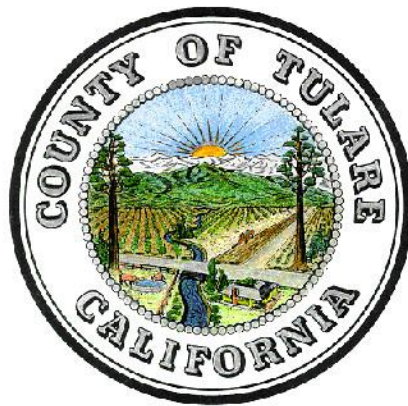


FINAL ENVIRONMENTAL IMPACT REPORT

FOR THE
ANIMAL CONFINEMENT FACILITIES
PLAN, AND DAIRY AND FEEDLOT CLIMATE ACTION PLAN

SCH # 2011111078



Tulare County Resource Management Agency
5961 South Mooney Boulevard
Visalia, California 93277-9394

August 2017

With Technical Assistance By:
Quad Knopf, Inc.
901 East Main Street
Visalia, California 93292

FINAL ENVIRONMENTAL IMPACT REPORT

**ANIMAL CONFINEMENT FACILITIES
AND DAIRY AND FEEDLOT CLIMATE ACTION PLAN**

SCH #2011111078

Tulare County Resource Management Agency
5961 South Mooney Boulevard
Visalia, California 93277-9394

Technical Assistance By:



Quad Knopf

901 East Main Street
Visalia, California 93292
Phone (559) 733-0440

August 2017

TABLE OF CONTENTS

<i>Title</i>	<i>Page No.</i>
Section One - Introduction	1-1
1.1 Purpose.....	1-1
1.2 Scope and Format	1-1
1.3 Draft EIR Recirculation Not Required	1-2
Section Two – Comments Received and Responses	2-1
2.1 Agencies, Organizations, and Individuals Who Commented on the Draft EIR	2-1
2.2 Master Responses.....	2-2
2.3 Comment Letters and Responses	2-27
Section Three – Modifications to the Draft EIR	3-1
3.1 Introduction.....	3-1
3.2 Modifications to Definitions and Executive Summary.....	3-1
3.3 Modifications to Chapters One and Two	3-1
3.4 Modifications to Chapter Three	3-3
3.5 Modifications to Chapters Four through Seven	3-10
3.6 Modifications to EIR Appendices.....	3-10
Section Four – Copies of Comment Letters	4-1
Appendices	
Appendix A	Proposed Animal Confinement Facilities Plan
Appendix B	Revised Proposed Dairy and Feedlot Climate Action Plan
Appendix C	Proposed Zoning Ordinance Amendment to Implement ACFP
Appendix D	Proposed Criteria and Standards Resolution to Implement ACFP
Appendix E	Draft Mitigation Monitoring and Reporting Program

SECTION ONE
INTRODUCTION

SECTION ONE – INTRODUCTION

1.1 Purpose

In accordance with CEQA Guidelines Section 15088, the County of Tulare has prepared this Final EIR volume responding to all environmental comments received on the Draft EIR for the proposed Animal Confinement Facilities Plan, and Dairy and Feedlot Climate Action Plan (proposed project). A Notice of Completion, with required electronic copies of the Draft EIR were submitted to the Office of Planning and Research on February 3, 2016. On February 4, 2016, Tulare County as lead agency released the Draft EIR for public review. The public review period ended on March 21, 2016. Responses to comments have been included herein on all comments received before the close of the Draft EIR public review period.

The County will provide a copy of comment responses to all parties that submitted comments at least ten days prior to certifying the Final EIR.

This document and the Draft EIR together constitute the Final EIR which will be considered by Tulare County prior to a decision whether to approve the proposed project. Before deciding whether to approve the proposed project, the County, as required by CEQA Guidelines Section 15090, will consider certifying that the Final EIR was completed in compliance with CEQA, was reviewed and considered by the County's decisionmakers, and reflects Tulare County's independent judgement and analysis. The County will then consider whether to adopt findings of fact on the disposition of each significant impact, as required by CEQA Guidelines Section 15091(a); adopt a statement of overriding considerations for any significant and unavoidable impacts, as required by CEQA Guidelines Section 15093; and adopt a Mitigation Monitoring and Reporting Program, as required by CEQA Guidelines Section 15091(d).

1.2 Scope and Format

CEQA Guidelines Section 15132 provides that a Final EIR consists of:

- The Draft EIR or a revision of the Draft
- Comments and recommendations received on the Draft EIR, either verbatim or in summary
- A list of persons, organizations, and public agencies commenting on the Draft EIR
- The lead agency's responses to significant environmental points raised in the review and consultation process
- Any other information added by the lead agency

Section Two of this Final EIR volume includes a description of the EIR's public review and comment procedures; a list of the persons, organizations, and agencies and individuals who commented on the Draft EIR; "master responses" to repetitive and related comments; and the comments received and individual responses thereto. Section Three of this Final EIR volume contains modifications to the Draft EIR resulting from public comments and other updated information. Section Four provides copies of the comment letters in the original form (i.e., photocopies of the comment letters).

Included as appendices to this Final EIR are:

- Appendix A: revised proposed Animal Confinement Facility Plan
- Appendix B: revised proposed Dairy and Feedlot Climate Action Plan
- Appendix C: proposed zoning ordinance amendment to implement ACFP
- Appendix D: proposed criteria and standards resolution to implement ACFP
- Appendix E: draft Mitigation Monitoring and Reporting Program

1.3 Draft EIR Recirculation Not Required

CEQA Guidelines Section 15088.5 requires Draft EIR recirculation when “significant new information” is added to an EIR because the EIR is changed in a way that deprives the public of a meaningful opportunity to comment on a project’s significant environmental effects or feasible mitigation measures or alternatives to reduce or avoid such effects that are not proposed for adoption. The comments, responses, and Draft EIR modifications presented in this Final EIR volume do not constitute such “significant new information;” instead, they clarify, amplify, or make insignificant modifications to the Draft EIR. For example, none of the comments, responses, and Draft EIR modifications disclose new or substantially more severe significant environmental effects of the proposed Program, or new feasible mitigation measures or alternatives different than those analyzed in the Draft EIR that would clearly lessen the proposed project’s significant effects.

Several changes were made to the Draft ACFP and Draft Dairy CAP between the Draft and Final EIR. These changes are shown in underline and strikeout format in Appendices A and B respectively, and the most important of them are summarized below, together with the reasons why they do not require Draft EIR recirculation.

ACFP Revisions. A number of revisions were made to the draft ACFP, primarily to clarify how it would be implemented, and to respond to Draft EIR comments. None of them would create new or substantially more severe significant environmental effects.

- Section 1(Background): Minor clarifications and corrections were added to this section.
- Section 2 (Goals Policies and Standards): Minor clarifications and corrections were added to this section, including the following:
 - Policy 2.1-2 was revised to clarify County entitlements for existing compliant bovine facilities.
 - The Section 2.2 introduction was revised to clarify the zoning districts appropriate for the operation of bovine facilities.
 - Policies under Goal 2.2 (Bovine Facilities Location and Siting) were clarified to make facility expansions more clearly subject to the location and siting policies.
 - Policy 2.2-5 (Applicability of Section 2.2 Policies) was revised to clarify exceptions to Section 2.2 siting and location policies for new bovine facilities and bovine facility expansions.

- Policy 2.2-6 (Protection of Agricultural-Zoned areas) was deleted because existing General Plan policies provide similar, but more specific guidance on protection of agricultural-zoned areas.
- Policies 2.5-1 and 2.5-2 were revised to clarify the permit requirements for dairies and feedlots, respectively.
- Policies 2.5-3 and 2.5-4 were revised to clarify the permit and CEQA review processes for new bovine facilities and bovine facility expansions.
- Section 2.7.7 (Water Well Standards) was modified to delete reference to a well lining standard, since well lining standards are already covered under the Tulare County Well Ordinance.
- Section 2.8.1 (Severance and Site Alterations) was modified to delete a duplicative requirement for County notification if there is a change in the area available for recycled manure water.
- Appendix B (Annual Compliance Report Form) was added. This revised form implements provisions of both the ACFP and Dairy CAP.

Dairy CAP Revisions. A number of revisions to the draft Dairy CAP were made, primarily to reflect legislation enacted after the Draft Dairy CAP was prepared, and to respond to Draft EIR comments. None of them would create new or substantially more severe significant environmental effects.

- Chapter 2: Sections 2.2.9, 2.2.10, 2.2.11, and 2.2.12 were added to describe legislation enacted after the Draft Dairy CAP was prepared. These bills were SB 32, AB 197, SB 1383, and AB 1613, respectively.
- Chapter 4: In response to comments, GHG reduction strategies listed in Table 4 have been expanded to incorporate centralized digester facilities (strategy #D5), a broader range of dry manure management practices (strategy #D6), pasture-based management practices (strategy #D8), generic onsite renewable or carbon-neutral energy systems (strategy #E6) equivalent GHG reductions from existing facilities (strategy #M11).
- Chapter 5: In Section 5.1, commitments to implement Category A and Category B GHG reduction strategies were clarified. To the extent that any of Category A strategies would be infeasible or impracticable for a specific expansion, a Category B strategy must be substituted.
- Chapter 6: Discussions of voluntary GHG reduction benchmarks (targets) and monitoring of emissions reductions by existing dairies was added in recognition of new funding opportunities to achieve GHG emissions reductions using digesters or other animal-related strategies.
- Chapter 7: The CEQA process for future project GHG evaluations was clarified.
- Chapter 8: Proposed County actions to implement the Dairy CAP were clarified and updated to reflect recent state legislation. A post-2023 examination of the Dairy CAP by the County was added.

ACFP Implementation Measures. Two ACFP implementation measures were added to the EIR proposed Program description. They would not create any additional new or substantially more severe significant environmental effects.

- County adoption of a zoning ordinance amendment to implement the ACFP was added to the proposed Program description. The zoning ordinance amendment would not create any

additional environmental impacts. It merely reaffirms allowable zoning districts for bovine facilities allowed by the existing ACFP, and implements the proposed ACFP by allowing administrative special use permits to be issued for compliant bovine facilities. (A “compliant bovine facility” is an existing bovine facility that is in compliance with applicable *RWQCB*, *SJVAPCD*, and current County regulations.)

- County adoption of a resolution adopting criteria and standards for streamlined approval of compliant bovine facilities, via an administrative special use permit process, was also added to the proposed Program description. Adoption of this resolution would not create any additional environmental impacts. The resolution merely implements the proposed ACFP’s streamlined approval processes for compliant bovine facilities.

SECTION TWO

COMMENTS RECEIVED AND RESPONSES

SECTION TWO – COMMENTS RECEIVED AND RESPONSES

2.1 Agencies, Organizations, and Individuals Who Commented on the Draft EIR

1. Central Valley Regional Water Quality Control Board
Dale E. Essary, P.E., Senior Engineer, Confined Animals Unit
March 22, 2016
2. Dairy CARES
J.P. Cativiela, Regulatory Affairs Consultant
March 21, 2016
3. Association of Irrigated Residents (AIR)
Tom Frantz, President
March 21, 2016
4. a. Kern-Kaweah Chapter of the Sierra Club
Craig K. Breon, Esq.
March 21, 2016

b. Center on Race, Poverty & the Environment
Brent Newell
June 10, 2015
(Attachment to Sierra Club letter)

c. Food & Water Watch
February 2011
(Attachment to Sierra Club letter)
5. Dr. Ranajit (Ron) Sahu, Consultant
January 2016
6. San Joaquin Valley Air Pollution Control District
Arnaud Marjollet, Director of Permit Services
March 23, 2016
7. Caltrans, District 6
David Deel, Associate Transportation Planner
February 16, 2016

2.2 Master Responses

MASTER RESPONSE 1A – OVERALL APPROACH TO DAIRY CAP

Summary of Draft EIR Comments

Draft EIR comments assert that Dairy CAP GHG reductions should be mandatory, not voluntary. They also assert that GHG reductions should be sufficient to meet GHG reduction trajectories consistent with Executive Orders B-30-15 (2030) and S-3-05 (2050). Draft EIR comments also request that a Dairy CAP goal for GHG emissions reductions should be adopted, e.g., maximum feasible reduction or a numeric goal.

Response

The Dairy CAP is unusual in several respects. Rather than addressing a whole range of land uses and activities, it focuses on the dairy and feedlot sector (“dairy sector”). The County previously prepared a countywide Climate Action Plan (GPU CAP) released in conjunction with its 2030 General Update (GPU) adopted in August 2012. Because the GPU did not include an update to the ACFP, the County directed that a separate CAP solely addressing the dairy sector was to be prepared in conjunction the ACFP Update. The Dairy CAP serves that purpose. It is intended to complement state programs to reduce dairy GHG emissions, while avoiding duplication or potential conflicts with those programs.

AB 32 2020 Goals

CARB, as the state agency charged with regulatory and implementation authority for AB 32 (Chapter 488, Statutes of 2006), which established the statewide GHG emissions reduction targets for 2020, addressed the dairy sector in the original AB 32 Scoping Plan for 2020, as supplemented and amended by the 2014 Scoping Plan Update, which designates the statewide policy initiatives to meet the 2020 targets. The original AB 32 Scoping Plan and the 2014 Scoping Plan Update imposed no reduction targets on dairy animal-related emissions in order to meet the 2020 reductions mandated under AB 32.

Based on its evaluation of the dairy sector, the AB 32 Scoping Plan recognized the unavailability of feasible emissions reduction strategies for achieving significant reductions from dairy animals under current circumstances. In particular, manure digester systems were identified as a potential means to reduce emissions and were evaluated in the AB 32 Scoping Plan. The AB 32 Scoping Plan concluded that, in view of air quality, technological and economic barriers, manure digesters should be designated as a voluntary, rather than a mandatory, reduction strategy for purposes of meeting AB 32’s statewide 2020 reductions. Consequently, no animal-related emissions reductions were required or counted by the state under the AB 32 Scoping Plan to meet the 2020 goal.

The AB 32 Scoping Plan designates manure digesters as a voluntary reduction strategy in order to preserve the ability to provide incentives and subsidies through state programs designed to ameliorate the cost barriers. The Dairy CAP supports this approach. In sum, the Dairy CAP is consistent with the original AB 32 Scoping Plan and the 2014 Scoping Plan Update, and with AB

32 as it relates to the dairy sector. Specifically, due to the lack of feasible substantial, quantifiable, and enforceable emissions reduction methods, none are required and no targets are set to meet AB 32's 2020 reductions.

SB 32 and SB 1383 2030 Goals

As for the period beyond 2020, the Legislature recently supplemented AB 32 by enacting SB 32 (Chapter 249, Statutes of 2016) and a package of legislation to establish a framework for statewide GHG emissions reduction targets, policies and procedures extending to 2030, including SB 1383 (Chapter 395, Statutes of 2016) addressing Short-Lived Climate Pollutants (SLCPs), including methane. See Master Response 1B: 2016 Legislation for a detailed discussion.

CARB issued a draft of the 2017 Scoping Plan Update in January 2017 to outline its proposed plan to meet the 2030 target with consideration of the final 2017 Scoping Plan Update later in 2017. In addition, CARB adopted the final SLCP Strategy pursuant to SB 1383 on March 23, 2017.

SB 1383 and the SLCP Strategy make it clear that reductions of methane emissions from dairy operations will continue to be voluntary at least through 2023 and that no state regulatory requirements are to go into effect prior to 2024 requiring dairy sector methane reductions to meet AB 32's 2020 reduction goals or SB 32's 2030 goals for reducing GHG emissions.

SB 1383 also calls for evaluation of the challenges and barriers to dairy emissions reduction strategies, including dairy digesters, the allocation of \$50 million from the Greenhouse Gas Reduction Fund to subsidize voluntary dairy methane emissions reduction projects and the assessment by July 1, 2020 of the progress in contributing toward the 2030 SLCP reduction goal through voluntary dairy emissions reduction projects, with the possibility of reductions by CARB in the 2030 methane reduction goal for dairies. Such dairy methane emissions reduction strategies are to continue to be voluntary in order to assure that incentives, subsidies and market-based mechanisms remain available due to the economic infeasibility of such emissions reduction strategies.

Dairy CAP Approach

The Dairy CAP has been modified to take into account SB 32, SB 1383, the SLCP Strategy and the draft 2017 Scoping Plan Update and their approach to dairy GHG emissions reductions. Given the expectation of further state action regarding dairy manure management emissions as of 2024, the Dairy CAP has been revised to provide for a post-2023 examination of the Dairy CAP by the County to determine whether the Dairy CAP has been superseded by the enactment of state regulations that mandate emissions reductions and to assess whether modifications are needed in order to reduce the possibility of duplication of or conflicts with state level actions.

The Dairy CAP has been prepared in conjunction with the proposed ACFP to address related CEQA review procedures under the County's land use authority for new dairies and expansions of existing dairies. The emissions reduction strategies under the Dairy CAP are presented in Tables 4, 5 and 6. (Dairy CAP, pp. 24-27, 34-36) The strategies were drawn from the GHG emissions reduction guidelines of the California Air Pollution Control Officers Association (CAPCOA) and guidance from other local agencies. (Dairy CAP, p. 22) To qualify for a streamlined CEQA GHG

analysis under the Dairy CAP (p. 30), a proposed facility expansion under ACFP Policy 2.5-3 must incorporate, to the extent possible, the Category A emissions reduction strategies in Table 5 that are applicable based on the scope of the proposed expansion. To the extent that any of such Category A strategies would be infeasible or impracticable based on the specifics of the expansion, a Category B strategy from Table 6 must be substituted for each such strategy. The reduction strategies designed to reduce animal-related emissions include feed additives, ration formulation and nutrient management plans (Category A) and manure digesters, scrape systems and solids separation (Category B). Those Category B strategies have been expanded to incorporate a broader range of dry manure management practices, centralized digester facilities and pasture-based management practices, as reflected in the SLCP Strategy and the draft 2014 Scoping Plan Update. (Dairy CAP, pp. 25, 35)

All new dairies as well as any expansions of existing facilities that do not qualify for streamlined analysis under the Dairy CAP will be required to obtain a special use permit under ACFP Policy 2.5-4 and to perform an individualized project analysis, including individualized review under CEQA with the accompanying evaluation of GHG emissions impacts and feasible mitigation measures. (ACFP Policy 2.5-4, Dairy CAP, pp. 30-31, 40-42) Consequently, all such proposed projects will be required to evaluate the feasibility of dairy emissions reduction strategies as to their particular circumstances, taking into consideration CARB's then-current policies as it implements SB 1383. In doing so, the feasibility of manure digesters will be evaluated as well as any potential impacts attributable to such emissions reduction strategies, including air quality or water quality impacts. The County will serve as the lead agency for purposes of CEQA review under the ACFP. Mitigation Monitoring and Reporting Programs will be adopted to assure that feasible CEQA mitigation measures are implemented, and GHG reductions achieved by project-specific GHG reduction measures will be quantified at the time of project approval. Under EIR Mitigation Measure #3.7.1, owners will be required to submit evidence that such adopted GHG reduction measures are being implemented in each ACFP Annual Compliance Report, and evidence of non-compliance will result in the County requiring submittal of a Corrective Action Plan.

Consistent with funding availability, the County will coordinate with CARB and other agencies to encourage and promote the availability of incentive funding, such as the utilization of the 2016 Budget Act's \$50 million allocation, to support and incentivize the voluntary construction of manure digesters and other methane emissions reduction projects by existing dairies. (Dairy CAP, p. 43-44) In addition, based on the availability of this funding source for capital costs, the Dairy CAP has been revised to incorporate voluntary benchmark GHG emissions reduction targets, as described more fully in Master Response 1C: Voluntary Benchmark Targets. Consistent with funding availability, the County will designate a County dairy digester information officer to track and implement those efforts to support dairy digester investment and development within the County and to track the emissions reductions achieved by such projects, as described in Section 8.

Under the Dairy CAP, consistent with funding availability, the County plans to monitor the implementation of the 2016 legislation, including SB 1383 and the SLCP Strategy as they relate to dairy methane emissions. Section 8 has been revised in response to certain comments to address this in more detail. See Master Response 1E: Dairy CAP Implementation.

MASTER RESPONSE 1B – 2016 LEGISLATION

Summary of Draft EIR Comments

Draft EIR comments inquire as to the consistency of the Dairy CAP with state legislation.

Response

Since the preparation of the Draft Dairy CAP and the circulation of the Draft EIR, significant state legislation was enacted at the close of the 2015-2016 legislative session addressing climate change, including detailed provisions addressing the dairy sector. The Dairy CAP is intended to complement state programs to reduce dairy GHG emissions, while avoiding duplication of or potential conflicts with those programs.

Building upon 2006's AB 32, which established regulatory procedures to achieve statewide GHG emissions reductions to 1990 levels by 2020, recently enacted SB 32 adopts the 2030 goal under Executive Order B-30-15 to reduce GHG emissions to at least forty percent below 1990 levels and directs CARB to adopt regulations to achieve such reductions by December 31, 2030.

A companion bill, AB 197, expands CARB membership to include two non-voting members from the Legislature; creates a Joint Legislative Committee on Climate Change Policies to make recommendations to the Legislature concerning climate change policies; provides for annual reporting of GHG emissions from sectors covered by the AB 32 Scoping Plan as well as evaluations of regulatory requirements and other programs that may affect GHG emissions trends; and specifies that the adoption of GHG emissions reduction rules and regulations shall consider the social costs. In addition, Scoping Plan updates are required to identify the range of potential GHG emissions reductions and the cost-effectiveness for each emissions reduction measure, compliance mechanism and incentive. Consistent with SB 32 and AB 197, in January 2017, CARB issued for public review a draft of the proposed 2017 Scoping Plan Update which includes CARB's proposed plan to reduce GHG emissions to at least forty percent below 1990 levels by 2030.

The close of the legislative session also produced enactments with provisions specific to the dairy sector, namely, SB 1383 and the Budget Act of 2016, AB 1613. SB 1383 updates the initiatives of SB 605, adopted in 2014, which required CARB to develop a comprehensive strategy (the SLCP Strategy) to reduce emissions of short-lived climate pollutants (SLCPs), including methane. CARB adopted the final SLCP Strategy on March 23, 2017, which addresses animal-related methane emissions from the dairy sector. SB 1383 and the SLCP Strategy provide for reduction targets that include a forty percent reduction in statewide methane emissions below 2013 levels by 2030. This target is incorporated into the state's overall strategy to achieve the SB 32 2030 GHG emissions reduction target, as reflected in CARB's proposed 2017 Scoping Plan Update.

Under SB 1383, methane emissions from the dairy sector are singled out for specialized treatment. CARB is directed to coordinate with the Department of Food and Agriculture (DFA), the Public Utilities Commission (PUC) and the State Energy Resources Conservation and Development Corporation (Energy Commission) in adopting regulations to reduce methane emissions from dairy

manure management operations by up to forty percent below the dairy sector's 2013 levels by 2030. Notably, prior to adopting such regulations, CARB must complete a number of steps, including working with stakeholders, such as dairy representatives, energy agencies, environmental stakeholders and project developers, to identify and address technical, market, regulatory and other challenges to development of dairy methane emissions reductions projects; conducting or considering dairy operation research on dairy emissions reduction projects, including scrape manure management systems, solids separation systems and enteric fermentation; and considering the development and adoption of methane emissions reduction protocols. Such regulations are to be implemented and go into effect no sooner than January 1, 2024, and then only in the event that CARB, in consultation with DFA, determines the regulations to be technologically feasible, economically feasible (taking into consideration milk prices, public and private funding commitments, whether markets exist for the biomethane and other products generated by dairy manure management reduction projects, and access to common carrier pipelines and electrical interconnection for dairy digesters), and cost-effective and are additionally found to include provisions to minimize potential leakage to other jurisdictions and to evaluate the achievements made by incentive-based programs.

By January 1, 2018, other actions required to be performed by CARB include establishment of energy infrastructure policies to encourage dairy manure digester projects; development of a pilot financial mechanism to reduce the economic uncertainty associated with the value of credits for dairy manure digester projects producing low-carbon transportation fuels; issuance of directives to gas corporations to implement at least five dairy manure digester pilot projects to demonstrate interconnection to the common carrier pipeline system; provision of guidance on credits generated pursuant to market-based compliance mechanisms developed from methane reduction protocols under the SLCP Strategy; and provision for the availability of at least a ten-year credit for projects pre-dating the enactment of regulations, as well as eligibility for available extensions of credits.

By July 1, 2020, CARB and DFA are to evaluate the dairy sector's progress towards meeting the SLCP 2030 reduction goal on a voluntary basis, and, if sufficient progress has not been attained due to insufficient funding or market or technical barriers, CARB may reduce the SLCP Strategy's methane emissions reduction goal for dairies. SB 1383 specifies that enteric emissions reductions are to be voluntary, through incentive-based programs, until such time that CARB determines that a cost-effective and scientifically proven method of reducing such emissions is available that would not damage animal health, public health or consumer acceptance. No methane emissions reduction regulations for the dairy sector are to be adopted to meet AB 32 or SB 32 goals other than pursuant to SB 1383's requirements and standards. The proposed 2017 Scoping Plan Update issued by CARB in January 2017 is consistent with SB 1383 and its timetable relative to addressing GHG emissions from the dairy sector.

