/stressors of chlorpyrifos, diazinon, E. coli, Group A Pesticides, mercury, temperature, and unknown toxicity. The likely source of pollutants is agriculture or resource extraction.

The CVRWQCB adopted Amendments To The Water Quality Control Plan For The Sacramento River and San Joaquin River Basins in February 2019. Discharges off site would have to comply with discharge limits outlined in the Basin Plan and the 2020 Revised Salt and Nitrate Program Resolution referenced above. The existing tailwater system prevents the movement of excess irrigation water off site from the project fields. The tile drain system discharges to the TID canal system. Water samples from the Vierra tile drain system had previously been collected from the pump outfall at the intersection of Faith Home Road and Lateral 7, though it was discontinued in 2015.

4 EXISTING AND PROPOSED DAIRY CONDITIONS

4.1 EXISTING AND PROPOSED PROJECT OPERATIONS AND NMP & WMP SUMMARY

The project applicant has prepared a NMP/WMP as required by the CVRWQCB General Order for Milk Cow Dairies. A professional engineer registered in the State of California and a Certified Crop Advisor completed the required elements of the NMP/WMP. The previously prepared NMP and WMP for the existing dairy operations, dated in August and November 2017 respectively, were used to establish a baseline of existing conditions.

The existing facility consists of the following:

- four freestall barns
- rotary dairy milk barn
- corrals
- manure drying and storage areas
- five on-site residences
- raised calf hutches
- three commodity barns
- heifer barn
- storage barn
- utility shop
- modular office
- feed/silage areas
- four solid settling ponds
- one wastewater storage pond
- equipment area
- shade barn
- loafing barn
- calf pens

Animal wastes from feed alleys and other concrete-surfaced areas are flushed to an on-site waste management system that consists of four settling basins and one wastewater storage pond. The area of active dairy facilities has been graded to direct corral runoff to the existing waste management system. Stormwater runoff from impervious surfaces and roofed areas is routed to the wastewater pond, except for stormwater from a shade barn and heifer shade, which is routed to fields. Recycled water is used to clean the milk parlor floor and is the source of sprinkler pen water.

Dry manure is scraped from corrals once per year. Manure solids are separated from liquids in a separation system combined with four separation basins. The mechanical separators on the facility are generating material daily. This material is moved from the separator pad several times a week and transferred into the manure drying area where it is placed in windrows. Once in windrows, the dairy has a windrow turner that dries and conditions the material. Once the drying process is completed (typically several weeks depending upon the weather), the material can then either be used for freestall bedding (consisting of dry manure and almond shells), applied on the project site, or sold to brokers and hauled off-site to fields in the project vicinity. As reflected in the NMP, approximately 30,000 tons of solid manure and separated solids (or approximately 485,000 pounds of nitrogen) (approximately 25-30 percent of the dry

manure generated at the dairy) is exported and applied to off-site fields not owned by the dairy operator.

The dairy facility uses both surface water and groundwater resources for farm operations. Domestic water to the site and dairy barns is provided by three on-site water wells (there are four additional domestic wells associated with the project). Irrigation water is supplied by surface water sources from TID canals and two irrigation wells. Wastewater is mixed with irrigation water supplied by TID canal surface water or on-site wells and applied to cropland. Receiving fields are graded to guide excess applied irrigation water to an existing tailwater return and/or retention system. Collected tailwater is recycled and returned to the nearest field pipe access for reapplication. Field application of wastewater would include surface irrigation via pipeline.

As referenced in the IS/NOP, the proposed project would include the construction of supporting buildings and structures at the
existing dairy, including:

- two (2) freestall barns of approximately 121,500 square feet each and associated corrals
- 10,000 square foot hospital milking barn
- 15,160 square-foot commodity barn addition
- 195,200 square-foot heifer barn (covering existing corrals)
- 18,000 square-foot utility shop

See Figure 6 in the IS/NOP for the proposed dairy site plan. Further dairy modifications would include additional concrete and earthen manure drying areas, mechanical manure separator, and a septic system near the proposed hospital milking barn. The existing calf pens, utility shop, modular office, and associated septic systems would be removed with construction of the proposed facilities.