Further, to tackle the barriers to biomethane use, under AB 1383, the Energy Commission, in consultation with CARB and the PUC, is required to develop recommendations for the use of biomethane as part of its 2017 Integrated Energy Policy Report, including the identification of cost-effective strategies by considering priority uses of biomethane in the context of state policy objectives to reduce SLCPs and to promote alternative energy uses. Based on such recommendations, state agencies shall, as appropriate, adopt policies and incentives to significantly increase sustainable production and use of biomethane.

In recognition of the need for public funding sources to subsidize voluntary dairy methane emissions reduction projects, the Budget Act of 2016, AB 1613, allocates \$50 million from the Greenhouse Gas Reduction Fund to be administered by DFA to support such projects.

In sum, the package of 2016 legislation relevant to GHG emissions reductions generally, and to methane emissions from the dairy sector, more particularly, has clarified policy at the state level. First and foremost, under SB 1383, there will be no regulatory requirements mandating GHG emissions reductions from dairies prior to 2024. Consequently, the Legislature has determined that GHG emissions reductions from dairies statewide will remain voluntary through 2023. Second, the legislation recognizes the obstacles to animal-related emissions reductions from dairy operations, citing the challenges and barriers to emissions reduction strategies, including manure digesters, scrape manure management systems, solids separation systems and means to reduce enteric fermentation. Third, the Legislature has directed CARB and other agencies to undertake research and in-depth evaluation to explore the technological feasibility, economic feasibility and cost-effectiveness of dairy methane emissions reduction strategies as a pre-requisite to implementing regulatory requirements. Additionally, the legislation incorporates initiatives to promote and to allocate initial subsidies for voluntary, incentive-based programs, to evaluate the efficiency of such programs and to enlist several state agencies to take action to assess and attempt to address the barriers to dairy manure digesters, including the lack of infrastructure to provide connectivity to pipelines for off-site use and to electrical facilities for on-site use.

Finally, the legislation reinforces the recognition that leakage of dairy sector facilities to other states due to new regulatory requirements must be avoided. (SLCP Strategy, p. 64, 67, 138) The legislation underscores the fact that these issues are matters of statewide concern within the jurisdiction of state agencies and initiatives which can better address climate change and GHG emissions so as to balance the wide array of environmental, economic and technological elements in formulating a statewide strategy.

The Dairy CAP has been revised to add a discussion of the 2016 legislation in Section 2.2 and to provide in Section 8 for a post-2023 examination of the Dairy CAP by the County to determine whether the Dairy CAP has been superseded by the enactment of state regulations that mandate emissions reductions and to assess whether modifications are needed in order to reduce the possibility of duplication of or conflicts with state level actions. Section 3.7 of the Draft EIR, Greenhouse Gas/Energy Impact Analysis, has also been revised to reflect the 2016 legislation, including the GHG and methane emissions reduction goals for 2030 as they relate to the dairy sector through 2023.

MASTER RESPONSE 1C – VOLUNTARY BENCHMARK TARGETS

Summary of Draft EIR Comments

Draft EIR comments express concerns about the voluntary nature of the Dairy CAP's GHG reduction strategies.

Response

Consistent with SB 32 and SB 1383, both the proposed 2017 Scoping Plan Update issued by CARB in January 2017 and the final SLCP Strategy adopted by CARB on March 23, 2017 treat animal-related emissions reductions from dairies as voluntary through at least 2023 for purposes of meeting 2030 statewide targets. Specifically, no methane reduction regulations for the dairy sector are to be adopted to meet AB 32 or SB 32 goals other than pursuant to SB 1383's requirements and standards until 2024 at the earliest. Under the schedule established by SB 1383, a variety of steps are being implemented to research and evaluate the cost-effectiveness and technological feasibility of dairy methane reduction strategies as to both manure management and enteric fermentation. See Master Response 1B: 2016 Legislation.

The most promising approach appears to be dairy digester projects, which state legislation has singled out as particularly well-suited for subsidies and incentive-based programs. In particular, the Budget Act of 2016, AB 1613, allocates \$50 million to support voluntary emissions reduction projects. The particular value of this subsidy which sets it apart from other existing incentive programs is that it provides funding to offset capital costs for construction. The existing programs, such as favorable tariff rates for the electricity ultimately generated by dairy manure digesters and carbon offset credits for the methane captured by such systems, have not been adequate to date to induce private investment. The lack of up-front construction funding may have been a critical impediment to private investment in dairy manure digesters and other methane reduction projects. This is evidenced by the fact that, as of October 2015, only thirteen dairy digesters were reported to be operating statewide per CalCAN's October 2015 policy memo. See discussion in Master Response 1D: GHG Emissions Reduction Strategies.

Under the AB 1613 funding program, it is anticipated that about \$36 million will be used for constructing digesters, \$9 million for other dairy methane reduction projects, such as converting dairies from manure flushing systems to manure scraping or vacuuming systems, with the remaining \$5 million applied to state administrative costs. (See slide 8 of presentation from the California Department of Food and Agriculture, "Dairy Digester Research and Development Program, 2016-17, Public Stakeholder Listening Session," accessed December 14, 2016 at <https://cdfa.ca.gov/oefi/ddrdp/docs/2016-DDRDP-ListeningSessions.pdf>) The maximum permissible funding for any single project is \$3 million but not to exceed 50% of total project costs.

Digester projects are anticipated to compete for this funding more favorably than other methane reduction projects due to the high methane emissions reductions return on each dollar invested. Based on a 2015 analysis by Ramboll Environ, emissions reductions from dairy digesters over the first ten years of operation are estimated to occur at approximately one metric ton of carbon dioxide equivalent per \$7 of public funds invested. (See "Overview of Dairy Digester Greenhouse Gas

Reduction Cost-Benefit Analysis,” by Ramboll Environ, December 2015, <http://dairycare.com/sites/default/files/Digester%20memo%20151216.pdf>) Stated another way, each \$70 invested in digester projects would enable the reduction of the dairy GHG emissions inventory by one metric ton per year.

The Dairy CAP addresses GHG emissions from dairies in Tulare County through 2023, including animal-related emissions, taking into account the projected growth in the dairy and beef cattle population at rate of 1.5% per year. (Dairy CAP, p. 18) The original draft Dairy CAP did not include a quantitative benchmark or target for GHG emissions reductions because the original AB 32 Scoping Plan and the 2014 Scoping Plan Update required no livestock emissions reductions to meet statewide 2020 reduction goals, in large part due to the lack of feasible emissions reduction strategies for manure management and enteric fermentation emissions. (Dairy CAP, p. 21, 37) The voluntary nature of dairy animal-related emissions reductions is to be continued until at least 2024 under SB 32 (see draft 2017 Scoping Plan Update) and SB 1383. At the same time, the Legislature has recognized the need to support and enhance voluntary emissions reduction projects through AB 1613. The Dairy CAP is intended to complement state programs to reduce dairy GHG emissions, while avoiding duplication of or potential conflicts with those programs.

While the \$50 million earmarked for projects to reduce animal-related emissions provides initial funding, it is possible that such funding for construction of dairy digester and other projects will continue in future years. (SLCP Strategy, p. 67-68) It is reasonable to assume that Tulare County dairies and project developers will compete effectively to qualify for a significant share of any such funds for specific projects. In fact, if Tulare County's share is commensurate with its ratio of dairy cows, which is approximately 27.3% of the state's dairy cattle population according to CDFA's “California Dairy Statistics Annual 2015 Data,” it could garner more than a quarter of the AB 1613 funds to reduce emissions from dairies. This would significantly boost opportunities to see reductions in dairy GHG emissions from existing dairies.

In view of the continuation of voluntary emissions reduction strategies for dairies under state law and in recognition of the availability of this new funding to support and incentivize those efforts, the Dairy CAP has been revised to incorporate voluntary benchmarks or targets, based on emissions reduction projects that may be funded through available state incentives and subsidies. Again, these are emissions reductions that are dependent on voluntary efforts by dairies and project developers. In order to enhance those initiatives, the Dairy CAP has been revised to provide, consistent with funding availability, for ongoing implementation actions by the County to provide support and education to promote the opportunities presented by state funding and to optimize the participation by dairies within the County. (Dairy CAP, p. 43-44) Consistent with funding availability, the County will also utilize the ACFP Annual Compliance Reports submitted by dairies as well as Mitigation Monitoring and Reporting Programs for individual projects to compile information concerning the resulting GHG emissions reduction efforts.

Any numerical target for such a voluntary benchmark is difficult to project given the variables likely to affect the number and scope of emissions reduction projects within the County through 2023. Consequently, the Dairy CAP incorporates an initial benchmark target that is subject to later review to reflect the actual pace and number of voluntary projects that are initiated and implemented as these subsidy programs evolve. (Dairy CAP, Section 6)

The initial benchmark target under the Dairy CAP through 2023 has been projected based on the following assumptions: (a) the continuation of similar annual amounts of state funding in years 2017 to 2021, for total funding of \$300 million (including the initial \$50 million under AB 1613), which is not a certainty; (b) such state funding having a ten percent administrative cost; (c) Tulare County projects receiving a 27.3% share of those funds, a ratio consistent with its share of the total statewide dairy cow population; (d) the construction, completion and operation of those funded projects by no later than 2023; and (e) each \$70 of such funds invested enables the reduction of GHG emissions by one metric ton per year. Applying these assumptions, the benchmark target for these voluntary emissions reductions within the County by 2023 would be approximately 1.05 million metric tons of GHG emissions per year. If those same metrics are applied solely to the initial 2016 funding of \$50 million under AB 1613, the annual emissions reductions within the County would approximate 176,000 metric tons of GHG emissions. The initial voluntary benchmark target under the Dairy CAP utilizes both of these projections and, as noted, may be adjusted over the course of time as these voluntary efforts progress.

Section 3.7 of the Draft EIR has been revised to reference the Dairy CAP's voluntary benchmark target. However, due to the voluntary nature of the projected emissions reductions and the lack of certainty concerning the emissions reductions to be achieved, the Draft EIR's conclusion that GHG emissions impacts under the ACFP are significant and unavoidable has not changed. The discussion of the feasibility of digesters (Draft EIR, p. 3.7-14 to 3.7-15) has also been updated to reflect AB 1613's allocation of funds to offset capital costs for digester projects.

MASTER RESPONSE 1D – GHG EMISSIONS REDUCTION STRATEGIES

Summary of Draft EIR Comments

Draft EIR comments assert that the Dairy CAP's range of GHG reduction strategies is too narrow. They also observe that GHG reductions achievable by individual GHG reduction measures are not quantified. Comments assert that Strategies D1-D4 are generic and non-quantitative, and that Strategies D5-D7 rely mainly on digesters, which are unlikely to be widely implemented. Draft EIR comments assert that the Dairy CAP should have considered six recommendations in the California Climate and Agriculture Network 2015 report on reducing dairy GHG emissions. They recommend that the Dairy CAP consider a dairy cap-and-trade system, or investigate the feasibility of Voluntary Emission Reduction Agreements with the SJVAPCD. They also recommend the Dairy CAP consider biofilter treatment systems for enclosed barns. Comments on GHG reduction strategies suggest solar panels and changes in diet supplements should also have been considered.

Response

The Dairy CAP incorporates a list of emissions reduction strategies tailored to dairy facilities and operations, as presented in Table 4, pages 24-27. The categories include strategies for dairy operations, energy conservation and efficiency, transportation, water, solid waste and recycling and miscellaneous items. The emissions reduction strategies were drawn from a variety of authoritative sources, including the GHG reduction guidelines produced by the California Air Pollution Control Officer's Association (CAPCOA) (CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. Available at: <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>), SJVAPCD guidance, including Final Staff Report- Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act (SJVAPCD. 2009. Final Staff Report- Addressing Greenhouse Gas Emissions Under the California Environmental Quality Act. Available at: <http://www.valleyair.org/Programs/CCAP/12-17-09/1%20CCAP%-%20FINAL%20CEQA%20GHG%20Staff%20Report%20-%20Dec%2017%202009.pdf>) and the California Natural Resources Agency CEQA Guidelines, Appendix F- Energy Conservation (California Natural Resources Agency. 2009. CEQA Guidelines Amendments. Appendix F-Energy Conservation. Available at http://resources.ca.gov/ceqa/docs/Adopted_and_Transmitted_Text_of_SB97_CEQA_Guidelines_Amendments.pdf). In particular, the emissions reduction strategies for animal-related emissions are consistent with the range of measures discussed in the SLCP Strategy adopted by CARB on March 23, 2017, as addressed in its discussion of the dairy sector at p. 63-72. See Master Response 1B: 2016 Legislation.

The list of emissions reduction strategies in the Dairy CAP takes into account the feasibility of a given practice as to the dairy sector generally and as to the types of dairy operations in the Central Valley in particular, which reflect the geographic, climatic, air quality and land characteristics that comprise the setting for those operations. Specifically, Category A Strategies D1 through D4 include environmentally responsible purchasing of feed additives, feed ration formulation to maximize feed-to-milk production efficiency, compliance with nutrient management plans to reduce fertilizer requirements and compliance with air quality plans as well as with water quality plans to reduce water usage and the commensurate GHG emissions. Category B Strategies D5 through D7 encompass manure management approaches, specifically the use of digesters, scrape

systems and solids separation. In the revisions to the Dairy CAP, the Category B strategies have been clarified and expanded to be more comprehensive as to available dry manure management practices, such as composting variations. In addition, Category B Strategy D5 has been expanded to reference the variety of uses for the captured methane, such as utilizing centralized co-digestion facilities for processing dairy manure and landfill waste. Also, pasture-based management practices have been incorporated in Category B as Strategy D8, despite the limited applicability to Tulare County operations, as discussed below. These types of approaches have been referenced by CARB in the SLCP Strategy and the draft 2017 Scoping Plan Update. (SLCP Strategy, p. 113-114, 2017 Scoping Plan Update, Appendix B, p. 4-5)

Additionally, the Dairy CAP provides information in Appendix C concerning the available methods to quantify the reductions, including those referenced in CAPCOA's emissions reduction methodology. (CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. August. Accessed at: <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>.) A footnote has been added to Tables 5 and 6 to reference Appendix C as providing that information.

In all cases, the scope and extent of the reductions must be calculated on a project-by-project basis due to the variations in individual operations. Consequently, the available information is insufficient to provide a current, reliable quantification of the aggregate emissions reductions that may be achieved on an individual basis. Moreover, the Dairy CAP recognizes that the reductions of animal-related emissions from the individual Category A strategies are not expected to be substantial and that, due to the lack of feasibility of the animal-related Category B strategies under current circumstances, the quantities of such emissions reductions would be limited.

Various comments on the Draft EIR referenced the October 2015 policy memo submitted to CARB by the California Climate and Agriculture Network (CalCAN) in response to the September 2015 version of the Draft SLCP, entitled "Diversified Strategies for Reducing Methane Emissions from Dairy Operations" (CalCAN Memo). The CalCAN Memo proposed six recommendations as to ways that CARB and the California Department of Food and Agriculture "can incentivize agricultural methane reduction strategies that make the wisest use of public dollars while maximizing environmental, economic, and public health benefits" so as to "produce lasting methane reductions while supporting a diverse dairy industry that provides multiple benefits to the state." (p. 1) The recommendations urge the state to adopt public funding and monetary incentive programs for dairy emissions reduction strategies and to support research and demonstration projects to develop and evaluate the feasibility of various innovative emissions reduction strategies. See Master Response 1B: 2016 Legislation for a discussion of recent legislation that aims to do so.

The CalCAN Memo's recommendations are directed to state agencies with broad regulatory and policy-making authority in contrast to the limited local scope of the Dairy CAP, and the County's limited ability to regulate existing dairies. In response to various comments, the CalCAN Memo's six recommendations were reviewed and the Dairy CAP has been revised so that all of the referenced emissions reduction strategies—namely, digesters, co-digestion projects, dry manure management practices and pasture-based dairy practices—have been incorporated as Category B strategies. In addition, Category B provides dairy expansions and new dairies with the opportunity to propose innovative strategies for emissions reductions under Strategy M10.

Manure digesters have been singled out at the state level as the most promising strategy for achieving substantial reductions. Even so, the SLCP Strategy and the accompanying CEQA Environmental Assessment prepared by CARB recognize the challenges and barriers to digester development from a statewide perspective, and, as implemented, the potential short-term construction and long-term operational air quality effects of digesters and other dairy manure management strategies. (SLCP Strategy, Final Environmental Analysis, p. 14 to 19) Indeed, as noted in the CalCAN Memo at page 3, as of October 2015, only thirteen digesters were reported to be operating on the approximately 1,400 dairies statewide. In acknowledgement of the financial, environmental and operational barriers to digesters, they are listed as a Category B strategy in the Dairy CAP, Strategy D5, which has been clarified and expanded to include the use of a digester's captured methane not only for electrical energy use (on-site or off-site at a centralized co-digestion facility), but also as an alternative to diesel as a transportation fuel and for injection into natural gas pipelines, as such expanded options become available.

Several comments referenced pasture-based systems and practices as a means to reduce GHG emissions as compared to the predominant non-pasture confined animal facilities that produce feed with farmed crops. As acknowledged in the SLCP Strategy, "In some instances, pasture-based systems may be a viable option, but tradeoffs can limit their feasibility..." (p. 65) Among those tradeoffs cited in the SLCP Strategy are the need for significantly more irrigated land, supplemental feed and the construction of shade structures to alleviate heat exposure. As for Tulare County in particular, there are several reasons for the lack of pasture-based operations. First, Tulare County farmland is fertile and well-suited for the production of feed crops, such as corn, cereals and alfalfa. Better yet, the climate and soil conditions in the Central Valley allow for year-round crop production. Consequently, arable land has more value as crop-producing acreage than as pasture land. Second, due to hot, dry conditions and the shortage of water, as with feed crops, irrigation is necessary to support grasses for pastures that produce less feed per acre than other crops, which equals less milk per acre of land and per acre-foot of water. (It should be noted that the water used for dairy flush systems is recycled water captured from cooling milk, sanitizing milk barns and washing cows and that the flush system water is further recycled as irrigation water.) In addition, feed crops can be stored as silage, providing a consistent feed supply year-round, while grass feed's nutrition value varies seasonally

Also, the SLCP Strategy recognizes that, although pasture-based operations, which leave manure to decompose in the field, may avoid the emissions generated by decomposing manure anaerobically in a lagoon, "[p]asture dairies may face potential nutrient management and water quality issues..." (p. 65) All told, the large-scale dairy operations in Tulare County have achieved highly productive and efficient average milk production per cow, resulting in lower emissions per pound of milk produced. The SLCP Strategy underscores this difference, stating that: "[M]ilk production and feed efficiencies are lower in pasture systems, requiring more cows to produce the same amount of milk." (p. 65-66). Consequently, it is unclear as to whether the emissions reductions on a per-animal basis in pastured animals are significantly lower than the emissions rate per pound of milk produced with cropped feed. Also, the efficiency in utilizing mixed feed rations with optimal nutrition as compared to the variation in pasture feed affect the milk production per cow. Accordingly, the overall emissions based on milk produced may not be significantly less with pastured animals, despite the lower rate of enteric emissions on a per cow basis. Notwithstanding the practical barriers to adoption of pasture-based practices in the Central Valley, in response to certain comments as well as in response to the inclusion of pasture-based practices

in the CalCAN Memo and the SLCP Strategy, pasture-based practices have been added as Category B Strategy D8 in the revisions to the Dairy CAP for those operators who may wish to institute that approach. See Master Response 4-Alternatives, for additional detail on the infeasibility of pasture-based systems as a Countywide ACFP alternative.

The feasibility of vented enclosures with biofilters is also addressed in the Draft EIR (p. 3.7-15 to 16), which delineates the costs, climate conditions and energy requirements for Central Valley facilities that render that approach infeasible. Of particular note, as stated in the Draft EIR, “no data has been identified regarding the effectiveness of biofilters to control CH₄ (methane) emissions.” As a consequence, the SLCP Strategy does not incorporate vented enclosures with biofilters as an emissions reduction approach. Given these drawbacks, vented enclosures with biofilters have not been included in the Dairy CAP as an emissions reduction strategy.

Suggestions were made in certain comments that the County should implement a cap-and-trade system for dairies or a Voluntary Emissions Reduction Agreement under the SJVAPCD’s program. In fact, CARB has specifically chosen not to designate dairies as a capped sector eligible for inclusion in the state’s Cap-and-Trade Program, as noted in the SLCP Strategy (p. 34-35), and the SJVAPCD’s program has been utilized in significantly different circumstances, primarily for large-scale residential subdivisions. Also, the scale of a new cap-and-trade program would be infeasible for the County to implement at the local level, and such a program likely would be ineffective due to potential “leakage” of dairies to other counties without a cap-and-trade program.

In the meantime, many questions as to the effectiveness and feasibility of animal-related GHG reduction strategies remain unresolved. In the SLCP Strategy, CARB states it will “continue to support research to eliminate information gaps and improve understanding of potential manure management practices and their associated methane reduction benefits, as well as potential air quality or water quality impacts.” (p. 69) As for enteric fermentation, the SLCP Strategy acknowledges the need for further research specific to California to examine the viability of strategies to reduce methane by increasing production efficiencies, breeding animals for lower methane production, gut microbial interventions and changes to nutrition and animal management. (p. 70) In the SLCP Strategy, CARB acknowledges that SB 1383 requires consideration of enteric fermentation research and allowing only incentive-based, voluntary approaches to reductions in such livestock emissions until cost-effective and scientifically validated methods for reducing enteric emissions are available. (p. 70) In response, the Dairy CAP provides, consistent with funding availability, for monitoring of new developments at the state level relating to dairy emissions and emissions reduction strategies and, with the Dairy CAP revisions, identifies voluntary benchmark emissions reduction targets that take into account voluntary reduction strategies. See Master Response 1C: Voluntary Benchmark Targets for more details.

Lastly, it should be noted that, despite comments to the contrary, two specific emissions reduction strategies were included in the Dairy CAP, namely, adjusting feed ration mixtures and additives to reduce enteric fermentation (Strategy D2) and the use of solar panels (Strategy E7).

MASTER RESPONSE 1E – DAIRY CAP IMPLEMENTATION

Summary of Draft EIR Comments

Draft EIR comments recommend that the Dairy CAP should be periodically reviewed and include more aggressive GHG reduction strategies when they become feasible. They assert that the Dairy CAP checklist is flawed because it does not specify which emissions reduction strategies will be implemented, that there is no assurance Category A strategies will be implemented, and that Category B strategies must merely be considered. Comments recommend that each future project should undergo CEQA review to allow public to comment on GHG reduction strategies that will actually be implemented. They also recommend that the Dairy CAP and EIR should describe circumstances under which a given GHG reduction strategy will be required.

Response

Implementation of the Dairy CAP is addressed in revised Sections 6 through 8. Specifically, as described in the revisions to Section 6, consistent with funding availability, the County will utilize the ACFP Annual Compliance Reports submitted by dairies as well as CEQA Mitigation Monitoring and Reporting Programs for individual projects to monitor the implementation of Category A and Category B strategies on new and expanding dairies. In addition, Section 6 has been revised to provide, subject to funding availability, for the compiling of information based upon ACFP Annual Compliance Reports concerning emissions reductions from the implementation by existing dairies of voluntary emissions reduction strategies, including manure digesters. Based upon review of ACFP Annual Compliance Reports, and to the extent possible and subject to funding availability, the County will also estimate the potential reductions that have been achieved, by using site-specific information when available from the farmer.

Section 7 describes the process for project-specific CEQA review for all new dairies and for dairy expansions that do not qualify for streamlined analysis and therefore require an individualized project analysis. Section 8 provides for ongoing programs to promote manure digesters and to identify state incentive funding programs for digesters. Consistent with funding availability, the County will coordinate with CARB and other agencies to support the voluntary construction of manure digesters and other emissions reductions projects that address animal-related emissions, including by existing dairies. In addition, Section 8 has been expanded to incorporate AB 1613 as a new source of public funds to subsidize capital costs for digesters and other dairy emissions reduction projects.

Section 8 has been revised to reflect the County's plans, consistent with funding availability, to monitor the implementation of the 2016 legislation as it relates to dairy methane emissions and to provide for a post-2023 examination of the Dairy CAP to determine whether the Dairy CAP has been superseded by the enactment of state regulations that mandate emissions reductions and to assess whether modifications are needed in order to reduce the possibility of duplication of or conflicts with state level actions.

The Dairy CAP has been prepared consistent with CEQA Guidelines §15183.5 for GHG reduction plans and, as such, can be used for tiering and streamlining of GHG analysis of proposed new dairies and expansions of existing dairies at a project-specific level. Consistency of such projects

with the Dairy CAP will be used to evaluate a project's GHG-related impacts. Sections 5 and 7 of the Dairy CAP address the utilization of the Dairy CAP in the CEQA review process for new dairies and dairy expansions. All new dairies will be required to perform an individualized project analysis, including individualized review under CEQA with the accompanying evaluation of GHG emissions impacts and feasible mitigation measures. As for dairy expansions, an analysis will be made to determine whether the expansion is consistent with the Dairy CAP and qualifies for a streamlined analysis or instead requires an individualized project analysis. (ACFP §2.5-3 and §2.5-4) Figure 1 (p. 42) of the Dairy CAP presents a flow chart illustrating the steps to make that determination.

The revised Dairy CAP, Section 5.3, identifies the range of available emissions reduction strategies in all categories for dairies, including those to address animal-related emissions. (Table 4, p. 24-27) To qualify for a streamlined analysis (ACFP §2.5-3), a proposed expansion must incorporate, to the extent possible, the Category A emissions reduction strategies, listed in Table 5 on pages 31-32, that are applicable based on the scope of the proposed expansion. To the extent that any of such Category A strategies would be infeasible or impracticable based on the specifics of the expansion, a Category B strategy, listed on Table 6 on pages 35-36, must be substituted for each such strategy. Because of the wide range in variations in the locations, operations and other characteristics of the existing dairies that may propose a dairy expansion, these determinations would be made on a case-by-case basis, taking into consideration the nature and scope of the proposed expansion as it relates to the existing facilities. Those proposed expansions that do not incorporate the requisite scope and number of emissions reduction strategies needed to meet the requirements for the streamlined process under ACFP §2.5-3 will be required to perform an individualized project analysis under ACFP §2.5-4, including individualized review under CEQA with the accompanying evaluation of GHG emissions impacts and feasible mitigation measures.

MASTER RESPONSE 2 - ADEQUACY OF EIR GHG ANALYSIS

Summary of Draft EIR Comments

Comments on the Draft EIR assert that:

- The Draft EIR GHG impact analysis did not meet CEQA requirements.
- The Draft EIR did not account for all sources of dairy GHG emissions.
- The Dairy CAP checklist approach represents deferred CEQA mitigation.
- The Dairy CAP and the EIR should describe circumstances under which a given GHG reduction strategy will be required.

Response

CEQA Guidelines Section 15064.4(a) sets out the requirements for EIR analyses of GHG emissions. The Draft EIR met these requirements. As required by Section 15064.4(a), the Draft EIR made a good faith effort, based on scientific data and modeling, to estimate the amount of GHG emissions from the proposed project. As required by Section 15064.4(a), it considered the extent to which the proposed project would increase GHG emissions compared to existing conditions, as well as the extent to which the proposed project complies with local and state GHG reduction plans and policies.

The Draft EIR's analysis of GHG impacts presented in Section 3.7 utilizes the quantification of the 2013 baseline and projected 2023 future GHG emissions (assuming a growth rate of 1.5 percent) delineated in the Dairy CAP as the basis for its CEQA evaluation of the ACFP. Section 3 of the Dairy CAP presents in detail the methodology used to quantify baseline and to project future emissions. The inventory of baseline emissions and the projection of future emissions were performed in accordance with the methodology to identify potential sources developed by the Intergovernmental Panel on Climate Change (IPCC) and used by CARB for quantifying annual statewide emissions. (Dairy CAP, p. 17 and Appendix B) The source categories for emissions account for all sources of dairy emissions, both animal-related and non-animal related, as listed in Table 3 of the Dairy CAP. (Dairy CAP, Section 3, p.19)

The Draft EIR (Chapter 2) describes the procedures under the ACFP and the Dairy CAP for CEQA review of new dairies and dairy expansions. The Dairy CAP has been prepared consistent with CEQA Guidelines Section 15183.5 for GHG reduction plans and, as such, can be used for tiering and streamlining of GHG analysis of proposed new dairies and expansions of existing dairies at a project-specific level. Consistency of such projects with the Dairy CAP will be used to evaluate a project's GHG-related impacts. All new dairies will be required to perform an individualized project analysis, including individualized review under CEQA with the accompanying evaluation of GHG emissions impacts and feasible mitigation measures (ACFP, §2.5-4). As for dairy expansions, an analysis will be made to determine whether the expansion is consistent with the Dairy CAP and qualifies for a streamlined analysis or instead requires an individualized project analysis (ACFP §2.5-3 and §2.5-4). Figure 1 (p. 42) of the Dairy CAP presents a flow chart illustrating the steps to make that determination.

The Dairy CAP has identified the range of available emissions reductions strategies tailored to dairy facilities and operations in all categories, including those to address animal-related emissions. (Dairy CAP, Section 4, Table 4, p. 24-27)

The categories include strategies for dairy operations, energy conservation and efficiency, transportation, water, solid waste and recycling and miscellaneous items. The emissions reduction strategies were drawn from a variety of authoritative sources, including the GHG reduction guidelines produced by the California Air Pollution Control Officer's Association (CAPCOA) (CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures) and the California Natural Resources Agency CEQA Guidelines, Appendix F- Energy Conservation (California Natural Resources Agency. 2009). In particular, the emissions reduction strategies for animal-related emissions are consistent with the range of measures discussed in the SLCP Strategy adopted by CARB on March 23, 2017, as addressed in its discussion of the dairy sector at p. 63-72. See Master Response 1D: GHG Emissions Reduction Strategies for more details.

To qualify for a streamlined analysis (ACFP §2.5-3), a proposed expansion must incorporate, to the extent possible, the Category A emissions reduction strategies, listed in Table 5 on pages 34-35, that are applicable based on the scope of the proposed expansion. To the extent that any of such Category A strategies would be infeasible or impracticable based on the specifics of the expansion, a Category B strategy, listed in Table 6 on pages 35-36, must be substituted for each such strategy. Because of the wide range in variations in the locations, operations and other characteristics of the existing dairies that may propose a dairy expansion, these determinations would be made on a case-by-case basis, taking into consideration the nature and scope of the proposed expansion as it relates to the existing facilities. This is not a “deferral” of mitigation but rather an effective approach to tailor the emissions reduction strategies to the particular expansion project. In addition, because of the wide range of variations in circumstances, a prescribed formula for addressing the range of circumstances is not practicable. In the event that a proposed expansion does not incorporate the requisite scope and number of emissions reduction strategies needed to meet the requirements for the streamlined process under ACFP §2.5-3, the proposed expansion will be required to perform an individualized project analysis under ACFP §2.5-4, including individualized review under CEQA with the accompanying evaluation of GHG emissions impacts and feasible mitigation measures.

Consequently, all such proposed projects will be required to evaluate the feasibility of dairy emissions reduction strategies as to their particular circumstances, taking into consideration CARB's then-current policies as it implements SB 1383. See Master Response 1B: 2016 Legislation for a discussion of CARB's plans and policies under recent legislation. In addition, Mitigation Monitoring and Reporting Programs will be adopted to assure such CEQA mitigation measures are implemented. Mitigation Measure #3.7.1 will be adopted as a programmatic mitigation measure for the ACFP, requiring the quantification of GHG reductions achieved by project-specific GHG reduction measures at the time of project approval and that owners submit evidence that such GHG reduction measures are being implemented in each ACFP Annual Compliance Report. Evidence of non-compliance will result in the County requiring submittal of a Corrective Action Plan. Even with the adoption of Mitigation Measure #3.7.1, the Draft EIR finds the GHG emissions impacts to be significant and unavoidable due to the current infeasibility of substantially reducing the net increase in GHG emissions under the proposed ACFP.

The Dairy CAP provides information in Appendix C concerning the available methods to quantify the reductions, including those referenced in CAPCOA's emissions reduction methodology. (CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. August. Accessed at: <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>.) In all cases, the scope and extent of the reductions must be calculated on a project-by-project basis due to the variations in individual operations. Consequently, the information available at this programmatic stage is insufficient to provide a current, reliable quantification of the aggregate emissions reductions that may be achieved on an individual basis.

After the Draft EIR was released, legislation was enacted relevant to GHG emissions reductions generally, and to methane emissions from the dairy sector, more particularly, which clarifies policy at the state level beyond 2020. See Master Response 1B: 2016 Legislation for an in-depth discussion. Section 3.7 of the Draft EIR, Greenhouse Gas/Energy Impact Analysis, has been revised to reflect the 2016 legislation, including the GHG and methane emissions reduction goals for 2030 as they relate to the dairy sector through 2023. The discussion of the feasibility of digesters (Draft EIR, p. 3.7-14 to 3.7-15) has also been updated to reflect AB 1613's allocation of funds to offset capital costs for digester projects.

The original Dairy CAP did not include a quantitative benchmark or target for GHG emissions reductions because the original AB 32 Scoping Plan and the 2014 Scoping Plan Update required no livestock emissions reductions to meet statewide 2020 reduction goals, in large part due to the lack of feasible emissions reduction strategies for manure management and enteric fermentation emissions. (Dairy CAP, p. 21) The voluntary nature of dairy animal-related emissions reductions is to be continued until at least 2024 under SB 32 (see draft 2017 Scoping Plan Update) and SB 1383. At the same time, the Legislature has recognized the need to support and enhance voluntary emissions reduction projects through AB 1613, which earmarks \$50 million as initial funding for dairy emissions reduction projects. In view of the continuation of the voluntary nature of emissions reduction strategies for dairies under state law and in recognition of the availability of this new funding to support and incentivize those efforts, the Dairy CAP (Table 6, p. 37-38) has been revised to incorporate voluntary benchmark targets, based on emissions reduction projects that may be funded through available state incentives and subsidies. See Master Response 1C: Voluntary Benchmark Targets.

MASTER RESPONSE 3 - ADEQUACY OF WATER QUALITY IMPACT ANALYSIS

Summary of Draft EIR Comments

Draft EIR comments expressed the following water quality concern:

- The EIR ignores health impacts from antibiotics and hormones
- Pollution from dairies may be posing significant risk to private household wells
- The current groundwater monitoring system is inadequate
 - Fields where waste manure applied are not monitored
 - Monitoring is limited to deep groundwater
- Additional mitigation measures should be implemented
 - Additional monitoring wells should be required that monitor antibiotics and hormones
 - Antibiotics should be restricted and hormone growth promoters banned
 - Use the applied nitrogen:removed nitrogen ratio to manage application of manure and wastewater
- The current CVRWQCB enforcement system is inadequate
 - The General Order for existing dairies is not being properly implemented, and there are many examples of poor enforcement
 - Tulare County should not rely on the CVRWQCB to monitor and enforce water quality issues

Draft EIR Water Quality Impact Analysis and Mitigation Measures Meet CEQA Requirements

The Draft EIR water quality impact analysis and mitigation measures meet CEQA requirements. Draft EIR Section 3.9 analyzes six hydrology and water quality impacts. Impact 3.9.1 (violation of water quality standards or waste discharge requirements, or substantial water quality degradation) is significant; Measure 3.9.1 (County-verified compliance with CVRWQCB regulations and WDRs) was developed to reduce this impact, but would not reduce it to less than significant levels. Impact 3.9.2 (depletion of groundwater supplies) is also significant; Mitigation Measure 3.9.2 (project-specific water supply analyses) was developed to reduce this impact, but would not reduce it to less than significant levels. The remaining hydrology and quality impacts (3.9.3 through 3.9.6) were found to be less than significant or no impact.

Responses to Specific Concerns

1. The EIR ignores health impacts from antibiotics and hormones

There is no evidence that the proposed ACFP would lead to hormones ending up in groundwater, or that even if this occurred, adverse health impacts would result. Bovine somatotropin (BST) is a hormone naturally produced in cows. In 1993 FDA approved commercial use of synthetic recombinant Bovine somatotropin or growth hormone (rbST or rbGH), injection form, to be used in cows to increase milk yield. Several studies have shown that bovine hormones are present in animal manures, and therefore in the dairy retention ponds (and, thus, probably groundwater).

UC Davis has completed the first large study that found antibiotics given to dairy cows can end up on the ground and in manure lagoons, “but are mostly broken down before they reach groundwater”. Thus, the U.C. Davis study provided no evidence that the very small amount of antibiotics that did reach the shallow groundwater can adversely affect drinking water.¹

Using antibiotics in animal feed for non-therapeutic use including growth enhancement is being phased out by the FDA. On December 23, 2016, the agency released three Federal Register documents to update the Code of Federal Regulations (CFR) reflecting changes to most of the new animal drug applications affected by Guidance for Industry (GFI) #213. The FDA can now report that, as of January 3, 2017, all affected drug applications have either aligned with the recommendations outlined in GFI #213, or their approvals have been voluntarily withdrawn. As a result of these changes, these products cannot be used for production (e.g., growth promotion) purposes and may only be used under the authorization of a licensed veterinarian.² Thus, it is anticipated that in the future, animal feed used for new and expanded dairies under the ACFP would have limited amounts of antibiotics.

Significant water quality or public health impacts caused by the ACFP related to antibiotics and hormones have not been demonstrated. There is no evidence that antibiotics or hormones associated with dairy operations have caused significant water quality impacts or significantly impacted human health in Tulare County, and such impacts are therefore speculative. For example, the Food and Water Watch report (Draft EIR comment letter number 4c, page 10) itself admits that impacts related to exposure to antibiotic resistant pathogens near dairies are unknown. The Environmental Protection Agency (EPA)³ and the State Water Resources Control Board (SWRCB)⁴ have categorized hormones and antibiotics as contaminants or constituents of emerging concern, but based on existing information have chosen not to set regulatory standards for them.

2. Pollution from dairies may be posing significant risk to household wells

The existence of existing contamination in private wells adjacent to existing dairy facilities is documented and noted. The Draft EIR documents nitrate contamination near dairies on pages 3.9-21 through 3.9-31. Private wells in non-dairy agricultural areas of Tulare County, like private wells adjacent to dairies, are also non-compliant with respect to nitrates, the principal monitored chemical contaminant. Such contamination is a probable result of the application of nitrogenous fertilizers for crop production.

Groundwater contamination, as evidenced by nitrogen levels in pumped groundwater, is a long-term process and may reflect, in the case of dairy-area wells, past lagoon leakage or past manure usage practices. The proposed Program EIR is not required to remedy existing groundwater contamination that may have been caused by past dairy farm practices that are not representative of current and future practices.

As discussed in Draft EIR Impact 3.9-1, requirements incorporated in Central Valley Regional Water Quality Control Board (CVRWQCB) General Order No R-5-2013-0122, including improved lagoon design and a nutrient management plan, would substantially reduce the potential for future nitrate contamination under the ACFP. Impact 3.9-1 also discusses several

ACFP provisions that would further reduce the potential for these impacts, e.g., locating lagoons at least 150 feet from wells. However, Impact 3.9-1 is considered significant because it cannot be guaranteed that all future project-level water quality impacts, including nitrate impacts on groundwater, would be reduced to a less than significant level.

3. The current groundwater monitoring system is inadequate

The current groundwater monitoring programs of responsible County, State and Federal agencies, the CVRWQCB and the California Department of Public Health, U.S. Geological Service, and the Department of Water Resources, have provided the data contained in Draft EIR Figures 3.9-5 to 3.9-11.

The CVRWQCB has developed and is implementing, under the aegis of the General Order, an extensive individual and defined-area groundwater monitoring program (see May 6, 2016 letter from CVRWQCB).⁵ Monitoring is being conducted through the Central Valley Dairy Representative Monitoring Program (with 443 monitoring wells at 42 representative dairies) as well as by dedicated groundwater monitoring systems installed at individual dairies. The CVRWQCB indicates it will use this monitoring data to ensure that specific dairy management practices protect water quality.

Regarding expanded or new dairies, General Order R5 2013-0122 prescribes on pages 6 and MRP-1 through MRP-31 a feasible and enforceable groundwater Monitoring and Reporting Program (MRP). When implemented for new and expanded dairies, the MRP would help assure that new and expanded dairies under the proposed ACFP would not adversely affect beneficial uses of groundwater.

The CVRWQCB is the regulatory agency most qualified to develop and implement groundwater monitoring programs, precluding the necessity for any supplemental monitoring by the County as an ACFP measure. Further, comments do not provide any evidence that monitoring programs in addition to those required by the CVRWQCB would avoid or substantially lessen significant impacts.

4. Additional mitigation measures should be implemented

Monitoring wells required by CVRWQCB regulations, with measurement of nitrates, salts and coliform bacteria, all highly soluble contaminants, will provide essential monitoring of aquifer contamination. There has been no evidence offered, or available, that additional monitoring wells specifically measuring antibiotic and hormone contamination would be of value to reduce significant water quality impacts caused by the ACFP.

Because significant water quality or public health impacts caused by the ACFP related to antibiotics and hormones have not been demonstrated, there is no requirement under CEQA to consider restricting antibiotic usage or hormone growth usage as a mitigation measure.

The RWQCB's General Order requires, and the Board is implementing, a nutrient management plan preparation and related guidance for dairy manure fertilization and usage; this guidance

includes procedures for applied nitrogen/recycled nitrogen manure fertilization controls. In addition, the proposed ACFP establishes a process for bringing any non-compliant existing dairies into compliance with CVRWQCB regulatory requirements, including nutrient management plans. For expanded and new dairies, Mitigation Measure 3.9-1 requires, as a component of the ACFP Annual Compliance Report, owners to submit evidence of compliance with all pertinent CVRWQB regulations and WDRs, including CVRWQCB-required nutrient management plans.

5. The current RWQCB enforcement system is inadequate and County should enforce water quality issues

CVRWQCB enforcement processes are described on Draft EIR p. 3.9-6. The comments address inspection, monitoring, and enforcement under an outdated 2007 General Order for existing dairies, and do not address inspection, monitoring, and enforcement under the reissued 2013 General Order. The criticisms of the CVRWQCB's enforcement are based on outdated, selective, and anecdotal observations. The May 6, 2016 letter from the CVRWQCB ⁵ indicates the following:

- The commenters' conclusions were based on the first two years of General Order implementation, and the General Order is currently in its ninth year of implementation.
- During this time, the CVRWQCB staff has taken enforcement on nearly 1400 violations, a number of which have resulted in further enforcement actions such as cleanup and abatement orders, investigations under Water Code Section 13267, fines, and in one case closure of a dairy referenced by the commenters.

In addition, under Mitigation Measure 3.9-1, the County does have a proposed secondary enforcement role. The mitigation measure requires, as a component of the ACFP Annual Compliance Report, owners to submit evidence of compliance with all pertinent CVRWQB regulations and WDRs. If there is evidence of non-compliance, the County will notify the CVRWQCB and require the owner to submit a Corrective Action Plan.

Lastly, please note that allegations of lack of CVRWQCB enforcement do not pertain to the adequacy of the Draft EIR water quality impact analysis. The Draft EIR reasonably assumes that current CVRWQCB regulatory requirements will be implemented and if necessary enforced in a manner that reduces water quality impacts. See, e.g., *Oakland Heritage Alliance v. City of Oakland* (2009) 177 Cal. App. 4th 912.

MASTER RESPONSE 4: ADEQUACY OF ALTERNATIVES ANALYSIS

Summary of Draft EIR Comments

Draft EIR comments assert that the EIR range of alternatives was inadequate. They assert that the EIR improperly rejected the 33% Reduced Herd Size Alternative as infeasible. They also assert that the EIR should have considered a pasture-based alternative, which the comments assert is feasible and has significant environmental and economic benefits.

Range of Alternatives

As noted on Draft EIR page 5-1, the range of alternatives required in an EIR is governed by a “rule of reason” that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. Alternatives are limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. (CEQA Guidelines §15126.6(f).) A lead agency must make an objective, good faith effort to provide information permitting a reasonable choice of alternatives that would feasibly attain most of the basic objectives of the project, while avoiding or substantially lessening the project's significant adverse environmental impacts. (*California Oak Foundation v. Regents of University of California* (2010) 188 Cal.App. 4th 227.)

The Draft EIR evaluated a reasonable range of alternatives. These consisted of a No Program Alternative and a 33% Reduced Herd Size Alternative, as described on Draft EIR page 5-4. The Draft EIR considers the 33% Reduced Herd Alternative as potentially feasible, and as the environmentally superior alternative (p. 5-4).

The Draft EIR on pages 5-2 and 5-3 also discusses why other potential alternatives were eliminated from detailed analysis because they would not meet the basic Program objectives, would not lessen the proposed Program's significant impacts, and/or would not be feasible.

Draft EIR did Not Reject 33% Reduced Herd Size Alternative

Contrary to commenter suggestions, the Draft EIR does not determine that the 33% Reduced Herd Size Alternative is infeasible. Instead, on p. 5-3, the Draft EIR identifies this alternative as “potentially feasible.” On p. 5-4, the Draft EIR does point to some disadvantages of the 33% Reduced Herd Size Alternative: inconsistency with a basic Program objective and with a number of General Plan policies. However, this discussion of disadvantages does not equate to a Draft EIR finding that the alternative is infeasible.

The issue of alternatives feasibility arises twice in the CEQA process, once when the EIR is prepared, and again when CEQA findings are adopted. When assessing feasibility in an EIR, the EIR preparer evaluates whether an alternative is “potentially” feasible. Potentially feasible alternatives such as the 33% Reduced Herd Size Alternative are suggestions by the EIR preparers which may or may not be adopted by lead agency decision-makers.

When CEQA findings are made after EIR certification, the County decision-makers will independently evaluate whether the Draft EIR alternatives are actually feasible, including whether they are impractical or undesirable from a policy standpoint. (See *California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957.) In making this feasibility determination, the decision-makers will consider information in the Draft EIR, additional information in the Final EIR and elsewhere in the administrative record, and policy factors. (See Guidelines Section 15091(a)(3).)

Pasture-Based Alternative is Not Feasible

Independent experts have concluded that it is “not logical, environmentally beneficial, or economically viable to use a pasture based system in the Central Valley for the vast majority of dairy animals.”⁶ Specifically, the Draft EIR did not include a pasture-based alternative because it is not feasible, for the following reasons.

Climate. The climate of the southern San Joaquin Valley, and Tulare County’s dairy industry location on the Valley floor – extended periods of very high temperatures, and limited rainfall, does not permit economically feasible pasture-based dairy operations because of excessive land requirements and the estimated \$12,000 per acre costs.⁷ Limited pasture growth in the cold, rain-limited, winters, and essential grazing movement in the hot, dry, summers accentuate the estimated ‘standard’ differences in milk production per cow between grazing and feed-based animals. Supplemental feeding would thus be required at greater levels and intervals than in other climatic locations.

Land Requirements. Also, land requirements for a pasture-based alternative make this alternative infeasible. It is estimated that one cow per acre is that required for normal, rotational, properly managed grazing operations.⁸ In addition to the land required for grazing, additional irrigated cropland, perhaps on the order of 10% of that required for existing South-Valley operations, would be required (onsite or offsite) for grazing-supplement and non-grazing season feed requirements.

Master Response 4 has calculated the acreage required for ACFP-estimated confined and semi-confined dairy expansion to 2023 as 53,000 acres. It has also calculated pasture-based grazing acreage to 2023 to accommodate that same growth in herd size as 168,000 acres. A County requirement that future new and expanded dairies be pasture-based would be economically infeasible for owners to implement because of these excessive land requirements.

Please note that although a Countywide pasture-based alternative is infeasible, the Dairy CAP has been revised to include pasture-based management practices for individual dairies or feedlots as Strategy D8 in Table 4.

Environmental Benefits of Pasture-Based Alternative are Uncertain

In addition, the Draft EIR did not include a pasture-based alternative because there is insufficient data available to validate comparative environmental benefits of a southern San Joaquin Valley pasture-based alternative compared to existing confined or semi-confined animal dairies.

Regarding water use, because pastures in Tulare County must be irrigated and supplement-feeding will be required during off-pasture periods, the claimed water use benefits of pasture grazing in Tulare County are overstated.

Regarding water quality, existing literature indicates that there is attenuation of antibiotics, and thus presumably of hormones and other trace contaminants, in dairy lagoons. There is also some advantage in application of manure to land in accord with CVRWQCB⁹ for confined facilities, assuring uniform application of nutrients that would not occur with pasture grazing operations.

There is, for dairy operations in Tulare County, no water use savings with a pasture-based dairy system.

Appendix G to the Draft EIR, Programmatic Water Supply Evaluation, discusses the usage of water currently required, onsite and offsite, to sustain Tulare County's dairies. Pages 2-3 and 2-4 of that report calculate the onsite and offsite dairy animal feed crop requirement to require an average of 53.5 inches (4.5) feet of irrigation water. Pages 2-5 and 2-6 provide calculations based on that average supporting an incremental water demand of 139,400 acre feet for the projected 2,203 additional cows utilizing ACFP confined and semi-confined facilities similar to those currently used in the county.

The 168,000 additional cows projected for 2023 would require for a pasture-based alternative growth (see Response to Comment 4a-12) 168,000 acres of irrigated pasture, if the land were available. Such pasture historically requires approximately 5 acre feet of water per acre per year because of Tulare County's limited rainfall and hot summer season according to State Department of Water records for typical water years. The total water usage required for the alternative would thus be 840,000 acre feet plus a minimal increment for stock watering and for milking facilities sanitation.¹⁰

Regarding greenhouse gases, and other air emissions, a U.S. Department of Agriculture study reports greenhouse *"gases methane, nitrous oxide, and carbon dioxide were 8 percent lower in year-round outdoor production systems than in high-production confinement systems. The biggest payoff? Keeping dairy cows outdoors all lowered ammonia emissions by about 30 percent"*. The study, however, notes that pastured cows produced 13,000 pounds of milk per cow per year, compared to confined cows producing 22,000 pounds of milk cow per year.¹¹

2.3 *Comment Letters and Responses*



Central Valley Regional Water Quality Control Board

22 March 2016

Tulare County Resource Management Agency (project proponent)
c/o Michael C. Spata, County Project Manager
5961 South Mooney Boulevard
Visalia, CA 93277-9394

DRAFT ENVIRONMENTAL IMPACT REPORT REVIEW, ANIMAL CONFINEMENT FACILITIES PLAN, AND DAIRY AND FEEDLOT CLIMATE ACTION PLAN

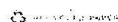
1-1 On 5 February 2016, the Draft Environmental Impact Report (DEIR) for proposed changes to the Tulare County Animal Confinement Facilities Plan (ACFP) adopted in 2000 and Dairy and Feedlot Climate Action Plan (CAP) was submitted to Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff for review. The DEIR project (Project) proposes to amend the permitting process utilized by the Tulare County Resource Management Agency (TCRMA) for existing, expanding, and new dairies that are subject to permitting requirements implemented by the TCRMA. The proposed changes include an amendment to the Environmental Resources Management Element of the Tulare County General Plan to replace the 2000 ACFP with the proposed ACFP. The Project also includes provisions for a draft Dairy Corrective Action Plan (CAP) intended to reduce greenhouse gas emissions from confined animal facilities, including dairies. Central Valley Water Board staff conducted a review of the DEIR to evaluate whether the Project may contribute to groundwater or surface water impairment. The project review was made considering the conditions and requirements of applicable portions of California Code of Regulations (CCR), Title 27, Confined Animal Facilities (Title 27) and the Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies R5-2013-0122 (Reissued Dairy General Order).