With the recent purchase of surrounding farmland over nine additional parcels, there would be approximately 770± acres of cropland available for wastewater and manure application with the proposed dairy expansion (see the IS/NOP Table 4 and Figures 7a and 7b for the layout of the dairy fields). (All new cropped fields are already equipped with pipelines and tailwater return and/or retention systems.) Crops grown on-site, including double-cropped oats silage and corn silage, would be used for dairy feed crops and supplement imported grain and hay. Construction of the proposed facilities would result in the conversion of approximately 15 acres of cropland, and cropped acreage on Williams 3 would be reduced from 32 acres to 17 acres (see Table 4). Silage piles would remain the same as existing operations.

Animal wastes from freestall and other concrete-surfaced areas would continue to be flushed to an on-site waste management system, except for solid manure within corral areas, which would continue to be scraped. Liquid manure would continue to be directed to the wastewater storage ponds.

Stormwater runoff from impervious surfaces and roofed areas would continue to be routed to the wastewater pond, except for rainwater from several barns, which would be routed to nearby fields and yards. Wastewater would continue to be mixed with irrigation water and applied to the fields.

Solid manure that accumulates within corrals would continue to be scraped. With the proposed dairy expansion, dry manure would continue to be composted on-site and removed once a month. Dry manure and almond shells would continue to be used for bedding; additional manure would be sold and hauled off-site for use as fertilizer and soil amendments.

As referenced in the IS/NOP, with the proposed dairy expansion, dry manure would continue to be composted on-site and removed once a month. Dry manure and almond shells would continue to be used for bedding; additional manure would be sold and hauled off-site for use as fertilizer and soil amendments. Manure solids would continue to be separated from liquids in a separation system combined with four separation basins. As reported in the NMP, exported solid manure applied to off-site agricultural fields not owned by the project applicant would increase from 30,000 tons of solid manure from the dairy facility and 34,000 tons of solid manure with the proposed expansion (approximately 35-40 percent of previously separated solids). While the exact location of these off-site cropland parcels may vary throughout operations, the disposal of manure at off-site locations and the acreage necessary to properly dispose of manure liquids and solids are accounted for in the project NMP.

According to the General Order, nitrogen application rates shall not result in total nitrogen applied to the land application areas exceeding 1.4 times the nitrogen that will be removed from the field in the harvested portion of the crop, unless plant tissue sampling identifies a need to increase fertilizer application of a specific crop. The whole farm nitrogen balance is a ratio that reflects the total nitrogen generated by the operation minus losses

field nutrient balance ratio =
nitrogen applied (from irrigation/fertilizer/manure) ÷ total N removed by crops

whole farm nitrogen balance =
(N stored + N imported + atmospheric N – N exported) ÷ total N

and exports, divided by the nitrogen removed by crops. The General Order requires that if the whole farm nitrogen balance is greater than 1.65, a review must be made of nitrogen inputs and outputs at the facility to identify how to reduce inputs to meet the standard.

Under existing conditions as reported in the NMPs, total annual gross nitrogen generated by facility is estimated at 1,201,899.2 pounds/year. Nitrogen exports currently total 485,000.0 pounds/year. After ammonia losses, existing operations reflect a whole farm nitrogen balance ratio of 1.4.

With implementation of the proposed expansion as reported by the June 4, 2020 proposed conditions NMP, total annual gross nitrogen generated by the expanded facility would increase to 1,659,351.8 pounds/year. A total of 712,760.0 pounds/year of nitrogen would be removed through nitrogen exports as solid manure. After ammonia losses, the whole farm balance ratio will be 1.39. Overall management of nitrogen on the farm, including increasing nitrogen exported, would result in a reduction in the whole farm nitrogen value.

From the existing facility WMP, dated November 2017 and a for a referenced normal precipitation year, there are currently 181,123 gallons per day of wastewater (approximately 66 million gallons per year) generated by the existing dairy herd (which includes process water from the milkbarn and manure and bedding, rainfall runoff into ponds, and direct rainfall onto ponds). The proposed expanded dairy would generate approximately 216,506 gallons/day of wastewater (approximately 79 million gallons/year for a normal precipitation year). There would be a 13 million gallon per year increase in process wastewater generated with the proposed dairy expansion and sent to the pond. This increase in water use is related to an increase in plate cooler water and other reusable water. Process wastewater from the pond would continue to be mixed with irrigation water and applied to crops.