1-2 The DEIR recognizes the potential for dairy operations, including construction activities associated with expanded or new dairies and other bovine facilities, to cause adverse water quality impacts. The DEIR assumes a continued growth rate of 1.5% for dairy herds in the County in the next ten years. The DEIR concludes that although existing Central Valley Water Board and Tulare County regulations would prevent significant water quality degradation at the vast majority of new or expanded dairy and other bovine facilities, it cannot be guaranteed that all future project-level water quality impacts would be mitigated to a less than significant level.

1-3 The DEIR proposes to incorporate mitigation measures within a revised Tulare County ACFP to address the potential for groundwater pollution posed by continued growth of permitted dairy herds within the County. The DEIR concluded that, as an alternative to the revision of the ACFP, a reduction in the projected growth of total dairy herds from 1.5% to one percent (33% reduction of anticipated dairy herd growth) over the next ten years would reduce adverse impacts from dairy operations.

KARL E. LORRICK, SCD, P.E., CHAIR | PAMELA C. CREEDON, P.E., UCCE, EXECUTIVE OFFICER

1845 L Street, Fresno, CA 93702 | www.waterboards.ca.gov/cvtrwb



- However, the impacts would not be reduced to "less than significant", and would not achieve the desired goals of the proposed ACFP changes.
- 1-4 Revisions to the Tulare County ACFP for existing dairy facilities include the development of a list of confined animal facilities specifying county-permitted herd sizes that are consistent with Central Valley Water Board and San Joaquin Valley Unified Air Pollution Control District (APCD) permitted herd sizes as well as the development of a process requiring existing out of compliance facilities to achieve compliance. Dairy owners will be required to submit evidence of full compliance with all pertinent Waste Discharge Requirements and regulations enforced by the Central Valley Water Board with annual compliance reports. The proposed mitigation measure would also require the dairy owner to submit a Corrective Action Plan (CAP) with the annual compliance report to address any evidence of non-compliance.
- 1-5 Revisions to the Tulare County ACFP for expansions of existing dairy facilities currently in compliance with APCD and Central Valley Water Board requirements include the development and use of a Conformance Checklist Review, allowing approvals for all expansions in compliance with APCD and Central Valley Water Board requirements. Allowable herd sizes for expansions will be based on APCD and Central Valley Water Board permit limitations. An EIR would not be required for expansion of facilities already in compliance with APCD and Central Valley Water Board requirements, as the review process for the application would be covered under the California Environmental Quality Act (CEQA) for the ACFP.
- 1-6 Primary design and operational standards specified in the 2000 ACFP, including separation between facilities, would be maintained. Expansions for all other facilities that are not in conformance with APCD and Central Valley Water Board requirements would require a Special Use Permit and CEQA review. The Tulare County ACFP will require CEQA review and approval of a special use permit for any new dairies, conditioned on compliance with APCD and Central Valley Water Board requirements.
- 1-7 The DEIR presents inconsistent sources and values for animal units (AU). The DEIR defines animal units as a common animal denominator, based on feed consumption, where one mature cow (1,400 pounds) represents one animal unit, referencing Central Valley Water Board as the source. Currently, Central Valley Water Board has no statutory definition for animal units. The Tulare County definition of "Animal Unit," as provided in Appendix A of the DEIR, defines animal units the same; the source of the information is derived from the Tulare County conversion tables issued by the Resource Management Agency Director. Finally, the existing Tulare County Animal Confinement Facilities Plan (2000), in Appendix K of the DEIR, acknowledges that Tulare County views one mature cow (1,400 pounds) representing one animal unit, but realizes that other agencies/jurisdictions use an animal unit equivalent of 1,000 pounds. The reference cited for the conversion table is Appendix B in 40 CFR 122 of the National Pollutant Discharge Elimination System (NPDES) statutes administered by the U.S. Environmental Protection Agency (USEPA). However, the USEPA has recently placed this statute in "reserved" status.
- 1-8 The DEIR should provide the following information describing the practical implementation of the revised ACFP.
- A description of how dairy herd permit numbers will be adjusted for consistency between the APCD, Central Valley Water Board, the County of Tulare, and other appropriate agencies.

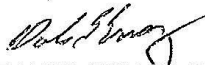
Tulare County Resource Management Agency

3

22 March 2016

- 1-9 | • A discussion of the type of documentation that will be acceptable in the dairy annual reports to verify that the individual dairies are operating in compliance with applicable regulations.
- 1-10 | • A discussion of the specific details or requirements that will be required in the Corrective Action Plans (CAP) to address evidence of non-compliance.
- 1-11 | • A clear definition and source of animal units.
- 1-12 | In order for the Central Valley Water Board to tier off of the County's CEQA evaluation, any new or expanded dairy that undergoes a site plan review process should be provided with written findings that the dairy is within the scope of the Program EIR.
- 1-13 | Efforts to characterize first encountered groundwater conditions at dairy facilities in the San Joaquin Valley are being implemented through participation in the Central Valley Dairy Representative monitoring Program (CVDRMP) Coalition. Monitoring data obtained by the CVDRMP will be used to identify specific management practices that are protective of water quality and appropriate for the range of conditions encountered at participant dairies. Best management practices for the protection of surface water and groundwater quality presently referenced by the Reissued Dairy General Order are likely to be amended based on the findings of the monitoring data evaluation by the CVDRMP. Tulare County ACFP requirements will need to reference most current regulatory requirements.

If you have any questions regarding this review, please contact Lorin Sutton by telephone at (559) 445-6086 or by email at lorin.sutton@waterboards.ca.gov.



DALE E. ESSARY, P.E.
RCE No. 53216
Senior Engineer
Confined Animals Unit

cc: State Clearinghouse, P. O. Box 3044, Sacramento, CA 95812-3044

Comment Letter 1: Central Valley Regional Water Quality Control Board
Dale E. Essary, P.E.

Comment 1-1: *On 5 February 2016, the Draft Environmental Impact Report (DEIR) for proposed changes to the Tulare County Animal Confinement Facilities Plan (ACFP) adopted in 2000 and Dairy and Feedlot Climate Action Plan (CAP) was submitted to Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff for review. The DEIR project (Project) proposes to amend the permitting process utilized by the Tulare County Resource Management Agency (TCRMA) for existing, expanding, and new dairies that are subject to permitting requirements implemented by the TCRMA. The proposed changes include an amendment to the Environmental Resources Management Element of the Tulare County General Plan to replace the 2000 ACFP with the proposed ACFP. The Project also includes provisions for a draft Dairy Corrective Action Plan (CAP) intended to reduce greenhouse gas emissions from confined animal facilities, including dairies. Central Valley Water Board staff conducted a review of the DEIR to evaluate whether the Project may contribute to groundwater or surface water impairment. The project review was made considering the conditions and requirements of applicable portions of California Code of Regulations (CCR), Title 27, Confined Animal Facilities (Title 27) and the Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies R5-2013-0122 (Reissued Dairy General Order).*

Response: This comment does not raise an environmental issue related to EIR adequacy, and no response is required. CEQA Guidelines Sections 15088(a), 15088(c). However, the statement that the proposed Program involves changes to the Tulare County Environmental Resources Management Element is incorrect. The Draft EIR does not include this statement. The Draft ACFP included as Appendix A to the Draft EIR did include this statement on pages 1-2. It has been corrected in the proposed Final ACFP included as Appendix A to this Final EIR.

Comment 1-2: *The DEIR recognizes the potential for dairy operations, including construction activities associated with expanded or new dairies and other bovine facilities, to cause adverse water quality impacts. The DEIR assumes a continued growth rate of 1.5% for dairy herds in the County in the next ten years. The DEIR concludes that although existing Central Valley Water Board and Tulare County regulations would prevent significant water quality degradation at the vast majority of new or expanded dairy and other bovine facilities, it cannot be guaranteed that all future project-level water quality impacts would be mitigated to a less than significant level.*

Response: This comment does not raise an environmental issue related to EIR adequacy, and no response is required. CEQA Guidelines Sections 15088(a), 15088(c).

Comment 1-3: *The DEIR proposes to incorporate mitigation measures within a revised Tulare County ACFP to address the potential for groundwater pollution posed by continued growth of permitted dairy herds within the County. The DEIR concluded that, as an alternative to the revision of the ACFP, a reduction in the projected growth of total dairy herds from 1.5% to one percent (33% reduction of anticipated dairy herd growth) over the next ten years would reduce adverse impacts from dairy operations. However, the impacts would not be reduced to "less than significant", and would not achieve the desired goals of the proposed ACFP changes.*

Response: This comment does not raise an environmental issue related to EIR adequacy, and no further response is required. CEQA Guidelines Section 15088(a), 15088(c). Nevertheless, it should be noted that the Thirty-three Percent Reduced Herd Alternative is not “an alternative to the revision of the ACFP.” Rather, it is an alternative to the substance of the proposed ACFP which could be implemented through a different revision to the ACFP.

Comment 1-4: *Revisions to the Tulare County ACFP for existing dairy facilities include the development of a list of confined animal facilities specifying county-permitted herd sizes that are consistent with Central Valley Water Board and San Joaquin Valley Unified Air Pollution Control District (APCD) permitted herd sizes as well as the development of a process requiring existing out of compliance facilities to achieve compliance. Dairy owners will be required to submit evidence of full compliance with all pertinent Waste Discharge Requirements and regulations enforced by the Central Valley Water Board with annual compliance reports. The proposed mitigation measure would also require the dairy owner to submit a Corrective Action Plan (CAP) with the annual compliance report to address any evidence of non-compliance.*

Response: This comment does not raise an environmental issue related to EIR adequacy, and no further response is required. CEQA Guidelines Sections 15088(a), 15088(c).

Comment 1-5: *Revisions to the Tulare County ACFP for expansions of existing dairy facilities currently in compliance with APCD and Central Valley Water Board requirements include the development and use of a Conformance Checklist Review, allowing approvals for all expansions in compliance with APCD and Central Valley Water Board requirements. Allowable herd sizes for expansions will be based on APCD and Central Valley Water Board permit limitations. An EIR would not be required for expansion of facilities already in compliance with APCD and Central Valley Water Board requirements, as the review process for the application would be covered under the California Environmental Quality Act (CEQA) for the ACFP.*

Response: This comment does not raise an environmental issue related to EIR adequacy, and no further response is required. CEQA Guidelines Sections 15088(a), 15088(c). Nevertheless, it should be clarified that the Conformance Checklist includes compliance with not only the SJVAPCD and CVRWQCB requirements, but also compliance with applicable County ACFP, Dairy CAP, and zoning requirements.

Comment 1-6: *Primary design and operational standards specified in the 2000 ACFP, including separation between facilities, would be maintained. Expansions for all other facilities that are not in conformance with APCD and Central Valley Water Board requirements would require a Special Use Permit and CEQA review. The Tulare County ACFP will require CEQA review and approval of a special use permit for any new dairies, conditioned on compliance with APCD and Central Valley Water Board requirements.*

Response: This comment does not raise an environmental issue related to EIR adequacy, and no further response is required. CEQA Guidelines Sections 15088(a), 15088(c).

Comment 1-7: *The DEIR presents inconsistent sources and values for animal units (AU). The DEIR defines animal units as a common animal denominator, based on feed consumption, where one mature cow (1,400 pounds) represents one animal unit, referencing Central Valley Water*

Board as the source. Currently, Central Valley Water Board has no statutory definition for animal units. The Tulare County definition of "Animal Unit," as provided in Appendix A of the DEIR, defines animal units the same; the source of the information is derived from the Tulare County conversion tables issued by the Resource Management Agency Director. Finally, the existing Tulare County Animal Confinement Facilities Plan (2000), in Appendix K of the DEIR, acknowledges that Tulare County views one mature cow (1,400 pounds) representing one animal unit, but realizes that other agencies/jurisdictions use an animal unit equivalent of 1,000 pounds. The reference cited for the conversion table is Appendix Bin 40 CFR 122 of the National Pollutant Discharge Elimination System (NPDES) statutes administered by the U.S. Environmental Protection Agency (USEPA). However, the USEPA has recently placed this statute in "reserved" status.

Response: The County of Tulare adopted in its April 2000 Phase 1, Animal Confinement Facilities Plan a definition of an animal unit as a mature cow weighing 1,400 pounds, together with animal unit ratios for classifications of support stock. The Draft EIR text has been corrected to reflect this source and to remove reference to the CVRWQCB as a source.

Comment 1-8: *The DEIR should provide the following information describing the practical implementation of the revised ACFP.*

- *A description of how dairy herd permit numbers will be adjusted for consistency between the APCD, Central Valley Water Board, the County of Tulare, and other appropriate agencies.*

Response: This comment does not raise an environmental issue related to EIR adequacy, and no further response is required. CEQA Guidelines Sections 15088(a), 15088(c). Nevertheless, the following response is provided. The proposed ACFP defines “permitted herd size” as follows:

For an existing bovine facility (existing as of December 31, 2013), the maximum allowable number of mature cows under the RWQCB WDRs and the maximum herd under the SJVAPCD Permit to Operate; or for a new bovine facility or a bovine facility expansion, the maximum allowable number of mature cows under the RWQCB WDRs and the maximum herd under the SJVAPCD Permit to Operate, as shown on the ACFP List (as same may be amended).”

Comment 1-9:

- *A discussion of the type of documentation that will be acceptable in the dairy annual reports to verify that the individual dairies are operating in compliance with applicable regulations.*

Response: Appendix B to the ACFP lists the information that would be required for the annual compliance reports.

Comment 1-10:

- *A discussion of the specific details or requirements that will be required in the Corrective Action Plans (CAP) to address evidence of non-compliance.*

Response: This comment does not raise an environmental issue related to EIR adequacy, and no further response is required. CEQA Guidelines Sections 15088(a), 15088(c). Nevertheless, the following response is provided. The County anticipates that corrective action plans would include clear statements of the non-compliance problems that have been identified, desired outcomes, the actions that will be taken to achieve the outcomes, and responsibilities and schedules to achieve the outcomes.

Comment 1-11:

- *A clear definition and source of animal units.*

Response: Please refer to the response to CVRWQCB Comment 1-7.

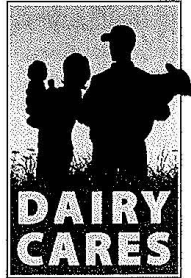
Comment 1-12: *In order for the Central Valley Water Board to tier off of the County's CEQA evaluation, any new or expanded dairy that undergoes a site plan review process should be provided with written findings that the dairy is within the scope of the Program EIR.*

Response: This comment does not raise an environmental issue related to EIR adequacy, and no further response is required. CEQA Guidelines Sections 15088(a), 15088(c). Nevertheless, the following response is provided. The Conformance Checklist Review process is applicable only to expansions of existing dairies, not to new dairies. If an expansion is eligible to use the ACFP Program EIR for CEQA compliance, the County would provide notice that the expansion is within the scope of the ACFP Program EIR. (CEQA Guidelines Section 15168(e).)

Comment 1-13: *Efforts to characterize first encountered groundwater conditions at dairy facilities in the San Joaquin Valley are being implemented through participation in the Central Valley Dairy Representative Monitoring Program (CVDRMP) Coalition. Monitoring data obtained by the CVDRMP will be used to identify specific management practices that are protective of water quality and appropriate for the range of conditions encountered at participant dairies. Best management practices for the protection of surface water and groundwater quality presently referenced by the Reissued Dairy General Order are likely to be amended based on the findings of the monitoring data evaluation by the CVDRMP. Tulare County ACFP requirements will need to reference most current regulatory requirements.*

Response: The information contained in this comment is appreciated, and has been utilized in a response to another Draft EIR comment (Sierra Club Comment 4a-47).

The ACFP is so drafted as to require dairy construction, expansion and operations to comply with all regulatory agency (e.g., CVRWQCB) requirements. Goal 2.4 states that new facilities and facility expansions “shall comply with the applicable permitting and operational regulations of the RWQCB....” To address this comment, ACFP Policy 2.4-1 has been modified to state that new facilities and facility expansions “shall comply with the most current RWQCB regulatory requirements,” including the requirements of California Code of Regulations, Title 27, pertaining to “Confined Animal Facilities,” as administered by the RWQCB.”



VIA EMAIL TO:
Hguerra@co.tulare.ca.us

March 21, 2016

Attn: Hector Guerra
Chief Environmental Planner
Tulare County Resource Management Agency
Permit Center
5961 South Mooney Boulevard
Visalia, CA 93277-9394

Re: Comments on Draft Environmental Impact Report for the Animal Confinement Facilities
Plan, and Dairy and Feedlot Climate Action Plan

Dear Mr. Guerra:

On behalf of Dairy Cares, thank you for the opportunity to submit the following comments regarding the above-referenced Draft Environmental Impact Report and its component documents (hereafter "DEIR").

2-1

Dairy Cares is a coalition of California's dairy producer and processor organizations, including the state's largest producer trade associations (Western United Dairymen, California Dairy Campaign, Milk Producers Council and California Farm Bureau Federation) and the largest milk processing companies and cooperatives (including California Dairies, Inc., Dairy Farmers of America-Western Area Council, Hilmar Cheese Company, and Land O'Lakes, Inc.). Formed in 2001, Dairy Cares is dedicated to promoting the long-term sustainability of California dairies.

Dairy Cares supports this effort by Tulare County to develop clear permitting regulations and procedures and comprehensive planning policies for the county's dairies. As the largest milk-producing county in the United States, Tulare County enjoys an immense, positive economic and cultural bounty from its world-leading dairy industry. This means more than 20,000 jobs in Tulare County alone when the direct and induced employment effects of the county's dairy farms and its dairy processing facilities are considered. Dairy-related economic activity drives the creation of jobs in butter, cheese, yogurt and ice cream manufacturing facilities, creates demand for farm labor to care for and milk cows, to grow feed for cows, and supports truck drivers, tractor equipment sales, veterinary professionals and more. This in turn drives the hiring of many

Family Farms ~ Environmental Sustainability ~ Animal Well-Being

915 L Street, #C-438, Sacramento, CA 95814 ~ PHONE (916) 441-3318 ~ FAX (916) 441-4132

www.DairyCares.com

Comment letter from Dairy Cares
Tulare County DEIR on ACFP and DCAP
March 21, 2016
Page 2 of 5

more people to serve the needs for services created by these jobs, for health care, retail services, education and more. It is a well-established fact that a significant portion of teachers, grocery clerks, restaurant and hotel workers, and many others are supported by the underlying economic activity created by the county's dairy farms. Because of the leadership of its dairy industry, Tulare County also is home to some of the most economically and environmentally efficient dairy farms in the world, as well as new and modern dairy products manufacturing facilities that are at the forefront in developing innovative products and environmentally friendly production methods.

2-2

Raising cattle and crops can have environmental impacts and create potential for land use conflicts, so there is a clear need for appropriate mitigation and comprehensive, cohesive land use policies that protect farmers and their neighbors, and allow the county to continue its world-leading position in dairy production now and in the future. We believe the DEIR is an excellent, good faith effort to address this important responsibility, and in fact, is the most comprehensive land use policy document for dairies ever created by a California county. Given its position as a world leader in dairy, it is appropriate that Tulare County is on the forefront of addressing and understanding the many aspects of dairy operations and has assumed this leadership role as evidenced in the development of the DEIR and its components, the Animal Confinement Facilities Plan and the Dairy and Feedlot Climate Action Plan.

We offer the following additional comments:

1. The DEIR proposes a cohesive set of standards and procedures consistent with regulatory changes and overlapping jurisdictions.

2-3

We note in particular that the county has taken great care to comprehensively address relevant issues under the California Environmental Quality Act ("CEQA"), including but not limited to water availability, water quality, air quality and factors related to greenhouse gases ("GHGs"), energy efficiency and climate change. It is clear that the county has gone to great lengths to ensure its policies are consistent and work hand-in-hand with those of critical regional and state regulatory agencies such as the Central Valley Regional Water Quality Control Board ("Water Board"), California Air Resources Board ("ARB"), and San Joaquin Valley Air Pollution Control District ("Air District"). Especially noteworthy:

- The county relies on the innovative strategies and approaches for regulating dairies that were developed over the past decade by the Air District and Water Board. Both agencies have been recognized for developing the nation's strictest regulations for dairies. Air district regulations have been credited with reducing ozone-forming emissions from dairies by more than 30 percent, while the Water Board has set standards mandating nutrient management plans that require up to 85 percent reductions in the amount of nitrogen losses from fertilizer to groundwater compared to historical practices.
- The county's Dairy and Feedlot Climate Action Plan ("DCAP") is consistent with ARB's evolving policies for reducing GHGs, including the landmark 2006 Global Warming Solutions Act ("AB 32"), and the ongoing process to implement SB 605 (2014, Lara),

Comment letter from Dairy Cares
Tulare County DEIR on ACFP and DCAP
March 21, 2016
Page 3 of 5

which calls for strategic planning and research to reduce emissions of a subset of GHGs known as “short-lived climate pollutants,” including methane.

It is critical to the future economic vitality of Tulare County that dairy regulation, permitting and planning be both environmentally and economically sustainable. The county’s approach in building its policies on work already done by other agencies helps assure that dairies can continue to operate and modernize as needed within the county in an environmentally sound manner, rather than being forced to relocate to other regions.

2. Tulare County’s proposed approach is consistent with statewide policy for GHG reduction from dairies.

The DEIR, in particular the DCAP, acknowledges the central importance of realizing improvements in electricity and fuel use efficiency to reduce impact on climate change. As such, the DCAP incorporates emissions reductions strategies for achieving these goals on dairies.

Of course, dairies and other cattle facilities also contribute to the state’s inventory of GHGs through non-fossil fuel related emissions such as methane, and thus it is important that the policies and procedures expressed in the DEIR and DCAP be consistent with state goals and policies. And Tulare County’s proposals are in fact consistent with state policies.

State strategy implementing the goals of AB 32 is expressed in the AB 32 Scoping Plan. A central concept in the Scoping Plan is preventing “leakage,” that is, preventing loss of businesses to other states or countries where GHG emissions would be unregulated, while also losing the economic benefits of those businesses in California. As such, ARB’s goal is to assure that it achieves GHG reductions in an economically practical way, one that doesn’t cause unacceptable leakage. Leakage is a serious threat to Tulare County’s economy and California’s dairy industry: Since 2006, when AB 32 was adopted, more than 550 dairies statewide have closed, and the state’s dairy industry has shrunk by more than 30,000 cows. Additional regulatory costs will only accelerate this decline.

For dairies and other agricultural operations, state policy (as reflected in ARB’s Scoping Plan) is to encourage reductions of GHG through voluntary, incentive-based mechanisms (rather than regulations). Dairy Cares concurs with this approach and has supported it for more than a decade at the state level, including active, years-long proactive efforts to assure that appropriate incentives are available to those dairy farms that adopt GHG-reducing technology. Similarly, ARB is developing draft recommendations for implementation of SB 605, which specifically calls for reduction of short-lived GHGs such as methane. While not yet formally adopted, drafts to date indicate that ARB is advocating continued reliance on incentives rather than regulations for at least the next several years, particularly for reducing methane emitted by existing dairies.

This approach makes sense at both the county and state level for the simple reason that a regulatory approach would almost certainly increase leakage, while a voluntary, incentive-based approach will achieve reductions without causing leakage. Technologies to capture emissions from dairies – such as anaerobic digesters, which convert manure biogas into renewable

2-4

Comment letter from Dairy Cares
Tulare County DEIR on ACFP and DCAP
March 21, 2016
Page 4 of 5

electricity or fuel – are capital-intensive. Environmentally sound digesters are expensive to build, generally costing between \$1 million and \$10 million per dairy. For such projects to be carried out economically, grant funding, subsidized electricity sales rates coupled with long-term contracts, low-interest financing, and sale of carbon credits are needed. Some of these revenue streams, such as carbon credits, disappear in a mandatory regulation scenario, and it is exceedingly unlikely that enough funding could be made available to finance all the projects needed under a mandate. In fact, the viability of digesters can vary based on site-specific factors, such as where the dairy is located relative to transmission substations and gas pipelines, age and design of the dairy facility.

Tulare County is well-positioned to benefit from the voluntary, incentive-based approach reflected in the DEIR. With subsidized electricity rates and long-term electricity contracts for digesters now being offered, and increased incentive grants being proposed in this year's state budget (approximately \$35 million in funding is currently proposed, more than triple in any previous year, and additional funding is expected to be available through the state's Greenhouse Gas Reduction Fund), the county is in a position to develop multiple digester projects over the next decade and become a leader both in reducing dairy GHGs and providing clean renewable electricity and fuels.

In summary, the DEIR is completely consistent with the state's goal of keeping dairies within the state while reducing their emissions and increasing renewable energy.

Conclusion

2-5

Once again, we appreciate the opportunity to provide preliminary comments on this vital planning effort in the nation's most important dairy county. We look forward to continuing to work with the county during the public comment and public hearing process. We will offer additional comments for the county's consideration as appropriate, based on information received during the comment process and the proceedings of public workshops or hearings on the DEIR.

Sincerely,



J.P. Cativiela
Regulatory Affairs Consultant

C: Charles "Chuck" Ahlem, Dairy Cares Chairman
Michael Boccadoro, Dairy Cares Executive Director
Kevin Abernathy, Environmental Services Director, Milk Producers Council
Paul Sousa, Environmental Services Director, Western United Dairymen
Lynne McBride, Executive Director, California Dairy Campaign

Comment Letter 2

Comment letter from Dairy Cares
Tulare County DEIR on ACFP and DCAP
March 21, 2016
Page 5 of 5

Justin Oldfield, California Cattlemen's Association

Comment Letter 2: Dairy CARES
J.P. Cativiela

Comment 2-1: *On behalf of Dairy Cares, thank you for the opportunity to submit the following comments regarding the above-referenced Draft Environmental Impact Report and its component documents (hereafter "DEIR").*

Dairy Cares is a coalition of California's dairy producer and processor organizations, including the state's largest producer trade associations (Western United Dairymen, California Dairy Campaign, Milk Producers Council and California Farm Bureau Federation) and the largest milk processing companies and cooperatives (including California Dairies, Inc., Dairy Farmers of America-Western Area Council, Hilmar Cheese Company, and Land O'Lakes, Inc.). Formed in 2001, Dairy Cares is dedicated to promoting the long-term sustainability of California dairies.

Dairy Cares supports this effort by Tulare County to develop clear permitting regulations and procedures and comprehensive planning policies for the county's dairies. As the largest milk-producing county in the United States, Tulare County enjoys an immense, positive economic and cultural bounty from its world-leading dairy industry. This means more than 20,000 jobs in Tulare County alone when the direct and induced employment effects of the county's dairy farms and its dairy processing facilities are considered. Dairy-related economic activity drives the creation of jobs in butter, cheese, yogurt and ice cream manufacturing facilities, creates demand for farm labor to care for and milk cows, to grow feed for cows, and supports truck drivers, tractor equipment sales, veterinary professionals and more. This in turn drives the hiring of many education and more. It is a well-established fact that a significant portion of teachers, grocery clerks, restaurant and hotel workers, and many others are supported by the underlying economic activity created by the county's dairy farms. Because of the leadership of its dairy industry, Tulare County also is home to some of the most economically and environmentally efficient dairy farms in the world, as well as new and modern dairy products manufacturing facilities that are at the forefront in developing innovative products and environmentally friendly production methods.

Response: This comment does not raise an environmental issue related to EIR adequacy, and no response is required. CEQA Guidelines Sections 15088(a), 15088(c).

Comment 2-2: *Raising cattle and crops can have environmental impacts and create potential for land use conflicts, so there is a clear need for appropriate mitigation and comprehensive, cohesive land use policies that protect farmers and their neighbors, and allow the county to continue its world-leading position in dairy production now and in the future. We believe the DEIR is an excellent, good faith effort to address this important responsibility, and in fact, is the most comprehensive land use policy document for dairies ever created by a California county. Given its position as a world leader in dairy, it is appropriate that Tulare County is on the forefront of addressing and understanding the many aspects of dairy operations and has assumed this leadership role as evidenced in the development of the DEIR and its components, the Animal Confinement Facilities Plan and the Dairy and Feedlot Climate Action Plan.*

Response: This comment does not raise an environmental issue related to EIR adequacy, and no response is required. CEQA Guidelines Sections 15088(a), 15088(c).

Comment 2-3:

1. The DEIR proposes a cohesive set of standards and procedures consistent with regulatory changes and overlapping jurisdictions.

We note in particular that the county has taken great care to comprehensively address relevant issues under the California Environmental Quality Act ("CEQA"), including but not limited to water availability, water quality, air quality and factors related to greenhouse gases ("GHGs"), energy efficiency and climate change. It is clear that the county has gone to great lengths to ensure its policies are consistent and work hand-in-hand with those of critical regional and state regulatory agencies such as the Central Valley Regional Water Quality Control Board ("Water Board"), California Air Resources Board ("ARB"), and San Joaquin Valley Air Pollution Control District ("Air District"). Especially noteworthy:

- The county relies on the innovative strategies and approaches for regulating dairies that were developed over the past decade by the Air District and Water Board. Both agencies have been recognized for developing the nation's strictest regulations for dairies. Air district regulations have been credited with reducing ozone-forming emissions from dairies by more than 30 percent, while the Water Board has set standards mandating nutrient management plans that require up to 85 percent reductions in the amount of nitrogen losses from fertilizer to groundwater compared to historical practices.*
- The county's Dairy and Feedlot Climate Action Plan ("DCAP") is consistent with ARB's evolving policies for reducing GHGs, including the landmark 2006 Global Warming Solutions Act ("AB 32"), and the ongoing process to implement SB 605 (2014, Lara), which calls for strategic planning and research to reduce emissions of a subset of GHGs known as "short-lived climate pollutants," including methane.*

It is critical to the future economic vitality of Tulare County that dairy regulation, permitting and planning be both environmentally and economically sustainable. The county's approach in building its policies on work already done by other agencies helps assure that dairies can continue to operate and modernize as needed within the county in an environmentally sound manner, rather than being forced to relocate to other regions.

Response: This comment does not raise an environmental issue related to EIR adequacy, and no response is required. CEQA Guidelines Sections 15088(a), 15088(c).

Comment 2-4:

2. Tulare County's proposed approach is consistent with statewide policy for GHG reduction from dairies.

The DEIR, in particular the DCAP, acknowledges the central importance of realizing improvements in electricity and fuel use efficiency to reduce impact on climate change. As such, the DCAP incorporates emissions reductions strategies for achieving these goals on dairies.

Of course, dairies and other cattle facilities also contribute to the state's inventory of GHGs through non-fossil fuel related emissions such as methane, and thus it is important that the policies and procedures expressed in the DEIR and DCAP be consistent with state goals and policies. And Tulare County's proposals are in fact consistent with state policies.

State strategy implementing the goals of AB 32 is expressed in the AB 32 Scoping Plan. A central concept in the Scoping Plan is preventing "leakage," that is, preventing loss of businesses to other states or countries where GHG emissions would be unregulated, while also losing the economic benefits of those businesses in California. As such, ARB's goal is to assure that it achieves GHG reductions in an economically practical way, one that doesn't cause unacceptable leakage. Leakage is a serious threat to Tulare County's economy and California's dairy industry: Since 2006, when AB 32 was adopted, more than 550 dairies statewide have closed, and the state's dairy industry has shrunk by more than 30,000 cows. Additional regulatory costs will only accelerate this decline.

For dairies and other agricultural operations, state policy (as reflected in ARB's Scoping Plan) is to encourage reductions of GHG through voluntary, incentive-based mechanisms (rather than regulations). Dairy Cares concurs with this approach and has supported it for more than a decade at the state level, including active, years-long proactive efforts to assure that appropriate incentives are available to those dairy farms that adopt GI-IG-reducing technology. Similarly, ARB is developing draft recommendations for implementation of SB 605, which specifically calls for reduction of short-lived GHGs such as methane. While not yet formally adopted, drafts to date indicate that ARB is advocating continued reliance on incentives rather than regulations for at least the next several years, particularly for reducing methane emitted by existing dairies.

This approach makes sense at both the county and state level for the simple reason that a regulatory approach would almost certainly increase leakage, while a voluntary, incentive-based approach will achieve reductions without causing leakage. Technologies to capture emissions from dairies - such as anaerobic digesters, which convert manure biogas into renewable electricity or fuel are capital-intensive. Environmentally sound digesters are expensive to build, generally costing between \$1 million and \$10 million per dairy. For such projects to be carried out economically, grant funding, subsidized electricity sales rates coupled with long-term contracts, low-interest financing, and sale of carbon credits are needed. Some of these revenue streams, such as carbon credits, disappear in a mandatory regulation scenario, and it is exceedingly unlikely that enough funding could be made available to finance all the projects needed under a mandate. In fact, the viability of digesters can vary based on site-specific factors, such as where the dairy is located relative to transmission substations and gas pipelines, age and design of the dairy facility.

Tulare County is well-positioned to benefit from the voluntary, incentive-based approach reflected in the DEIR. With subsidized electricity rates and long-term electricity contracts for digesters now being offered, and increased incentive grants being proposed in this year's state budget (approximately \$35 million in funding is currently proposed, more than triple in any previous year, and additional funding is expected to be available through the state's Greenhouse Gas Reduction Fund), the county is in a position to develop multiple digester projects over the next decade and become a leader both in reducing dairy GHGs and providing clean renewable electricity and fuels.

In summary, the DEIR is completely consistent with the state's goal of keeping dairies within the state while reducing their emissions and increasing renewable energy.

Response: This comment does not raise an environmental issue related to EIR adequacy, and no response is required. CEQA Guidelines Sections 15088(a), 15088(c). Nevertheless, it should be noted that the comment is consistent with the discussion in Impact #3.7-3 (Draft EIR p. 3.7-17), which explains why the proposed Program does not conflict with the AB 32 Scoping Plan. See also Master Responses 1A through 1E, which provide updated information on the Dairy CAP's approach to GHG reduction.

Comment 2-5: *Once again, we appreciate the opportunity to provide preliminary comments on this vital planning effort in the nation's most important dairy county. We look forward to continuing to work with the county during the public comment and public hearing process. We will offer additional comments for the county's consideration as appropriate, based on information received during the comment process and the proceedings of public workshops or hearings on the DEIR.*

Response: This comment does not raise an environmental issue related to EIR adequacy, and no response is required. CEQA Guidelines Sections 15088(a), 15088(c).

Tom Frantz
President
Association of Irrigated Residents (AIR)
29389 Fresno Ave
Shafter, CA 93263

March 21, 2016

Tulare County Resource Management Agency
Attention: Hector Guerra
Chief Environmental Planner
5961 South Mooney Boulevard
Visalia, California 93277-9394

Submitted by email hguerra@co.tulare.ca.us

Re: Draft Environmental Impact Report for the Animal Confinement Facilities Plan, and
Dairy and Feedlot Climate Action Plan

SCH # 2011111078

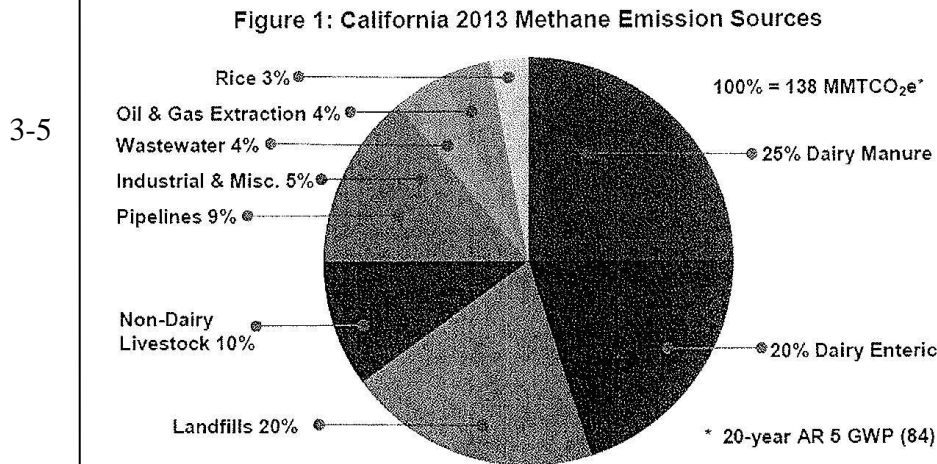
Please accept the following comments from the Association of Irrigated Residents. AIR is a non-profit in California with members residing in Fresno, Tulare, Kings, and Kern Counties. AIR has advocated for environmental justice and environmental health in the San Joaquin Valley for the past 16 years.

- 3-1 | This DEIR is faulty in not requiring actual mitigation for the green house gas emissions from large industrial dairies. This cannot be a voluntary program as suggested in the document.
- 3-2 | There are real ways for dairies to begin to reduce their impact on climate change. The business as usual approach taken in this DEIR, with just a few voluntary measures thrown in, is not adequate given the state mandates for reductions in GHG emissions. The state has to find ways to reduce emissions 40% below 1990 levels by 2030 and 80% below 1990 levels by 2050. There is no way for dairies and livestock operations to continue to emit 55% of the methane emissions in CA for even a few more years. There has to be a steady reduction in these methane emissions on the order of 5% per year for at least the next fifteen years for these facilities to do their part.
- 3-3 | Dairies and livestock operations in Tulare County are major industrial sources of GHG emissions in California according to the California Air Resources Board (CARB) definitions. Any facility over 25,000 tons of CO2e per year is considered a major source and generally regulated under Cap and Trade. CARB has made no secret that mandated controls on dairies are coming because it is clear that the voluntary approach already in place for several years is not getting the needed results. We know large factory dairies are already regulated for their volatile organic emissions which are considered criteria air
- 3-4 |

pollutants. GHG emissions are no different and require direct regulation, not voluntary approaches.

In the document below is a chart from the CARB showing the share of methane emissions by California dairies and livestock operations.

http://www.arb.ca.gov/research/aliso_canyon/draft_aliso_canyon_mitigation_program_03142016.pdf



Besides methane emissions there must be an accounting of other GHG emissions from dairy and livestock operations. It is not just a manure and methane problem.

3-6 Sources of GHG emissions include diesel or gasoline powered pumps, generators, cooling systems, tractors, trucks, and fertilizer applications (N₂O emissions from synthetic urea or UN32 applications for example). There needs to be an accounting and estimates of all these types of emissions on top of the estimates for methane from both manure handling and enteric emissions.

3-7 This DEIR seems to ignore these other sources of GHG emission which must at least be quantified and then considered for viable mitigation measures. Solar panels at dairies may be one excellent way for a dairy to mitigate some of these other sources of GHG emissions.

EPA estimates for methane emissions from dairies are not large enough.

3-8 The recent study by Miller et al. (1) provides a comprehensive, quantitative analysis of anthropogenic methane sources in the United States using atmospheric methane observations, spatial datasets, and a high-resolution atmospheric transport model. The

- authors conclude that “...emissions due to ruminants and manure are up to twice the magnitude of existing [i.e., US Environmental Protection Agency (US EPA); www.epa.gov/climatechange/ghgemissions/usinventoryreport.html] inventories” (1).
<http://www.pnas.org/content/111/14/E1320.full.pdf>
- 3-9 | There are many valid ways to reduce methane emissions which are practical and cost effective. This DEIR should include these pathways and require that some of them be implemented to begin a phased in mandatory methane reduction program. Here are a few examples:
- 3-10 | Changes in diet supplements can greatly reduce methane emissions. Below is the title to a recent study.
“An inhibitor persistently decreased enteric methane emission from dairy cows with no negative effect on milk production”
<http://www.pnas.org/content/112/34/10663.full>
- 3-11 | CalCan has submitted comments to CARB to show how dairies may reduce methane emissions. These suggestions include more grazing on pastures for dairy cows and more dry manure scraping and handling.
Their paper is called “Diversified Strategies for Reducing Methane Emissions from Dairy Operations”
Develop dry manure management incentives that result in economical methane reductions, job creation, and provide other co-benefits, like compost production. 5. Develop demonstration projects for pasture-based dairy practices, bringing together interested dairy operators, technical providers and university researchers to create opportunities for ‘mixed’ dairy systems that incorporate aspects of pasture grazing into their operations. 6. Support research and demonstration on strategies that reduce emissions from enteric fermentation. Include strategies that are relevant for organic and pasture-based systems because they maximize environmental co-benefits.
<http://calclimateag.org/wp-content/uploads/2015/11/Diversified-Strategies-for-Methane-in-Dairies-Oct.-2015.pdf>
CARB also lays out viable reduction strategies that should be considered and likely adopted by Tulare County in this DEIR. These are on top of CARB’s suggestions for biodigestors on manure lagoons.
Dairy manure can also be mixed with other organic materials – diverted from landfills or at wastewater treatment facilities, for example – and “co-digested,” which may improve the performance or economics of anaerobic digestion projects in certain cases. Switching

- to scrape systems could potentially deliver significant water savings, along with improvements in water quality and soil health.
- http://www.arb.ca.gov/cc/shortlived/concept_paper.pdf
- 3-12 | In general, Tulare County, and other San Joaquin Valley counties have these massive industrial dairies which can not continue to emit GHG emissions at the current rate. In a true sense this practice is not sustainable. But, the DEIR really fails to take this recognition seriously by failing to require mandated reductions along the lines of the state goals.
- 3-13 | It is so ironic that farms in Tulare County continue to import synthetic nitrogen fertilizers to grow food for cows and food for people, while industrial dairies have a waste disposal problem with manure which is full of carbon and nitrogen. The very plant nutrients that dairies are throwing away in the form of methane and ammonia are being imported from far away because it is the cheapest way to do business based on cheap fossil fuel. This has to change.
- 3-14 | Tulare County has failed in this DEIR to look at the big picture. There is a way for win-win solutions to this GHG problem being created by industrial sized dairies. Most manure and waste at a dairy should be returned as directly as possible to the soil. Manure is a perfect material to be mixed with wood chips from almond orchards to make an excellent organic fertilizer or compost for almost all crops grown in Tulare County. Greater use of this type of local fertilizer will decrease greatly ammonia and methane emissions in Tulare County plus decrease importation of synthetic fertilizers and the N2O GHG emissions from the use of these fertilizers. The other benefits are decreased local air pollution from the ammonia decreases plus increased soil fertility including water holding ability of local soils which makes for more efficient use of water in times of drought most likely caused by climate change.
- 3-15 | Please look at the big picture and redo parts of this DEIR with logical and viable solutions to reducing GHG emissions from dairy and livestock operations. Given the disastrous effects of climate change coming to Tulare County in particular and the world as a whole, mandatory GHG reductions from these sectors is essential and must be included in this DEIR. Voluntary actions are not sufficient any longer.

Comment Letter 3: Association of Irrigated Residents (AIR)
Tom Franz

Comment 3-1: *This DEIR is faulty in not requiring actual mitigation for the greenhouse gas emissions from large industrial dairies. This cannot be a voluntary program as suggested in the document.*

Response: Please see Master Responses 1A, 1B, 1D and 1E regarding the Dairy CAP, the Dairy CAP GHG emissions reductions strategies, and state legislation enacted since the circulation of the Draft EIR. Also see Master Response 2 for an explanation of why the EIR's GHG analysis meets CEQA requirements.

Comment 3-2: *There are real ways for dairies to begin to reduce their impact on climate change. The business as usual approach taken in this DEIR, with just a few voluntary measures thrown in, is not adequate given the state mandates for reductions in GHG emissions. The state has to find ways to reduce emissions 40% below 1990 levels by 2030 and 80% below 1990 levels by 2050. There is no way for dairies and livestock operations to continue to emit 55% of the methane emissions in CA for even a few more years. There has to be a steady reduction in these methane emissions on the order of 5% per year for at least the next fifteen years for these facilities to do their part.*

Response: Please see Master Responses 1A and 1B. The Dairy CAP is consistent with state GHG reduction legislation, and is intended to complement state programs to reduce dairy GHG emissions, while avoiding duplication or potential conflicts with these programs.

Comment 3-3: *Dairies and livestock operations in Tulare County are major industrial sources of GHG emissions in California according to the California Air Resources Board (CARB) definitions. Any facility over 25,000 tons of CO₂e per year is considered a major source and generally regulated under Cap and Trade. CARB has made no secret that mandated controls on dairies are coming because it is clear that the voluntary approach already in place for several years is not getting the needed results.*

Response: Please see Master Response 1B, which includes a discussion of state GHG legislation on dairy GHG emissions enacted after the comment letter was written.

Comment 3-4: *We know large factory dairies are already regulated for their volatile organic emissions which are considered criteria air pollutants. GHG emissions are no different and require direct regulation, not voluntary approaches.*

Response: Please see Master Response 1B, which includes a discussion of state legislation on dairy GHG emissions enacted after the comment letter was written.

Comment 3-5: *In the document below is a chart from the CARB showing the share of methane emissions by California dairies and livestock operations.*

http://www.arb.ca.gov/research/aliso_canyon/draft_aliso_canyon_mitigation_program_03142016.pdf.

Response: Please see Master Response 1B, which includes a discussion of state legislation on dairy GHG emissions enacted after the comment letter was written. No further response is required because the comment does not raise an environmental issue related to EIR adequacy (CEQA Guidelines Sections 15088(a), 15088(c)).

Comment 3-6: *Besides methane emissions there must be an accounting of other GHG emissions from dairy and livestock operations. It is not just a manure and methane problem.*

Sources of GHG emissions include diesel or gasoline powered pumps, generators, cooling systems, tractors, trucks, and fertilizer applications (N₂O emissions from synthetic urea or UN32 applications for example). There needs to be an accounting and estimates of all these types of emissions on top of the estimates for methane from both manure handling and enteric emissions.

Response: The Dairy CAP and Draft EIR account for the relevant sources of dairy and livestock operation GHG emissions. Table 3 of the Dairy CAP itemizes the baseline and projected emissions from farm equipment, refrigeration, vehicle trips, electricity consumption and agricultural soil, among other non-animal-related sources.

Comment 3-7: *This DEIR seems to ignore these other sources of GHG emission which must at least be quantified and then considered for viable mitigation measures. Solar panels at dairies may be one excellent way for a dairy to mitigate some of these other sources of GHG emissions.*

Response: Please see Response to Comment 3-6. The Dairy CAP in Table 4 incorporates emissions reduction strategies to address all categories related to dairy facilities and operations, including energy conservation and efficiency, transportation, water, solid waste, recycling and miscellaneous items as well as animal-related emissions. In particular, solar power is listed as Strategy E7.

Comment 3-8: *The recent study by Miller et al. (1) provides a comprehensive, quantitative analysis of anthropogenic methane sources in the United States using atmospheric methane observations, spatial datasets, and a high-resolution atmospheric transport model. The authors conclude that “...emissions due to ruminants and manure are up to twice the magnitude of existing [i.e., US Environmental Protection Agency (US EPA); www.epa.gov/climatechange/ghgemissions/usinventoryreport.html] inventories” (1).*
<http://www.pnas.org/content/111/14/E1320.full.pdf>

Response: The Dairy CAP emissions inventory and the information and methodologies used in calculating the emissions inventory are presented in Dairy CAP Section 3. No further response is required because the comment does not raise an environmental issue related to EIR adequacy (CEQA Guidelines Sections 15088(a), 15088(c)).

Comment 3-9: *There are many valid ways to reduce methane emissions which are practical and cost effective. This DEIR should include these pathways and require that some of them be*

implemented to begin a phased in mandatory methane reduction program. Here are a few examples:

Response: Please see Master Responses 1A, 1B and 1D, and responses to specific suggestions below.

Comment 3-10: *Changes in diet supplements can greatly reduce methane emissions. Below is the title to a recent study.*

"An inhibitor persistently decreased enteric methane emission from dairy cows with no negative effect on milk production"

<http://www.pnas.org/content/112/34/10663.full>

Response: Total mixed rations and other efficient feeding strategies, including additives to reduce enteric fermentation, are listed as Strategy D2 in Table 4 of the Dairy CAP.

Comment 3-11: *CalCan has submitted comments to CARB to show how dairies may reduce methane emissions. These suggestions include more grazing on pastures for dairy cows and more dry manure scraping and handling.*

Their paper is called "Diversified Strategies for Reducing Methane Emissions from Dairy Operations"

Develop dry manure management incentives that result in economical methane reductions, job creation, and provide other co-benefits, like compost production. 5. Develop demonstration projects for pasture-based dairy practices, bringing together interested dairy operators, technical providers and university researchers to create opportunities for 'mixed' dairy systems that incorporate aspects of pasture grazing into their operations. 6. Support research and demonstration on strategies that reduce emissions from enteric fermentation. Include strategies that are relevant for organic and pasture-based systems because they maximize environmental co-benefits.

<http://calclimateag.org/wp-content/uploads/2015/11/Diversified-Strategies-for-Methane-in-Dairies-Oct.-2015.pdf>

CARB also lays out viable reduction strategies that should be considered and likely adopted by Tulare County in this DEIR. These are on top of CARB's suggestions for biodigestors on manure lagoons.

Dairy manure can also be mixed with other organic materials – diverted from landfills or at wastewater treatment facilities, for example – and “co-digested,” which may improve the performance or economics of anaerobic digestion projects in certain cases. Switching to scrape systems could potentially deliver significant water savings, along with improvements in water quality and soil health.

http://www.arb.ca.gov/cc/shortlived/concept_paper.pdf

Response: The sources for the list of emissions reductions strategies in the Dairy CAP include the CalCAN Memo and CARB's SLCP Strategy. Specifically, in response to certain Draft EIR comments, the emissions reduction strategies have been expanded to list co-digestion projects, dry manure management practices and pasture-based dairy practices. Please see Master Response 1D. Also, CalCAN's recommendations to conduct research on enteric fermentation, to develop demonstration projects, and to provide incentives have been adopted in state legislation. Please see Master Response 1B.

Comment 3-12: *In general, Tulare County, and other San Joaquin Valley counties have these massive industrial dairies which cannot continue to emit GHG emissions at the current rate. In a true sense this practice is not sustainable. But, the DEIR really fails to take this recognition seriously by failing to require mandated reductions along the lines of the state goals.*

Response: The Dairy CAP has been modified to reflect state legislation enacted after the circulation of the Draft EIR, and the SLCP Strategy adopted by CARB in March 2017. Please see Master Responses 1A, 1B, and 2A.