The irrigation water demand of the existing farming operations is estimated by multiplying the cropable acres by the estimated average irrigation demand per acre. The existing NMP estimates an irrigation average demand of over 6 feet of water for cropped acres. As summarized in the IS/NOP, there are approximately 582 acres currently single and double-or-triple-cropped with oats silage – soft dough sudan and corn silage, for high total irrigation demand because of the 6 feet of water use.

The proposed NMP estimates an irrigation demand of up to 4 feet of water for cropped acers. Note that under proposed conditions, total land application area would be increased from 582 acres to 770 acres. However, the cropped acres within recently acquired fields are currently irrigated and would continue to be irrigated, and these acres were not included in the project calculations for change in irrigation water use. Therefore, this analysis considers the change in the existing 582 acres of cropland currently irrigated, which would decrease by approximately 15 to 567 acres under proposed conditions. With the proposed changes in cropping patterns as detailed above, the estimated crop water demand would decrease from 1.0023 to billion gallons to 739 million gallons of water annually, or a decrease of approximately 263.3 million gallons annually.

Using 79 million gallons of wastewater annually, the estimated wastewater component of the total irrigation the water demand is 10.7 percent of total water volume, not accounting for pond evaporation and evapotranspiration.

In summary, the proposed NMP/WMP establishes the following required facility improvements for the herd and potential areas of sensitivity under the proposed expansion:

- Proposed nutrient application rates meet required agronomic rates of 1.4 or less for best management farming practice mandated by the CVRWQCB. The whole farm nitrogen balance under existing conditions is 1.40 and would decrease to 1.39 under proposed conditions.
- The recommended amount of salt applied to cropland will be provided in the future versions of the approved NMP for the dairy.
- The proposed 27,370,660 gallons of storage capacity for the four solids settling and one wastewater pond would be sufficient to permit storage of wastewater generated by the facility for a 120-day cycle during normal precipitation periods and normal precipitation periods. Pond freeboard capacity is used to address 100-year storm events. Existing pond construction information was not available for review. Based on permitting information provided in the IS/NOP, the dairy lagoons were constructed with the facility several decades ago.
- A tailwater return and/or retention system, composed of berms, piping, and sumps, is used to prevent the movement of water off site.
- Rainwater would not be separated and would be co-mingled with on-site wastewater. Stormwater runoff from impervious areas would continue to be

directed to the wastewater management system, except for rainwater from several barns, which would be routed to a nearby fields and yards.

- Based on the November 2020 assessment, the site is partially in the Federal Emergency Management Agency (FIRM 2008) Zone A, and as discussed in Section 2.8 the proposed construction grading will protect against floods.
- With construction of the proposed facilities, approximately 15 acres of cropped acreage would be converted to active dairy facilities. This leaves 770 acres of the fields receiving both wastewater and solid manure. Fields would be cropped in oats silage-soft dough, and corn silage. Future crops could vary from those discussed above as long as nitrogen balance requirements are met. Additional off-site fields not owned by the dairy operator would receive solid manure and wastewater as a soil amendment purchase.

The NMP demonstrates that the proposed dairy facility would, after off-site disposal of solid wastes, comply with the nitrogen loading groundwater protection requirements of the CVRWQCB and the Merced County ACO. The NMP shows the whole farm balance would be reduced from 1.4 at the existing dairy facility, respectively. The proposed dairy facility whole farm balance is 1.39. The balance ratio would remain below the regulatory limit of 1.65.

4.2 SUMMARY OF POTENTIAL GROUNDWATER RESOURCE DEGRADATION FROM OPERATION OF THE VIERRA DAIRY EXPANSION

Expanded operations at the Vierra Dairy have the potential to result in the degradation of the area groundwater resources for the following reasons:

- With the increased dairy herd (which results in more wastewater processing), the expanded operations may contribute to the decline of groundwater elevations. However, the acres used for the land application of wastewater would reduce the whole farm risk of surface water and groundwater quality impacts. As referenced in the GSP, groundwater chemistry and depressions are minimally impacted in the subbasin area around the Vierra Dairy. GSP project goals including Project 6, the TID On-Farm Recharge, which has similar characteristics to the improved Vierra Dairy expansion program. This western area of the basin is a net groundwater recharging area.