Comment 3-13: *It is so ironic that farms in Tulare County continue to import synthetic nitrogen fertilizers to grow food for cows and food for people, while industrial dairies have a waste disposal problem with manure which is full of carbon and nitrogen. The very plant nutrients that dairies are throwing away in the form of methane and ammonia are being imported from far away because it is the cheapest way to do business based on cheap fossil fuel. This has to change.*

Response: Table 4 of the Dairy CAP lists compliance with nutrient management plans to reduce fertilizer requirements as Strategy D3 and composting for on-site and off-site use as Strategy D6.

Comment 3-14: *Tulare County has failed in this DEIR to look at the big picture. There is a way for win-win solutions to this GHG problem being created by industrial sized dairies. Most manure and waste at a dairy should be returned as directly as possible to the soil. Manure is a perfect material to be mixed with wood chips from almond orchards to make an excellent organic fertilizer or compost for almost all crops grown in Tulare County. Greater use of this type of local fertilizer will decrease greatly ammonia and methane emissions in Tulare County plus decrease importation of synthetic fertilizers and the N2O GHG emissions from the use of these fertilizers. The other benefits are decreased local air pollution from the ammonia decreases plus increased soil fertility including water holding ability of local soils which makes for more efficient use of water in times of drought most likely caused by climate change.*

Response: Please see Response to Comment 3-13.

Comment 3-15: *Please look at the big picture and redo parts of this DEIR with logical and viable solutions to reducing GHG emissions from dairy and livestock operations. Given the disastrous effects of climate change coming to Tulare County in particular and the world as a whole, mandatory GHG reductions from these sectors is essential and must be included in this DEIR. Voluntary actions are not sufficient any longer.*

Response: Please see Responses to Comments 3-1 through 3-14.



Monday, March 21, 2016

Hector Guerra
Tulare County Resource Management Agency
5961 South Mooney Boulevard
Visalia, California 93277

Via email to: HGuerra@co.tulare.ca.us

Re: Draft Environmental Impact Report—Animal Confinement Facilities and Dairy and Feedlot Climate Action Plan

Dear Mr. Guerra,

4a-1

The Kern-Kaweah chapter of the Sierra Club (Kern-Kaweah) submits these comments on the Draft Programmatic Environmental Impact Report (EIR) for the Animal Confinement Facilities Plan (ACFP) and Dairy and Feedlot Climate Action Plan (CAP). The comments demonstrate that the EIR violates the California Environmental Quality Act (CEQA) Pub. Res. Code Section 21000 et seq.

The Sierra Club is the oldest and largest grassroots environmental organization in the United States. The mission of our 1.2 million members and supporters is to explore, enjoy, and protect the wild places of the earth; practice and promote the responsible use of the earth's ecosystems and resources; and educate and enlist humanity to protect and restore the quality of the natural and human environment. Our members who live in Kern County engage in a range of conservation activities including protection of communities from air and water pollution, protection of wildlife species and habitat, preservation of open space and farmland, and partnership with those within our communities historically disadvantaged and frequently bearing the greatest burden of negative health and environmental impacts.

4a-2

The California Legislature enacted CEQA to protect the environment of California, Cal. Pub. Res. Code Section 21000(a), to protect the environmental health of Californians, Cal. Pub. Res. Code Sections 21000 (b), (d), and (g), to prevent the elimination of plant and animal species due to man's activities, Cal. Pub. Res. Code Section 21001(b), to create and maintain ecological and economic sustainability, Cal. Pub. Res. Code Section 21001(e), and to "take all action necessary to protect, rehabilitate, and enhance the environmental quality of the State." Cal. Pub. Res. Code Section 21001(a). Bearing this in mind, the County's ACFP, CAP, and thus the EIR fail on many levels

	<p>A Preliminary Question</p>
4a-3	<p>The EIR, at page 3.3-29 states “First, regarding existing dairies and other bovine facilities not in compliance with <i>SJVAPCD</i> requirements, the proposed Program includes a process for bringing such facilities into compliance.” It is unclear from the ACFP and the EIR what standards will be required of existing dairy and feedlot operations. Please explain.</p>
	<p>Project Objectives.</p>
	<p>According to the Executive Summary, the following are the Project objectives:</p>
4a-4	<ol style="list-style-type: none"> 1. To continue the regulation of the County’s dairy industry to protect and enhance the County’s resources, assure public health and safety, and minimize environmental impacts; 2. To identify and document those existing bovine facilities which are operating under valid <i>RWQCB</i> and <i>SJVAPCD</i> approvals, and to specify procedures to achieve compliance by those existing bovine facilities that are not yet in compliance; 3. To modify, as feasible, the scope of County regulatory responsibilities to avoid overlap and duplication with the water quality and air quality oversight provided by the <i>RWQCB</i> and the <i>SJVAPCD</i>; 4. To update and simplify the permitting processes for bovine facility expansions and the establishment of new bovine facilities consistent with the <i>ACFP</i>; and 5. To develop a Dairy and Feedlot Climate Action Plan that analyzes cumulative greenhouse gas (<i>GHG</i>) impacts.
	<p>Alternatives</p>
4a-5	<p>CEQA Guideline Section 15091(a)(3) states that a no Lead Agency may approve a project where mitigation or an alternative could substantially reduce environmental impacts unless it makes findings stating “3) Specific economic, legal, social, technological or other considerations, including provisions of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.. That finding must be based on substantial evidence in the record. The “finding” made by the EIR in rejecting the Thirty-three Percent Reduced Herd Size Alternative fails this requirement and thus is legally inadequate.</p>
4a-6	<p>The EIR identifies the Thirty-Three Percent Alternative as the environmentally superior alternative because it would reduce criteria emissions, greenhouse gas emissions and water quality pollutants by approximately one-third. The EIR admits</p>

this reductions would result in a significant reduction in environmental impacts: "Thus the Thirty-three Percent Reduced Herd Size Alternative would reduce adverse impacts within resource categories evaluated in this EIR....Based on a review of the alternatives evaluated in this chapter, the Thirty-three Percent Reduced Herd Size Alternative would result in the least impact on the environment." (EIR, page 5-4.) While the EIR claims the impacts on several resource categories would not be completely eliminated, this does not make the alternative infeasible under CEQA or explain why it was rejected by the DEIR.

4a-7 The EIR rejected the Environmentally Superior Alternative because, purportedly

"...it would not fully achieve the basic proposed Program objective of enhancing the County's resources, including economic resources. It would also be inconsistent with a number of General Plan policies, including those that promote economic development in general and the continued productivity of agricultural resources in particular."

This is patently false. Nowhere in the Project Objectives or the General Plan policies does it say that economic resources are be "maximized." While the Thirty-three Percent Reduction Alternative might not increase economic resources to the level of the proposed Project, it would nonetheless enhance the County's economic resources, and thus it does fulfill the stated Project Objectives of the EIR.

4a-8 In fact, the Project Objectives, while not calling for economic values to be maximized, does call for environmental impacts to be "minimize[d]." EIR, page 5-2. Thus, the Thirty-three Percent Reduction Alternative arguably fulfills the Project Objectives to a greater extent than the proposed Project. In any event, there is no substantial evidence supporting the conclusion that the Environmentally Superior Alternative is infeasible or that it would not achieve the Project's core objectives. Given this, the County is legally obligated to choose the Thirty-three Percent Reduction Alternative. The "EIR must explain why each suggested alternative either does not satisfy the goals of the proposed project, does not offer substantial environmental advantages, or cannot be accomplished." (Save Round Valley Alliance v. County of Inyo (2007) 157 Cal.App.4th 1437, 1458.) The agency's infeasibility determination must be supported by substantial evidence in the record. PRC §21081.5 ; CEQA Guideline 15091(b).

4a-9

4a-10 The EIR does not analyze an adequately broad range of project alternatives.

The EIR should consider a Pasture-based Alternative that would require new dairies to be located only where the herd size could be accommodated by pasture feeding with only occasional supplemental feeding might as required. Expansion of existing dairies would be permitted only where the additional cows could be pasture-based. This approach would significantly reduce the project's myriad

- 4a-11 | environmental impacts without foreclosing new or expanded dairies. See, Save Round Valley Alliance v. County of Inyo (2007) 157 Cal.App.4th 1437, 1458 (“EIR must explain why each suggested alternative either does not satisfy the goals of the proposed project, does not offer substantial environmental advantages, or cannot be accomplished.”) See, also, Rural Landowners Assn. v. City Council (1983) 143 Cal.App.3d 1013, 1022. (“[T]he [agency] must describe the disposition of each of the significant environmental issues raised and must particularly set forth in detail the reasons why the particular comments and objections were rejected and why the [City] considered the development of the project to be of overriding importance.”)
- 4a-12 | Pasture-based dairies have been in use in both California and other parts of the Nation for many years. In fact, only in recent decades have large-scale animal confinement facilities come to dominate the dairy landscape, and nowhere more so than California. San Joaquin Valley dairies have an average of more than 1000 mature cows, whereas the national average is 133. (Food and Water Watch Report, pages 5-6)
- Thus, the basic concept of pasture-based dairies is certainly technically feasible. There are many areas of the County either with existing pasture or that could accommodate conversion to pasture, and thus requiring pasture-based dairies would not be infeasible due to lack of the needed land base.
- 4a-13 | Pursuant to Senate Bill 605, the Air Resources Board has released the Short Lived Climate Pollutant Reduction Strategy Concept Paper (hereafter “Concept Paper”) to discuss potential strategies that the Board would evaluate for inclusion in the Short Lived Climate Pollutant Reduction Strategy.
- 4a-14 | In a June 10, 2015 letter from a coalition of environmental groups to the California Air Resources Board (hereafter June 10 Letter, attached) commenting on the Concept Paper, the authors note that the legislature specifically directed the California Air Resources Board (CARB) to “[p]rioritize the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities.” Health & Safety Code § 39730(a)(4). (June 10 Letter, page 3)
- 4a-15 | The June 10 Letter discusses many of the co-benefits of pasture-based dairies,
- “Pasture-based dairy systems provide multiple benefits, including avoiding methane production from anaerobic decomposition, carbon sequestration, lower cow density per acre (causing less enteric emissions), reduced water consumption, and improved animal welfare conditions for dairy cattle.” (ibid, page 2)
- 4a-16 | The primary advantages of pasture-based dairy systems come from:
- 1) Avoidance of anaerobic decomposition at waste lagoons and at other facility locations;

- 4a-17 | 2) Avoidance of nitrous oxide emissions from liquid manure applications for on-farm nitrogen disposal;
- 4a-18 | 3) Reduced need to grow and transport feed from distant locations;
- 4a-19 | 4) Promoting natural limitations on the size of animal confinement facilities, reducing the concentration of pollutant sources experienced under the current system.
- 4a-20 | 5) Cows maintained on pasture have less need for antibiotics and other drugs that are routinely applied in a confinement operations. (June 10 Letter, page 6)
- 4a-21 | "Pasture-based systems most directly reduce methane emissions because methane emissions from manure – thirty percent of total California emissions – come from anaerobic manure decomposition in waste lagoons." (June 10 Letter, page 4, citing Steinfeld, Henning, Pierre Gerber, Tom Wassenaar, Vincent Castel, Mauricio Rosales, Cees de Haan. (2006). *Livestock's Long Shadow: environmental issues and options*)
- 4a-22 | "Emissions from dairy cow manure management in the U.S. increased by 115 percent from 1990 to 2012 because of the increased usage of waste lagoon systems." (June 10 Letter, citing Gerber, P.J., Steinfeld, H., Henderson, B., Mottet, A., Opio, C., Dijkman, J., Falcucci, A. & Tempio, G. 2013. *Tackling climate change through livestock – A global assessment of emissions and mitigation opportunities*.)
- 4a-23 | In pasture-based and dry-stack systems, manure emits far less methane. In a pasture-based system, emissions from the production, processing, and transportation of feed are significantly reduced. While studies in the field of carbon sequestration have produced differing results, it does appear that pasture-based systems provide some benefit in terms of carbon sequestration.
- 4a-24 | There may be economic benefits to pasture-based dairies as well. These would include:
 1) Reduction in the costs of transporting feed;
 2) Reduced need for capital costs in facilities and equipment;
 3) Reduced manure management costs;
 4) Reduced need for antibiotics and other drugs;
 5) There is an opportunity for pasture-based dairies to demand a higher price for their products, as markets are growing for grass-fed and more humane cattle products.
- 4a-25 | In order to analyze a reasonable range of alternatives, the EIR must consider an alternative that is founded upon pasture-based facilities. Tulare County can and should join a growing movement away from large-scale confinement facilities towards a more holistic approach to dairy and feedlot production.

4a-26 See
<http://extension.psu.edu/animals/dairy/nutrition/forages/pasture/articles-on-pasture-and-grazing/pasture-based-systems-for-dairy-cows-in-the-united-states>. See also *Grazing Can Reduce the Environmental Impact of Dairy Production Systems, Forage and Grazinglands*, 16 December 2009
<http://www.caes.uga.edu/commodities/fieldcrops/forages/events/PBDSummit/rotz%202009%20Grazing%20Can%20Reduce%20the%20Environmental%20Impact%20of%20dairy%20production%20systems.pdf>

Permits Incorporating Improvements Over Time

4a-27 As the Concept Paper in the above section indicates, in order to achieve the State's stated GHG reduction targets, the State continues to develop and assess strategies to reduce greenhouse gas emissions from a variety of sectors in the State. The EIR also notes that the Regional Water Quality Control Board (RWQCB) and the San Joaquin Valley Air Pollution Control District are working on additional approaches to air and water quality protection relevant to animal confinement facilities. Pursuant to the State mandates to reduce GHG emissions at ever greater rates over time, the County must make it clear that the ACP and CAP for new and expanded animal

4a-28 confinement facilities will be subject to change over time as additional control measures become technically and economically feasible. To this end, the County should schedule periodic review of the ACP and CAP and impose additional requirements as more aggressive GHG reduction measures become feasible. The ACP must clearly create the expectation that dairies must strive to achieve greater GHG reduction strategies and best management practices (BMPs) over time.

Climate Change and Greenhouse Gas Emissions

4a-29 The EIR must adequately analyze the expected emissions from existing and new and expanded dairies, and analyze the extent to which greenhouse gas emission would be reduced under a pasture-based dairy program or other effective mitigation plans.

4a-30 California Dairies account for sixty percent of California's methane emissions. Concept Paper at 21. In the San Joaquin Valley, *at least* eighty-seven percent of methane emissions are from dairy (and other cattle) operations. D.R. Genter, et al., *Emissions of organic carbon and methane from petroleum and dairy operations in California's San Joaquin Valley*, Atmos. Chem. Phys., 14, 4955–4978 (2014). As a

4a-31 result, the County should ensure that dairies do their fair share to reduce methane emissions and should not avoid regulation, which would unfairly place a greater reduction burden on other sources of greenhouse gases. Given the dire need to stabilize our climate, California has taken the lead by adopting Assembly Bill 32, the

4a-32 California Global Warming Solutions Act, to reduce greenhouse gases by twenty percent below 1990 levels. On April 29, 2015, Governor Brown adopted Executive Order B-30-15 calling for even greater reductions – forty percent by 2030.

- 4a-33 In addressing the problems of methane and other climate pollutants, the County should develop a multi-pronged strategy:
- (1) Use monitoring and reporting to best complete an inventory of the sources of climate change pollutants;
 - (2) Identify research needs to address data gaps and potential programs, policies, and technologies to reduce climate pollutants;
 - (3) Identify existing and potential new control measures to reduce emissions;
 - (4) Prioritize those control methodologies that provide co-benefits in terms of reduction of air and water quality improvements as well as other benefits to the welfare of Tulare County residents, such as reduced odors;
 - (5) Coordinate with state agencies and other local jurisdictions facing similar issues to develop measures identified as part of the comprehensive strategy.
- 4a-34 The County should, as the County General Plan dictates, adopt a goal for greenhouse gas emissions from animal confinement facilities as part of the CAP. That goal could be narrative, such as “maximum feasible reduction,” or numeric. As a starting point, adapting the goal of no net increase in emissions from the 2013 baseline to the 2023 time horizon would be adequate. The EIR must also consider whether the implementation of the project would violate Executive Order No. S-3-05, which established several “reduction targets” for greenhouse gas emissions for the State of California: by 2010, to 2000 levels; by 2020, to 1990 levels; and by 2050, to 80 percent below 1990 levels.” Rialto Citizens for Responsible Growth v. City of Rialto (2012) 208 Cal. App. 4th 899, 938. AR 7:1814. The Executive Order also directed CalEPA, in cooperation with other state agencies and Boards, to coordinate statewide efforts to monitor and reduce GHG emissions. Thus, the Executive Order is binding on the County.
- 4a-35
- 4a-36 In order to effectively mitigate GHG emissions from the dairies, the County should consider a system similar to cap and trade. New and expanded dairies could pay into a system based on CO₂e metric tons. The County would work with the SJVAPCD to establish a price on CO₂e, such as the BACT number of \$17,500 per metric ton. (EIR, page 3.7-16)
- The funds collected could be used either by the County or the APCD. The County could use the funds to incentivize pasture-based dairies or other measures to reduce GHG emissions from older animal confinement facilities. Alternately, the APCD would use the funds to augment ongoing programs in reducing GHGs throughout the San Joaquin Valley.
- 4a-37 As an alternative to this cap and trade mechanism, the County should analyze the feasibility of requiring new and expanding dairies to enter into Voluntary Emission

	<p>Reductions Agreements (VERAs) with the APCD. The APCD is well familiar with VERAs, although most of them have been with land development companies:</p> <p>“In addition to reducing a portion of the development project’s impact on air quality through compliance with District Rule 9510, a developer can further reduce the project’s impact on air quality by entering into VERA with the District to address the mitigation requirements under California Environmental Quality Act (CEQA). Under a VERA, the developer may fully mitigate project emission impacts by providing funds to the District, which funds are then used by the District to administer emission reduction projects on behalf of the project proponent. The District has entered into over twenty VERAs since 2005.” (San Joaquin Valley Air Pollution Control District 2014 Annual Report, Indirect Source Review Program, page 1)</p>
4a-38	<p>As mentioned in the above paragraph, VERAs can be used for air quality emissions as well as greenhouse gas emissions. The EIR should analyze the potential for VERAs in both categories.</p>
4a-39	<p>CAP Checklist</p> <p>The checklist provided as part of the CAP is legally flawed, in that it does not, in the end, specify which mitigation measures will, in fact, be implemented. Instead, the Category A list assumes that the implementation/mitigation measures are feasible, but leaves open the possibility that they will not be applied in some circumstances,</p> <p>“Category A reduction strategies, which new or expanding dairies or feedlots must (1) incorporate into their facility or (2) provide justification as to why the given strategy is not feasible for the facility. (EIR, Appendix B, Table 5, page 30)</p>
4a-40	<p>As a result of the ability of the project proponent to “justify” not implementing this mitigation measure, the public has no real assurance that the reduction strategy will actually be applied.</p> <p>The Category B list of reduction strategies is even more problematic.</p> <p>Category B reduction strategies, which new or expanding dairies or feedlots must consider for implementation at the facility. It is anticipated that a facility may choose to replace a reduction strategy in Table 5 with a strategy in Table 6 to provide operational flexibility in reducing GHG emissions. In addition, if expanding facilities are not able to implement Category A reduction strategies, or substitute Category B strategies, in the expansion, the facility may choose to implement an equal number of Category A or B strategies within the existing portion of the facility to the same or greater</p>

- | | |
|-------|--|
| | <p>extent as would have been done for the expanded portion. (EIR, Appendix B, Table 6, pages 30-31)</p> |
| 4a-41 | <p>Thus, a project applicant must simply “consider” Category B reduction strategies. In addition, the Category B strategies undermine the weakly required Category A strategies, in that one or more of the later can be substituted for one or more of the former. As a result, none of these reduction strategies are, in fact, required. Rather, there is a menu of options for a project applicant to consider applying, or substituting for another, or explaining why they cannot be applied to their project. In other words, not one of these reduction strategies is actually required of a new or expanding dairy or feedlot facility. This is a classic example of deferred mitigation, and under these circumstances violates the standards of CEQA.</p> |
| 4a-42 | <p>If this method is to be used, the EIR and CAP should state explicitly that each permit for a new or expanded dairy or feedlot will undertake either a Mitigated Negative Declaration or a full Environmental impact Report. The public has the right to review and comment upon which of this large menu of reduction strategies (i.e. mitigation measures) will be applied to a given project, and the CAP as currently written simply does not allow that.</p> |
| 4a-43 | <p>The CAP and EIR should, instead, describe the circumstances under which a given reduction strategy will apply. It should be assumed that all Category A standards will be required of every proposed project, unless a MND or EIR adequately explains why that reduction strategy is infeasible in light of the surrounding circumstances. As for Category B, the CAP or EIR should provide standards that clearly state when those reduction strategies will apply and when they will not.</p> |
| 4a-44 | <p>For example, the reduction strategy of installing solar energy should be required where adequate space exists on the project applicant’s property to the maximum extent feasible, up to the amount of energy consumed by the proposed facility. Such specific parameters should be provided for each of the Category B reduction strategies.</p> |
| 4a-45 | <p>Without an adequate analysis of the extent to which Category A or B mitigation strategies would be employed, the EIR would fail as an informational document in that the overall dairy GHG emissions would not be known. To adequately describe the project, the EIR must be able to forecast the overall GHG emissions that can be expected as a result of the implementation of the project.</p> |
| | <p>Water Quality</p> |
| 4a-46 | <p>The EIR should analyze the extent to which groundwater pollutants could be reduced in a pasture-based dairy system.</p> |
| 4a-47 | <p>While the EIR readily admits that Tulare County dairies are routinely polluting groundwater in a manner that impacts upon human health, the ACFP and EIR largely throw up their hands in accepting that this pollution will continue to worsen</p> |

- over time. Instead, we should be looking for a system of monitoring, mitigation, and enforcement that holds out hope to reverse the trend of pollution that is now decades old and only threatens to get worse, especially for some of the most vulnerable in our population (those utilizing untreated groundwater sources).
- Pollutants**
- 4a-48 | There are two categories of pollutants that the EIR entirely ignores: antibiotics and hormones. These potentially significant health threats must be analyzed in the Final EIR.
- 4a-49 | Recent studies have found antibiotics and their metabolites in groundwater samples beneath dairies. (Food and Water Watch, *What's in the Water—Industrial Dairies, Groundwater Pollution and Regulatory Failure in California's Central Valley*, page 10, attached, hereafter FWW Report) Antibiotics are used in dairies for both therapeutic and nontherapeutic purposes: to promote growth and as a preventative. Dairies use human antibiotics, such as penicillin and tetracycline, as well as animal specific antibiotics.
- 4a-50 | The concern with antibiotics is a growing public health threat due to antibiotic-resistant bacteria. Repeated exposure to antibiotics can lead some bacteria to survive while others die off. Those resistant bacteria can then get into soil and groundwater.
- 4a-51 | The Nation Academy of Sciences, the World Health Organization, and the Institute of Medicine have all determined that the use of antibiotics in livestock contributes to the development of antibiotic resistant human pathogens. (FWW Report, page 10) The Center for Disease Control and Prevention has identified antibiotic resistant bacteria as a growing public health threat in the United States. (ibid)
- 4a-52 | Hormones are injected into cattle in feedlots and dairies in order to increase production. As a result, animal manure has been shown to contain estrogens, progesterone, testosterone and synthetic hormones, which then enter into waste lagoons and are applied to farm fields. Several studies have found elevated levels of hormones in groundwater near dairy operations. (FWW Report, page 9)
- 4a-53 | Human exposure to hormones is of increasing concern to the public health community. Endocrine-disrupting hormones can interfere with normal hormone function and affect fetal and child development. (Ibid) Hormones have also been found to affect the development of aquatic life. (Ibid)
- 4a-53 | The EIR should examine the potentially significant health impacts of both antibiotics and hormones. These impacts can be easily mitigated by minimizing the use of these two pollutants or, in some situations, simply banning their use.
- Monitoring**

- 4a-54 | The current system of monitoring is so weak that it cannot come close to identifying the source and magnitude of pollutants into groundwater from animal confinement facilities. As a substitute for effective monitoring, the EIR rests mostly on management regimes and reporting that suffer from poor enforcement (see below). The system can and should get better. From a legal point of view, the suggestions below should be seen as mitigations measures proposed to reduce human health impacts from dairies and feedlots. From a human health perspective, better
- 4a-55 | monitoring will help inform the County regarding siting and management of animal confinement facilities in the future.
- 4a-56 | As a preliminary question, it is confusing why the figures mapping nitrate contamination (EIR Figures 3.9-5 and 3.9-6) look at an MCL of 45 MG/L when the federal MCL is 10 MG/L. Please explain this discrepancy.
- 4a-57 | First, the current system only monitors the dairy and feedlot facilities themselves, rather than the far greater location of groundwater pollutants—the fields in which waste manure are applied—and the properties most likely impacted—surrounding private wells. The EIR acknowledges that the fields on which manure is spread result in the greatest potential for groundwater contamination:
- “Information from the University of California and the CVDRMP both suggests that dairy ponds play a relatively small role in overall loading of nitrogen compounds to groundwater in a dairy setting. This is partly because ponds are designed to be relatively less permeable than cropland and are much smaller than the footprint of the surrounding cropland. Nutrients stored in the ponds have a much greater chance of entering groundwater after they leave the pond and are applied to crops than they do while stored in the pond itself.
- The 2012 report to the California Legislature, “Addressing Nitrate in California’s Drinking Water “ noted that throughout the Salinas Valley and the entire four-county Tulare Lake Basin, the total area-wide contribution of nitrates from manure storage lagoons was about 220 tons annually, about 1,000 times less than the nitrogen loading from fertilized cropland in the same area. “ (EIR, pages 3.9-33-34)
- 4a-58 | Applicants for new or expanded dairy permits should be required to erect monitoring wells both upgradient and downgradient of the fields upon which their wastewater and manure are spread. This will help better define to what extent those fields are contributing to groundwater contamination. Of course, the monitoring wells on-site of the facilities should also be measuring upgradient and downgradient. A 2002 study came to the conclusion that wells downgradient of dairies had much higher levels of nitrates than those upgradient of dairies. (FWW Report, page 12)
- 4a-59 | Second, the monitoring that is done seems to be primarily into the deep aquifer beneath the facilities. (EIR, Page 3.9-21) The EIR notes that groundwater

- contamination in the deep aquifer may be decades old, “Most nitrates in drinking water wells today were applied to the surface decades ago.” (EIR, page 3.9-29, citing to Harter Report) This makes it difficult to determine how much new or expanding dairies are contributing to groundwater contamination. Are there monitoring techniques available that would better allow the County and the Regional Water Quality Control Board (RWQCB) to pinpoint the origin of contaminants? If the answer to that question is “yes,” then those improved monitoring measures should be required as part of the ACFP.
- 4a-60 Ultimately, the goal is to protect drinking water from groundwater contamination originating from confined animal facilities. Since, according to the RWQCB, 85% of dairies in the Central Valley are within 300 feet of an offsite domestic water well, the EIR should analyze a requirement that new or expanding confinement facilities should be required to offer to test private or public wells adjacent to, or within a certain distance of, their facilities as well as adjacent to or near the fields upon which their waste manure is spread, on an annual basis. The information gathered as a result of such a requirement would increase the ability of the County and other governmental entities to gauge the extent of groundwater contamination and perhaps, as a result, develop an approach that better protects human health.
- 4a-61 The situation is serious, as noted in a 2010 report by the state’s Groundwater Ambient Monitoring and Assessment Domestic Well Project finding that 40% of private wells in Tulare County did not meet drinking water quality standards for nitrates. That same study showed that in Tulare County 33% of private wells tested positive for total coliform bacteria.
- 4a-62 The EIR should stipulate that, when a new dairy or feedlot is proposed, monitoring wells should be placed on the facility property prior to installation of the facility, in order to establish a baseline measurement of pollutants.
- Annual Compliance Reports should be filed electronically, and the results should be posted online for public access, with an annual summary of the reports in plain English. Monitoring results should also be placed online. These measures would allow the public to better understand the nature and breadth of groundwater contamination in the region.
- 4a-63 Next, the County should require that monitoring wells test for antibiotics and endocrine disrupting hormones in addition to nitrates, salts, and total coliform. As is explained above, these potential pollutants are both increasing health concerns.
- Other Mitigations**
- 4a-64 Based on the information referred to above, the EIR should require as a mitigation measure that antibiotics be used only for therapeutic reasons, not as a preventative measure of for increasing milk or beef production. The use of hormone growth promoters should be banned.

- 4a-65 | According to the Harter Report cited in the EIR, "Nitrate loading reductions are possible, some at modest cost." (EIR, page 3.9-30) The EIR goes on to state only a couple of these measures, " 'pump-and-fertilize' and improved groundwater recharge management are less costly long-term alternatives. " (ibid) Has the EIR incorporated all the "modest cost" mitigation measures included in the Harter Report?
- 4a-66 | In what the EIR refers to as the Expert Panel Report, the report endorses a program for minimizing nitrate loads to groundwater via improved irrigation efficiency and other practices with the goal of recording and reporting a ratio of "applied (to crops) nitrogen" divided by "removed" nitrogen (via harvest and nitrogen sequestered in wood of trees). The EIR should impose a mitigation measure stating that dairies may not apply manure or wastewater to farmlands until those farmlands have established a program to reach the goal stated above by establishing a proper ratio and monitoring to see that it is achieved as part of a dairy's Nutrient Management Plan (NMP).
- 4a-67 | All wastewater lagoons for new and expanded dairies should adopt the Tier 1 Standards set by the Regional Water Quality Control Board. EIR page 3.9-33. This may mean retrofitting the existing dairies if they apply to expand their herds.
- 4a-68 | **Enforcement**
The proposed mitigation measures for water quality will mean little unless the County adopts a stringent monitoring and enforcement plan to monitor and enforce those provisions. CEQA contains crucial guidance for monitoring and enforcement of mitigation measures.
- 4a-69 | Section 21081.6 of the Public Resources Code gives important guidance, saying in relevant part:
"(a) When making the findings required [to approve an EIR and the associated project] or when adopting a mitigated negative declaration...the following requirements shall apply:
(1) The public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of approval, adopted in order to mitigate or avoid significant effects on the environment. **The reporting or monitoring program shall be designed to ensure compliance during project implementation.** For those changes which have been required or incorporated into the project at the request of a responsible agency or a public agency having jurisdiction by law over natural resources affected by the project, that agency shall, if so requested by the lead agency or a responsible agency, prepare and submit a proposed reporting or monitoring program." [Emphasis added]
- 4a-70 | The CEQA Guidelines clarify this further by stating:

	<p>“A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.” CEQA Guidelines, Section 15097 (a)[emphasis added]</p> <p>Thus, even where a mitigation measure may fall under the purview of another governmental body—such as the Air Pollution Control District or the Regional Water Quality Control Board—there remains an independent requirement that the Lead Agency ensure that mitigation measures are, in fact, completed.</p>
4a-71	<p>Section 21081.6 goes on to state that the adopted mitigation measures must be enforceable:</p> <p>“(b) A public agency shall provide that measures to mitigate or avoid significant effects on the environment are fully enforceable through permit conditions, agreements, or other measures. Conditions of project approval may be set forth in referenced documents which address required mitigation measures or, in the case of the adoption of a plan, policy, regulation, or other public project, by incorporating the mitigation measures into the plan, policy, regulation, or project design.”</p>
4a-72	<p>Finally, the CEQA Guidelines again emphasize the need for solid enforcement of mitigation measures by stating:</p> <p>“Reporting and monitoring are suited to all but the most simple projects. Monitoring ensures that project compliance is checked on a regular basis during and, if necessary after, implementation. Reporting ensures that the approving agency is informed of compliance with mitigation requirements.” (Guidelines, Section 15097 (c)(3))</p>
4a-73	<p>In short, Public Resources Code Section 21081 requires a mitigation monitoring or reporting plan and “periodic reports” in order to “ensure” that mitigations required of a given development project are in fact implemented successfully. Clearly, the existence of an adequate system to monitor and enforce the required mitigation measures is necessary to ensure the public that those mitigation measures imposed on a development are completed.</p>
4a-74	<p>Pursuant to PRC 21081.6, the County may not approve the project without concurrently adopting a mitigation monitoring and enforcement plan that has been fully vetted through the EIR process. The County may not abrogate this responsibility simply by promising that it will draft a Mitigation Monitoring and Reporting Plan (MMRP) in the future. Even if this approach was lawful under CEQA (which it is not) MMRPs do not lend themselves to public comment (i.e. they are not</p>

	part of the EIR itself) and are typically released to the public only shortly before a final decision on a project or program. Thus the public does not typically get answers to questions about monitoring, reporting, and enforcement.
4a-75	<ul style="list-style-type: none"> • Please describe the County's current method of mitigation monitoring for dairies and feedlots.
4a-76	<ul style="list-style-type: none"> • Does the County have a funding mechanism in place to ensure that lack of staff resources will not be an excuse for poor follow-through in mitigation monitoring? Please describe the County staff's ability to review all Annual Compliance Reports, Nutrient Management Plans, Corrective Action Plans, and other documents required to be submitted by the dairies and feedlots.
4a-77	<ul style="list-style-type: none"> • Will the County agree to monitor and enforce mitigation measures utilizing a cost recovery system, thus requiring the project applicants to pay for adequate oversight?
4a-78	<ul style="list-style-type: none"> • What legal mechanisms does the County have in place to address problems with mitigation implementation or permit compliance? For example, can the County fine the developer, call the permit up for modification or revocation, or issue a stop-work order? Please list the possible enforcement mechanisms.
4a-79	<ul style="list-style-type: none"> • If an Annual Compliance Report or other required document is not submitted, what will the County do to ensure the information is obtained in a timely manner?
4a-80	<ul style="list-style-type: none"> • If a mitigation measure is not performed, or is not performed adequately, what will the County do to ensure that the problem is corrected?
4a-81	<ul style="list-style-type: none"> • If a project requires subsequent approvals from the County (e.g. a grading permit), what will the County do to ensure that the mitigation measures contained in the CEQA documentation and/or MMRP are incorporated into future project approvals?
4a-82	<ul style="list-style-type: none"> • Has the County ever issued a fine to a dairy or feedlot for noncompliance with permit conditions or for air or water quality violations?
4a-83	<ul style="list-style-type: none"> • How will the County make available the compliance information submitted by dairies and feedlots? The EIR should specify that these reports be submitted electronically and are posted to the RMA's website in a manner easily accessible to the public.
4a-84	<p>The County, as Lead Agency, may not exclusively rely on the RWQCB to monitor and enforce water quality issues. As the County is undoubtedly aware, overwhelming evidence shows the RWQCB has an extremely poor track record of monitoring and enforcing the applicable its own permits, as well as law and regulations.</p> <p>As the FWW report details, on many occasions the agency sent out multiple notices of violation but did not levy fines or take further corrective actions to bring the violators into compliance.</p>
4a-85	<p>In regards to the General Order applying to dairies, the FWW Report notes, at pages 17-18, that while the General Order allows the RWQCB to require dairies with high nitrate levels or other factors such as proximity to private or municipal well to install a network of monitoring wells, and promises that</p>

- 100-200 dairies a year would be enrolled in this program, as of 2011, only 75 dairies had received an order to comply with this provision of the General Order, and of 36 dairies in the Fresno region, none had in fact done so. This evidence shows the RWQCB does not have the ability or will (or both) to ensure dairies do not diminish the quality of water in Tulare.
- 4a-86 | Moreover, according to Food and Water Watch, the Regional Board could only provide data for nitrates, although wells are required to test for salts as well. (FWW Report, page 17). Also according to FWW's research, as of 2010, the Regional Board has **never** issued a clean up and abatement order to a violating dairy.
- 4a-87 | Food and Water Watch noted that after inspections, where a violation is found, more than two years can pass before any remedial action is taken. Some of the examples of lax enforcement uncovered by Food and Water Watch are alarming, such as a dairy that was discharging wastewater to surface waters and was then reported by a neighbor. 27 years later, no corrective action had been taken.
- 4a-88 | Reporting from 1,412 dairies in 2007 showed that 60% of dairies had wells in excess of drinking water standards nitrates and 40% of dairies had at least twice the 10 mg/l standard, yet none of the dairies were fined for their exceedances or required to take remedial actions.
- 4a-89 | The Food and Water Watch report concludes, "As of this writing [2011], we have no sense of the effectiveness of the General Order since no monitoring has been conducted, apart from that done by dairies on their existing wells."
- 4a-90 | In short, reliance on the Regional Water Quality Control Board to monitor and enforce the laws regarding water quality at dairy and feedlots facilities does not meet the CEQA standard of having a program to "ensure" that all adopted mitigation measures are properly implemented. The County is required, as Lead Agency, to make such assurances to the public for the ACFP and CAP. The County should establish such a program on a cost-recovery basis, so as to ensure that adequate resources are available to meet the County's commitments. The County should than
- 4a-91 | make clear what the consequences will be for noncompliance with permitted standards or for missing documentation (e.g. first a notice of violation, then escalating fines).
- 4a-92 | The EIR should analyze whether paving the areas of their facilities where cattle congregate (e.g. the freestall) would allow for better manure management and thus reduced water quality impacts. Would doing so also reduce PM10 and PM2 emissions?
- 4a-93 | In Table 3.3-8, the numbers for NOx emissions do not add up correctly.

Facilities Location

4a-94 | The siting of dairies should take into effect the few remaining wetlands in the County. In particular, the Pixley National Wildlife Refuge gets much of its water from groundwater wells. Dairies should not be located in areas where they can pollute the Refuge or other wetland or other biologically sensitive areas in the County.

Air Quality

4a-95 | The EIR notes that the Valley floor of Tulare County has only one air quality monitoring site, that being in the city of Visalia. This is inadequate to gauge air pollutants, especially PM10 and PM 2.5, in the areas where dairies are concentrated. The County should work with the APCD to establish one or more air monitors in close proximity to areas of the County where dairies are common. Those monitors should also test for non-criteria pollutants ammonia and methane.

4a-96 | To reduce fugitive dust, the EIR should analyze a requirement that dairies and feedlots pave their roads, up to the point where a public paved road exists.

Conclusion

4a-97 | As discussed above, there are numerous ways in which the DEIR and CAP should be changed, both to satisfy the requirements of the law and, more importantly, to better address the serious environmental impacts this industry brings to the County.

If you have any questions, please direct them to Craig Breon at (530) 488-0661.

Sincerely,



Craig K. Breon, Esq

On behalf of the Kern-Kaweah Chapter of the Sierra Club

Comment Letter 4a: Sierra Club Kern-Kaweah Chapter
Craig K. Breon

Comment 4a-1: *The Kern-Kaweah chapter of the Sierra Club (Kern-Kaweah) submits these comments on the Draft Programmatic Environmental Impact Report (EIR) for the Animal Confinement Facilities Plan (ACFP) and Dairy and Feedlot Climate Action Plan (CAP). The comments demonstrate that the EIR violates the California Environmental Quality Act (CEQA) Pub. Res. Code Section 21000 et seq.*

The Sierra Club is the oldest and largest grassroots environmental organization in the United States. The mission of our 1.2 million members and supporters is to explore, enjoy, and protect the wild places of the earth; practice and promote the responsible use of the earth's ecosystems and resources; and educate and enlist humanity to protect and restore the quality of the natural and human environment. Our members who live in Kern County engage in a range of conservation activities including protection of communities from air and water pollution, protection of wildlife species and habitat, preservation of open space and farmland, and partnership with those within our communities historically disadvantaged and frequently bearing the greatest burden of negative health and environmental impacts.

Response: As explained in the below responses, the Draft EIR complies with all applicable CEQA requirements. The remainder of this comment does not raise an environmental issue related to EIR adequacy, and no further response is required. CEQA Guidelines Sections 15088(a), 15088(c).

Comment 4a-2: *The California Legislature enacted CEQA to protect the environment of California, Cal. Pub. Res. Code Section 21000(a), to protect the environmental health of Californians, Cal. Pub. Res. Code Sections 21000 (b), (d), and (g), to prevent the elimination of plant and animal species due to man's activities, Cal. Pub. Res. Code Section 21001(b), to create and maintain ecological and economic sustainability, Cal. Pub. Res. Code Section 21001(e), and to "take all action necessary to protect, rehabilitate, and enhance the environmental quality of the State." Cal. Pub. Res. Code Section 21001(a). Bearing this in mind, the County's ACFP, CAP, and thus the EIR fail on many levels.*

Response: Please note that with the exception of the last quoted citation, the comment generally paraphrases some of CEQA's intent language rather than reproducing it precisely. As explained in the below responses, the Draft EIR complies with all applicable CEQA requirements.

A Preliminary Question¹²

Comment 4a-3: *The EIR, at page 3.3-29 states "First, regarding existing dairies and other bovine facilities not in compliance with SJVAPCD requirements, the proposed Program includes a process for bringing such facilities into compliance." It is unclear from the ACFP and the EIR what standards will be required of existing dairy and feedlot operations. Please explain.*

Response: The process for bringing existing facilities into compliance with SJVAPCD (and RWQCB requirements) is described in Section 2.1 of the proposed ACFP (Final EIR Appendix

A). The County will compile a list of the locations and permitted herd sizes of all existing bovine facilities on or before the first anniversary of ACFP adoption.

Comment 4a-4: *According to the Executive Summary, the following are the Project objectives:*

- 1. To continue the regulation of the County's dairy industry to protect and enhance the County's resources, assure public health and safety, and minimize environmental impacts;*
- 2. To identify and document those existing bovine facilities which are operating under valid RWQCB and SJVAPCD approvals, and to specify procedures to achieve compliance by those existing bovine facilities that are not yet in compliance;*
- 3. To modify, as feasible, the scope of County regulatory responsibilities to avoid overlap and duplication with the water quality and air quality oversight provided by the RWQCB and the SJVAPCD;*
- 4. To update and simplify the permitting processes for bovine facility expansions and the establishment of new bovine facilities consistent with the ACFP; and*
- 5. To develop a Dairy and Feedlot Climate Action Plan that analyzes cumulative greenhouse gas (GHG) impacts.*

Response: This comment does not raise an environmental issue related to EIR adequacy, and no further response is required. CEQA Guidelines Sections 15088(a). 15088(c).

Alternatives¹³

Comment 4a-5: *CEQA Guideline Section 15091(a)(3) states that a no Lead Agency may approve a project where mitigation or an alternative could substantially reduce environmental impacts unless it makes findings stating "3) Specific economic, legal, social, technological or other considerations, including provisions of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR. That finding must be based on substantial evidence in the record. The "finding" made by the EIR in rejecting the Thirty-three Percent Reduced Herd Size Alternative fails this requirement and thus is legally inadequate.*

Response: Please note that the comment does not accurately reflect the precise language of CEQA Guidelines Section 15091(a)(3). Please note further that the comment does not present specific concerns regarding EIR mitigation measures, so no response is provided on mitigation measures. Regarding alternatives, please see Master Response 4. The Draft EIR's evaluation and consideration of the Thirty-three Percent Reduced Herd Size Alternative complies with CEQA requirements. The Draft EIR did not reject this alternative as infeasible. The CEQA Guidelines section cited by the comment (Section 15091(a)(3)) does not pertain to required EIR contents, but rather to lead agency findings on significant impacts made after the Final EIR is certified.

Comment 4a-6: *The EIR identifies the Thirty-Three Percent Alternative as the environmentally superior alternative because it would reduce criteria emissions, greenhouse gas emissions and water quality pollutants by approximately one-third. The EIR admits this reduction would result in a significant reduction in environmental impacts: "Thus the Thirty-three Percent Reduced Herd Size Alternative would reduce adverse impacts within resource categories evaluated in this EIR.... Based on a review of the alternatives evaluated in this chapter, the Thirty-three Percent Reduced Herd Size Alternative would result in the least impact on the environment." (EIR, page 5-4.) While the EIR claims the impacts on several resource categories would not be completely eliminated, this does not make the alternative infeasible under CEQA or explain why it was rejected by the DEIR.*

Response: Please see Response to Comment 4a-5. The Draft EIR in Table 5.4-1 identifies a number of impacts that the Thirty-Three Percent Reduced Herd Alternative would reduce, in addition to those noted in the comment. The Draft EIR does not state that the Thirty-three Percent Reduced Herd Size Alternative would result in a "significant reduction" in environmental impacts. Rather, it states that in no cases would the proposed Program's impacts be reduced to less than significant levels.

Comment 4a-7: *The EIR rejected the Environmentally Superior Alternative because, purportedly*

"...it would not fully achieve the basic proposed Program objective of enhancing the County's resources, including economic resources. It would also be inconsistent with a number of General Plan policies, including those that promote economic development in general and the continued productivity of agricultural resources in particular. "

This is patently false. Nowhere in the Project Objectives or the General Plan policies does it say that economic resources are to be "maximized." While the Thirty-three Percent Reduction Alternative might not increase economic resources to the level of the proposed Project, it would nonetheless enhance the County's economic resources, and thus it does fulfill the stated Project Objectives of the EIR.

Response: Please see Response to Comment 4a-5. The Draft EIR does not reject the Environmentally Superior Alternative. The Draft EIR correctly states that a disadvantage of the Environmentally Superior Alternative is that it "would not fully achieve" the basic Program objective of enhancing the County's resources, including economic resources. The Draft EIR does not fault the Environmentally Superior Alternative for failing to "maximize" economic resources.

Comment 4a-8: *In fact, the Project Objectives, while not calling for economic values to be maximized, does call for environmental impacts to be "minimize[d]." EIR, page 5-2. Thus, the Thirty-three Percent Reduction Alternative arguably fulfills the Project Objectives to a greater extent than the proposed Project.*

Response: The comment correctly observes that the Thirty-three Percent Reduced Herd Size Alternative would minimize environmental impacts to a greater extent than the proposed Program.

Comment 4a-9: *In any event, there is no substantial evidence supporting the conclusion that the Environmentally Superior Alternative is infeasible or that it would not achieve the Project's core objectives. Given this, the County is legally obligated to choose the Thirty-three Percent Reduction Alternative. The "EIR must explain why each suggested alternative either does not satisfy the goals of the proposed project, does not offer substantial environmental advantages, or cannot be accomplished." (Save Round Valley Alliance v. County of Inyo (2007) 157 Cal.App.4th 1437, 1458.) The agency's infeasibility determination must be supported by substantial evidence in the record. PRC §21081.5; CEQA Guideline 15091(b).*

Response: Please see Response to Comment 5. The case cited by the comment states requirements for when an EIR rejects an alternative from detailed consideration; it is not relevant to this EIR because the Draft EIR does not reject the Thirty-three Percent Reduced Herd Size Alternative, but rather evaluates it in detail. Also, the comment's legal citations (PRC Section 21080.5, CEQA Guidelines Section 15091(b)) do not pertain to required EIR contents, but rather to lead agency findings on significant impacts made after the Final EIR is certified.

Comment 4a-10: *The EIR does not analyze an adequately broad range of project alternatives.*

The EIR should consider a Pasture-based Alternative that would require new dairies to be located only where the herd size could be accommodated by pasture feeding with only occasional supplemental feeding might as required. Expansion of existing dairies would be permitted only where the additional cows could be pasture-based. This approach would significantly reduce the project's myriad environmental impacts without foreclosing new or expanded dairies.

Response: Master Response 4 explains why a pasture-based alternative is not feasible.

Comment 4a-11: *See, Save Round Valley Alliance v. County of Inyo (2007) 157 Cal. App. 4th 1437, 1458 ("EIR must explain why each suggested alternative either does not satisfy the goals of the proposed project, does not offer substantial environmental advantages, or cannot be accomplished.") See, also, Rural Landowners Assn. v. City Council (1983) 143 Cal.App.3d 1013, 1022. ("[T]he [agency] must describe the disposition of each of the significant environmental issues raised and must particularly set forth in detail the reasons why the particular comments and objections were rejected and why the [City] considered the development of the project to be of overriding importance.")*

Response: Master Response 4 and Responses to Comments 4a-12 to 4a-26 explain why the EIR did not evaluate a pasture-based alternative in detail. These explanations meet CEQA case law requirements for alternatives that are rejected from detailed consideration.

Comment 4a-12: *Pasture-based dairies have been in use in both California and other parts of the Nation for many years. In fact, only in recent decades have large-scale animal confinement facilities come to dominate the dairy landscape, and nowhere more so than California. San Joaquin Valley dairies have an average of more than 1000 mature cows, whereas the national average is 133. (Food and Water Watch Report, pages 5-6)*

Thus, the basic concept of pasture-based dairies is certainly technically feasible. There are many areas of the County either with existing pasture or that could accommodate conversion to pasture, and thus requiring pasture-based dairies would not be infeasible due to lack of the needed land base.

Response: The cited national average size figures do not have relevance to whether pasture-based dairies are “technically feasible” in accommodating projected dairy herd expansion in Tulare County.

The acreage required for ACFP-estimated confined and semi-confined dairy expansion to 2023 is 53,000 acres. Pasture-based grazing acreage to 2023 to accommodate that same growth in herd size would be 168,000 acres. Maps A, B, C and D in Appendix O to the Draft EIR demonstrate and depict that land available in the County for such expansion is 81,000 acres. In arriving at that mapping, analysis-derived acreage available for dairy growth or establishment, required dairy-exclusion buffers, land occupancies and encumbrances were evaluated and mapped. These included existing dairies, urban areas, Federal and State lands, legally-required buffer areas and high-value perennial cropland. The projected 2023 expansion of the dairy industry thus cannot be feasibly accommodated in the County under a pasture-based grazing scenario. At a referenced one cow animal population of one animal per acre, for pasture-based dairies, 168,000 acres would be required. Appendix O mapping indicates that 168,000 of dairy land is not available in Tulare County. These data support the conclusion that the suggested alternative is not feasible.¹³ The Dairy CAP has been revised to include pasture-based management practices for individual dairies or feedlots as Strategy D8 in Table 4.

Comment 4a-13: *Pursuant to Senate Bill 605, the Air Resources Board has released the Short Lived Climate Pollutant Reduction Strategy Concept Paper (hereafter "Concept Paper") to discuss potential strategies that the Board would evaluate for inclusion in the Short Lived Climate Pollutant Reduction Strategy.*

Response: The Dairy CAP has been revised to include pasture-based management practices for individual dairies or feedlots as Strategy D8 in Table 4. This comment does not raise an environmental issue related to EIR adequacy, and no further response is required. CEQA Guidelines Sections 15088(a), 15088(c).