- The Vierra Dairy proposed expansion would have a higher wastewater component to the total application amount of over 10 percent of the crop water demand. Note that due to the off-site export of solid manure, cropping patterns and other farm practices, the whole farm nitrogen balance has improved even with the higher wastewater percentage of land application water.

- The referenced annual reports from the CVDRMP demonstrate the level of concern related to waste containment and land application of manure wastewater to irrigation lands. Good farming practices have been followed by the Vierra Dairy. The proposed expansion may impact the underlying groundwater quality with the continued land application of nutrients, salts, and other constituents. The rationale associated with this finding is related primarily to the CVDRMP documented impacts of the regulatory approved and herein referenced whole farm balance that exceeds the crop uptake need which results in the excess nutrients available to groundwater.
- The potential impact to groundwater quality is demonstrated by the on-site domestic wells and two irrigation wells sporadic values for the indicator parameter Nitrate. EC was reported above the secondary MCL (see Table 1 for water quality data). Nitrate as N was reported above the MCL in the on site wells with the highest reported value of 163 mg/l. The domestic wells and irrigation wells demonstrated improved water quality over time. Area groundwater quality reported by the GAMA shows very limited data for interpretation. The CVDRMP and California CV-SALTS control efforts to date indicate impacts related to Nitrate, EC and other salt indicators. The referenced programs will be used to monitor results toward the future implementation of a corrective action plan elements.

The Dairy Expansion project would concentrate animals and their wastes within the feeding areas, and to a lesser degree, within open corrals. Concrete lined feed lanes would flush wastes to the on-site wastewater management system for treatment and storage in ponds as referenced in the existing and proposed WMP as summarized below.

Existing Wastewater Storage and Treatment Ponds. The treatment and storage ponds receive wastewater as described in the project NMP/WMP. Pond construction information was not available for review. According to the project applicant, the ponds are earthen embankment structures constructed to the standards in place at that time. The existing dairy wastewater ponds have the potential to impact groundwater because they contain elevated concentrations of inorganic and organic constituents, and because hydraulic pressure and gravity force liquids downward through soils to groundwater. The flux of liquid through the base of the existing pond has been estimated based on the soil permeability at the base of the ponds (estimated as 10-6 centimeters per second or 1 foot per year). Based on the existing wastewater pond size of approximately 414,000 square feet, the total leakage through the sides and base of the ponds is estimated at 3 million gallons per year. However, since no changes to the existing pond construction or operation are proposed with the dairy modification, the hydraulic pressure within

the existing ponds and overall pond leakage would stay the same. Therefore, there would be no anticipated increase to groundwater quality impacts from the ponds with implementation of the proposed project.

Corrals and Shade Barns. The dairy expansion would continue to use open-air, concrete-lined feed lanes which are roofed, where animals are fed and watered, and waste is collected. Outside of the feed lanes and covered loafing areas, cows are allowed to roam in uncovered areas where manure is collected two times a year, which minimizes the potential impact. Liquid discharge from corrals is minimal.

Crop Fields. Dry and liquid manure is used to fertilize dairy cropland. A tailwater collection system, composed of berms, piping and sumps, is used to prevent the movement of water off site and allow the recycling of applied wastewater. As indicated by monitoring data by the CVDRMP, crop fields are the primary source of nutrient emissions to groundwater on a dairy. As mentioned previously, under proposed conditions, total land application area would be reduced.

With implementation of the proposed operations NMP/WMP, field application of manure using the proposed cropping pattern and land application area would maintain a field by field nutrient balance of less than 1.35. As a starter 38.5 tons of commercial fertilizer will be used. Farming cropping pattern, fresh water mix and exportation of manure off site resulted in a reduced whole farm nitrogen. The whole farm nitrogen balance ratio would be reduced to 1.39 for the proposed operation from 1.4 at the existing dairy facility, respectively.

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