Comment 4a-14: *In a June 10, 2015 letter from a coalition of environmental groups to the California Air Resources Board (hereafter June 10 Letter, attached) commenting on the Concept Paper, the authors note that the legislature specifically directed the California Air Resources Board (CARB) to "[p]rioritize the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities." Health & Safety Code § 39730(a)(4). (June 10 Letter, page 3)*

Response: Please see Response to Comment 4a-13.

Comment 4a-15: *The June 10 Letter discusses many of the co-benefits of pasture-based dairies, "Pasture-based dairy systems provide multiple benefits, including avoiding methane production*

from anaerobic decomposition, carbon sequestration, lower cow density per acre (causing less enteric emissions), reduced water consumption, and improved animal welfare conditions for dairy cattle. " (ibid, page 2)

Response: Please see Master Response 4 for an explanation of why the environmental benefits of a pasture-based alternative are uncertain. Note that methane production from anaerobic decomposition would be reduced, not eliminated; see Response to Comment 4a-16. Also, note that lower cow density per acre does not equate to reduced enteric emissions, since 40% more cows would be generating enteric emissions under the proposed ACFP and a pasture-based alternative. Water consumption would not be reduced (see Master Response 4 and the Response to Comment 4b-10). "Carbon sequestration" for dairy cattle cannot be conclusively documented from other references (see Master Response 4). Please see Master Response 1D, which discusses pasture-based systems. The final SLCP Strategy (at p. 65-66) recognizes that milk production and feed efficiencies are lower in pasture-based systems. Consequently, it is unclear whether the emissions rate per pound of milk is lower with pastured animals. Even so, the revisions to the Dairy CAP include the addition of pasture-based practices on individual dairies as Strategy D8.

Comment 4a-16: *The primary advantages of pasture-based dairy systems come from:*

1) Avoidance of anaerobic decomposition at waste lagoons and at other facility locations;

Response: Available literature regarding pasture-based dairy systems confirms that such systems still require, from milking barns and periodic need for continued feed programs, smaller but vital waste lagoons. Total avoidance is thus not likely; reduced anaerobic digestion will occur.¹⁴

Comment 4a-17:

2) Avoidance of nitrous oxide emissions from liquid manure applications for on-farm nitrogen disposal;

Response: The CVRWQCB's General Order, and its nutrient management program requirements regulating the application of manure digester solids, and dairy wastewater for agriculture irrigation and fertilization address and regulate such disposal, minimizing nitrous oxide emissions. The comparative efficacy of a pasture-based alternative in reducing or avoiding nitrous oxide emissions from manure could not be conclusively documented from a review of pertinent references.

Comment 4a-18:

3) Reduced need to grow and transport feed from distant locations;

Response: The described advantage would occur. However, land and water requirements for feed from a pasture-based alternative would increase. Please see Master Response 4.

Comment 4a-19:

4) *Promoting natural limitations on the size of animal confinement facilities, reducing the concentration of pollutant sources experienced under the current system.*

Response: The commentor's usage of the term "natural limitations" is not clear. The concentration of facilities in Tulare County and the ability to utilize lined treatment ponds for manure management is not necessarily a disadvantage because it increases the potential for groundwater protection and for air quality mitigation through anaerobic digestion and digester gas utilization. Please see also Master Response 4.

Comment 4a-20:

5) *Cows maintained on pasture have less need for antibiotics and other drugs that are routinely applied in a confinement operation (June 10 Letter, page 6)*

Response: The comment and the June 10 letter on which it is based provide no substantial evidence supporting this assertion. Substantial evidence under CEQA includes facts, reasonable assumptions based on facts, and expert opinion supported by facts. CEQA Guidelines Section 15384(b).

Comment 4a-21: *"Pasture-based systems most directly reduce methane emissions because methane emissions from manure - thirty percent of total California emissions - come from anaerobic manure decomposition in waste lagoons." (June 10 Letter, page 4, citing Steinfeld, Henning, Pierre Gerber, Tom Wassenaar, Vincent Castel, Mauricio Rosales, Cees de Haan. (2006). Livestock's Long Shadow: environmental issues and options)*

Response: Please see Master Response 1D and its comparison of emissions from confined animal facilities using waste lagoons and pasture-based systems when the metric utilized is based on methane emissions per pound of milk produced rather than on a per-animal basis.

Comment 4a-22: *"Emissions from dairy cow manure management in the U.S. increased by 115 percent from 1990 to 2012 because of the increased usage of waste lagoon systems." (June 10 Letter, citing Gerber, P.J., Steinfeld, H., Henderson, B., Mottet, A., Opio, C., Dijkman, J., Falcucci, A. & Tempio, G. 2013. Tackling climate change through livestock- A global assessment of emissions and mitigation opportunities.)*

Response: Please see Master Response 4 regarding the relative advantages of a pasture-based alternative versus confined animal facilities using waste lagoons. Please see also Master Response 1D regarding pasture-based systems and the milk production efficiencies of confined animal facilities. This comment does not raise an environmental issue related to EIR adequacy and no further response is required. CEQA Guidelines Sections 15088(a), 15088(c).

Comment 4a-23: *In pasture-based and dry-stack systems, manure emits far less methane. In a pasture-based system, emissions from the production, processing, and transportation of feed are significantly reduced. While studies in the field of carbon sequestration have produced differing*

results, it does appear that pasture-based systems provide some benefit in terms of carbon sequestration.

Response: Please see Responses to Comments 4a-15, 4a-18 and 4a-22. This comment does not raise an environmental issue related to EIR adequacy and no further response is required. CEQA Guidelines Sections 15088(a), 15088(c).

Comment 4a-24: *There may be economic benefits to pasture-based dairies as well. These would include:*

- 1) Reduction in the costs of transporting feed;*
- 2) Reduced need for capital costs in facilities and equipment;*
- 3) Reduced manure management costs;*
- 4) Reduced need for antibiotics and other drugs;*
- 5) There is an opportunity for pasture-based dairies to demand a higher price for their products, as markets are growing for grass-fed and more humane cattle products.*

Response: This comment does not raise an environmental issue related to EIR adequacy and no further response is required. CEQA Guidelines Sections 15088(a), 15088(c). Nevertheless, the following response is provided. EIRs are not required to consider purely economic impacts. (CEQA Guidelines Section 15064(e).)

Comment 4a-25: *In order to analyze a reasonable range of alternatives, the EIR must consider an alternative that is founded upon pasture-based facilities. Tulare County can and should join a growing movement away from large-scale confinement facilities towards a more holistic approach to dairy and feedlot production.*

Response: Master Response 4 and Responses to Comments 4a-12 through 4a-26 explain why the EIR does not evaluate a pasture-based alternative in detail. These explanations meet CEQA case law requirements for alternatives that are rejected from detailed consideration. The last sentence of the comment raises policy considerations, and will be considered by the Board of Supervisors prior to approval of the proposed Program.

Comment 4a-26: <http://extension/psu.edu/animals/dairy/nutrition/forages/pasture/articles-on-pasture-and-grazing/pasture-based-systems-for-dairy-cows-in-the-united-states>. See also *Grazing Can Reduce the Environmental Impact of Dairy Production Systems, Forage and Grazinglands*, 16 December 2009
<http://www.caes.uga.edu/commodities/fieldcrops/forages/events/PBDsum/mit/rotz%202009%20Grazing%20Can%20Reduce%20the%20Environmental%20Impact%20of%20dairy%20production%20systems.pdf>

Response: The County has reviewed the general references on pasture based systems at these web links. They repeat some of the general information provided by the commenter on pasture-based

systems, but do not raise any additional environmental issues related to EIR adequacy. The first web site is a national study focused on the Northeastern and Midwestern U.S. The second reference analyzes the benefits of pasture-based systems in Pennsylvania. For reasons stated earlier, these studies have limited relevance to pasture-based systems in Tulare County's climate. Please see Master Response 1D.

Permits Incorporating Improvements Over Time¹³

Comment 4a-27: *As the Concept Paper in the above section indicates, in order to achieve the State's stated GHG reduction targets, the State continues to develop and assess strategies to reduce greenhouse gas emissions from a variety of sectors in the State. The EIR also notes that the Regional Water Quality Control Board (RWQCB) and the San Joaquin Valley Air Pollution Control District are working on additional approaches to air and water quality protection relevant to animal confinement facilities.*

Response: Additional approaches for air and water quality protection that may be developed by the SJVAPCD and CVRWQCB in the future would be incorporated into these agencies' permit requirements for expanded or new dairy and other bovine facilities. Also, as indicated in Response to Comment 1-13, ACFP Policy 2.4-1 has been modified to state that new facilities and facility expansions "shall comply with the most current RWQCB regulatory requirements," including the requirements of California Code of Regulations, Title 27, pertaining to "Confined Animal Facilities," as administered by the RWQCB."

Comment 4a-28: *Pursuant to the State mandates to reduce GHG emissions at ever greater rates over time, the County must make it clear that the ACFP and CAP for new and expanded animal confinement facilities will be subject to change over time as additional control measures become technically and economically feasible. To this end, the County should schedule periodic review of the ACFP and CAP and impose additional requirements as more aggressive GHG reduction measures become feasible. The ACFP must clearly create the expectation that dairies must strive to achieve greater GHG reduction strategies and best management practices (BMPs) over time.*

Response: The Dairy CAP has been written to respond to state requirements calling for greater reductions of GHG emissions in the future, including SB 32 and SB 1383. See Master Responses 1A and 1B. The County will provide for a post-2023 examination of the Dairy CAP to determine whether the Dairy CAP has been superseded by the enactment of state regulations that mandate emissions reductions and to assess whether modifications are needed in order to reduce the possibility of duplication of or conflicts with state level actions.

Climate Change and Greenhouse Gas Emissions¹³

Comment 4a-29: *The EIR must adequately analyze the expected emissions from existing and new and expanded dairies, and analyze the extent to which greenhouse gas emission would be reduced under a pasture-based dairy program or other effective mitigation plans.*

Response: The Draft EIR's GHG emissions impact analysis and mitigation measures meet CEQA requirements. Please see Master Response 2. Master Response 4 explains why the EIR does not evaluate a pasture-based alternative in detail.

Comment 4a-30: *California Dairies account for sixty percent of California's methane emissions. Concept Paper at 21. In the San Joaquin Valley, at least eighty-seven percent of methane emissions are from dairy (and other cattle) operations. D.R. Genter, et al., Emissions of organic carbon and methane from petroleum and dairy operations in California's San Joaquin Valley, Atmos. Chem. Phys., 14, 4955-5978 (2014).*

Response: Section 3 of the Dairy CAP includes an inventory of baseline GHG emissions in Tulare County and projected future GHG emissions from new dairies and expansions.

Comment 4a-31: *As a result, the County should ensure that dairies do their fair share to reduce methane emissions and should not avoid regulation, which would unfairly place a greater reduction burden on other sources of greenhouse gases.*

Response: Please see Master Responses 1A and 1B.

Comment 4a-32: *Given the dire need to stabilize our climate, California has taken the lead by adopting Assembly Bill 32, the California Global Warming Solutions Act, to reduce greenhouse gases by twenty percent below 1990 levels. On April 29, 2015, Governor Brown adopted Executive Order B-30-15 calling for even greater reductions – forty percent by 2030.*

Response: Please see Master Responses 1A and 1B.

Comment 4a-33: *In addressing the problems of methane and other climate pollutants, the County should develop a multi-pronged strategy:*

- (1) Use monitoring and reporting to best complete an inventory of the sources of climate change pollutants;*
- (2) Identify research needs to address data gaps and potential programs, policies, and technologies to reduce climate pollutants;*
- (3) Identify existing and potential new control measures to reduce emissions;*
- (4) Prioritize those control methodologies that provide co-benefits in terms of reduction of air and water quality improvements as well as other benefits to the welfare of Tulare County residents, such as reduced odors;*
- (5) Coordinate with state agencies and other local jurisdictions facing similar issues to develop measures identified as part of the comprehensive strategy.*

Response: CARB's SLCP Strategy, and state legislation enacted since the circulation of the Draft EIR, addresses these items on a statewide level. Please see Master Responses 1A and 1B.

Comment 4a-34: *The County should, as the County General Plan dictates, adopt a goal for greenhouse gas emissions from animal confinement facilities as part of the CAP. That goal could be narrative, such as "maximum feasible reduction", or numeric. As a starting point, adapting the goal of no net increase in emissions from the 2013 baseline to the 2023 time horizon would be adequate.*

Response: The Dairy CAP has been revised to incorporate voluntary benchmark targets in Section 6. Please see Master Responses 1A and 1C for a discussion.

Comment 4a-35: *The EIR must also consider whether the implementation of the project would violate Executive Order No. S-3-05, which established several "reduction targets" for greenhouse gas emissions for the State of California: by 2010, to 2000 levels; by 2020, to 1990 levels; and by 2050, to 80 percent below 1990 levels." Rialto Citizens for Responsible Growth v. City of Rialto (2012) 208 Cal. App. 4th 899, 938. AR 7:1814. The Executive Order also directed CalEPA, in cooperation with other state agencies and Boards, to coordinate statewide efforts to monitor and reduce GHG emissions. Thus, the Executive Order is binding on the County.*

Response: Please see Master Response 1B and its discussion of state legislation enacted since the circulation of the Draft EIR, including detailed provisions addressing the dairy sector. The Dairy CAP is consistent with applicable state legislation. EO S-3-05's directives to state agencies do not make the EO "binding on the County." Nevertheless, the Draft EIR in Impact #3.7.3 concludes that the proposed Program would be inconsistent with the state's ability to achieve S-3-05's statewide GHG reduction targets.

Comment 4a-36: *In order to effectively mitigate GHG emissions from the dairies, the County should consider a system similar to cap and trade. New and expanded dairies could pay into a system based on CO₂e metric tons. The County would work with the SJV APCD to establish a price on CO₂e, such as the BACT number of \$17,500 per metric ton. (EIR, page 3.7-16)*

The funds collected could be used either by the County or the APCD. The County could use the funds to incentivize pasture-based dairies or other measures to reduce GHG emissions from older animal confinement facilities. Alternately, the APCD would use the funds to augment ongoing programs in reducing GHGs throughout the San Joaquin Valley.

Response: CARB has specifically chosen not to designate dairies as a capped sector eligible for the state's Cap-and-Trade Program. Please see Master Response 1D and its discussion of the infeasibility of instituting a County cap-and-trade system for dairies. The suggested mitigation measure would require the County to establish a new regulatory program for dairy GHG emissions, a program which is not financially or logistically feasible. The SJVAPCD has taken an alternative approach to GHG regulation, which includes an emission reduction credit banking system for GHGs (Rule 2301). Also, the SJVAPCD has developed an action plan¹⁵ to secure state cap-and-trade funds, which includes using the funds for digesters at dairy facilities.

This suggestion would be inconsistent with the Program objectives calling for the County to reduce regulatory overlap with the SJVAPCD and for the Dairy CAP to streamline project-specific GHG impact analysis. Also, because of the small geographic scope of a County-only cap-and trade

program, and because the specific uses of the collected fees are uncertain, the effectiveness of such a program in reducing GHG emissions is also uncertain. The suggestion raises policy considerations, and will be considered by the Board of Supervisors prior to approval of the proposed Program

Comment 4a-37: *As an alternative to this CAP and trade mechanism, the County should analyze the feasibility of requiring new and expanding dairies to enter into Voluntary Emission Reductions Agreements (VERAs) with the APCD. The APCD is well familiar with VERAs, although most of them have been with land development companies:*

"In addition to reducing a portion of the development project's impact on air quality through compliance with District Rule 9510, a developer can further reduce the project's impact on air quality by entering into VERA with the District to address the mitigation requirements under California Environmental Quality Act (CEQA). Under a VERA, the developer may fully mitigate project emission impacts by providing funds to the District, which funds are then used by the District to administer emission reduction projects on behalf of the project proponent. The District has entered into over twenty VERAs since 2005." (San Joaquin Valley Air Pollution Control District 2014 Annual Report, Indirect Source Review Program, page 1)

Response: Please see Master Response 1D and its discussion of VERAs. VERAs administered by the SJVAPCD have been utilized in significantly different circumstances, primarily for large-scale residential subdivisions. The SJVAPCD's CEQA Guidance which recommends VERAs as potential mitigation measures, as well as District Rule 9510, cover criteria pollutants only. Whether the County should conduct a feasibility study on expanding the VERA program to include GHG emissions raises policy considerations, and will be considered by the Board of Supervisors prior to approval of the proposed Program.

Comment 4a-38: *As mentioned in the above paragraph, VERAS can be used for air quality emissions as well as greenhouse gas emissions. The EIR should analyze the potential for VERAS in both categories.*

Response: Please see Response to Comment 4a-37.

CAP Checklist¹³

Comment 4a-39: *The checklist provided as part of the CAP is legally flawed, in that it does not, in the end, specify which mitigation measures will, in fact, be implemented. Instead, the Category A list assumes that the implementation/mitigation measures are feasible, but leaves open the possibility that they will not be applied in some circumstances,*

"Category A reduction strategies, which new or expanding dairies or feedlots must (1) incorporate into their facility or (2) provide justification as to why the given strategy is not feasible for the facility. (EIR, Appendix B, Table 5, page 30)

Response: Please see Master Responses 1A, 1E, and 2. The Dairy CAP has been revised to provide clarification as to the applicability of Category A emissions reduction strategies. A proposed facility expansion under ACFP Policy 2.5-3 must incorporate, to the extent possible, the Category A emissions reduction strategies listed in Table 5 that are applicable based on the scope of the proposed expansion. To the extent that any of such Category A strategies would be infeasible or impracticable based on the specifics of the expansion, a Category B strategy listed in Table 6 must be substituted for each such strategy. If a proposed expansion does not incorporate the requisite scope and number of emissions reduction strategies, it will not qualify for the streamlined process under ACFP 2.5-3 and would have to perform an individualized project analysis under ACFP 2.5-4, including individualized review under CEQA with the accompanying evaluation of GHG emissions impacts and feasible mitigation measures.

Comment 4a-40: *The Category B list of reduction strategies is even more problematic.*

*Category B reduction strategies, which new or expanding dairies or feedlots must consider for implementation at the facility. It is anticipated that a facility may choose to replace a reduction strategy in Table 5 with a strategy in Table 6 to provide operational flexibility in reducing GHG emissions. In addition, if expanding facilities are not able to implement Category A reduction strategies, or substitute Category B strategies, in the expansion, the facility may choose to implement an equal number of Category A or B strategies within the **existing** portion of the facility to the same or greater extent as would have been done for the expanded portion. (EIR, Appendix B, Table 6, pages 30-31)*

Response: Please see Response to Comment 4a-39. The Dairy CAP has been revised to expressly add the implementation of a Category A or a Category B strategy within the existing portion of a facility with a proposed expansion as Strategy [M11] in Table 4 and Table 6.

Comment 4a-41: *Thus, a project applicant must simply "consider" Category B reduction strategies. In addition, the Category B strategies undermine the weakly required Category A strategies, in that one or more of the later can be substituted for one or more of the former. As a result, none of these reduction strategies are, in fact, required. Rather, there is a menu of options for a project applicant to consider applying, or substituting for another, or explaining why they cannot be applied to their project. In other words, not one of these reduction strategies is actually required of a new or expanding dairy or feedlot facility. This is a classic example of deferred mitigation, and under these circumstances violates the standards of CEQA.*

Response: Please see Response to Comment 4a-39. All new dairies and all dairy expansions that do not meet the requirements for streamlined analysis (because they do not incorporate the requisite scope and number of emissions reduction strategies) will perform an individualized review under CEQA that will evaluate GHG emissions impacts and feasible mitigation measures. This does not constitute deferred mitigation as to either dairy expansions qualifying for streamlined analysis, or new dairies and dairy expansions undergoing individual CEQA review.

Comment 4a-42: *If this method is to be used, the EIR and CAP should state explicitly that each permit for a new or expanded dairy or feedlot will undertake either a Mitigated Negative*

Declaration or a full Environmental Impact Report. The public has the right to review and comment upon which of this large menu of reduction strategies (i.e. mitigation measures) will be applied to a given project, and the CAP as currently written simply does not allow that.

Response: Please see Responses to Comments 4a-40 and 4a-41. Also, see Master Responses 1A, 1E and 2. The Dairy CAP's approach to CEQA streamlining for qualifying dairy expansions is consistent with the framework established by CEQA Guidelines Section 15168(c) for using Program EIRs with later activities in the program.

Comment 4a-43: *The CAP and EIR should, instead, describe the circumstances under which a given reduction strategy will apply. It should be assumed that all Category A standards will be required of every proposed project, unless a MND or EIR adequately explains why that reduction strategy is infeasible in light of the surrounding circumstances.*

Response: Please see Responses to Comments 4a-39 and 4a-40. Also, see Master Responses 1A, 1E and 2.

Comment 4a-44: *As for Category B, the CAP or EIR should provide standards that clearly state when those reduction strategies will apply and when they will not. For example, the reduction strategy of installing solar energy should be required where adequate space exists on the project applicant's property to the maximum extent feasible, up to the amount of energy consumed by the proposed facility. Such specific parameters should be provided for each of the Category B reduction strategies.*

Response: Please see Responses to Comments 4a-39 and 4a-40. Also, see Master Responses 1A, 1E and 2.

Comment 4a-45: *Without an adequate analysis of the extent to which Category A or B mitigation strategies would be employed, the EIR would fail as an informational document in that the overall dairy GHG emissions would not be known. To adequately describe the project, the EIR must be able to forecast the overall GHG emissions that can be expected as a result of the implementation of the project.*

Response: The Draft EIR's GHG emissions impact analysis and mitigation measures meet CEQA requirements. Please see Master Response 2.

Water Quality¹³

Comment 4a-46: *The EIR should analyze the extent to which groundwater pollutants could be reduced in a pasture-based dairy system.*

Response: Master Response 4 explains why the EIR does not evaluate a pasture-based alternative in detail. As explained in that response, the water quality benefits of a pasture-based system relative to confined animal facilities are uncertain.

Comment 4a-47: *While the EIR readily admits that Tulare County dairies are routinely polluting groundwater in a manner that impacts upon human health, the ACFP and EIR largely throw up their hands in accepting that this pollution will continue to worsen over time. Instead, we should be looking for a system of monitoring, mitigation, and enforcement that holds out hope to reverse the trend of pollution that is now decades old and only threatens to get worse, especially for some of the most vulnerable in our population (those utilizing threatened groundwater sources).*

Response: The Draft EIR does not admit that Tulare County dairies are “routinely polluting groundwater in a manner that impacts upon human health.” Rather, the Draft EIR (pages 3.9-30 and 3.9-31) summarizes the conclusions of recent technical studies as follows. Nitrate contamination of groundwater “is not necessarily representative of current agricultural and dairy practices, but rather is an amalgam resulting from discharge from agriculture, dairies, and other sources over a long period, and that improvements in water quality will take many decades to realize.” As described on Draft EIR p. 3.9-31, the CVRWQCB is requiring management practices going forward to reduce nitrate loading to groundwater from historic levels. Draft EIR Impact #3.9-1 describes specific CVRWQCB and ACFP requirements that minimize groundwater quality impacts from expanded and new dairy and other bovine facilities, but concludes that this impact is significant because it cannot be guaranteed that future project-level water quality impacts would be mitigated to less than significant levels. Also, please see Master Response 3 for an explanation of why existing monitoring, mitigation, and enforcement programs are adequate.

Pollutants¹³

Comment 4a-48: *There are two categories of pollutants that the EIR entirely ignores: antibiotics and hormones. These potentially significantly health threats must be analyzed in the Final EIR.*

Response: This Final EIR contains an evaluation of dairy-related use of antibiotics and hormone usage, and demonstrates why impacts associated with antibiotics and hormones are speculative and less-than-significant. See Comments 4a-49 through 4a-52, and Master Response 3.

Comment 4a-49: *Recent studies have found antibiotics and their metabolites in groundwater samples beneath dairies. (Food and Water Watch, What's in the Water-Industrial Dairies, Groundwater Pollution and Regulatory Failure in California's Central Valley, page 10, attached, hereafter FWW Report) Antibiotics are used in dairies for both therapeutic and nontherapeutic purposes: to promote growth and as a preventative. Dairies use human antibiotics, such as penicillin and tetracycline, as well as animal specific antibiotics.*

Response: UC Davis has completed the first large study that found antibiotics given to dairy cows can end up on the ground and in manure lagoons, “but are mostly broken down before they reach groundwater”. The report determined that “A very small amount of certain antibiotics do travel into shallow groundwater. Our next task is to determine whether these particular antibiotics are further degraded before reaching domestic and public water wells”.¹ Thus the UC Davis study provided no evidence that the very small amount of antibiotics that did reach shallow groundwater can adversely affect drinking water. See Master Response 3.

Comment 4a-50: *The concern with antibiotics is a growing public health threat due to antibiotic-resistant bacteria. Repeated exposure to antibiotics can lead some bacteria to survive while others die off. Those resistant bacteria can then get into soil and groundwater.*

The Nation Academy of Sciences, the World Health Organization, and the Institute of Medicine have all determined that the use of antibiotics in livestock contributes to the development of antibiotic resistant human pathogens. (FWW Report, page 10) The Center for Disease Control and Prevention has identified antibiotic resistant bacteria as a growing public health threat in the United States. (ibid)

Response: The comment does not directly relate to the adequacy of the Draft EIR's water quality impact analysis, and it provides no evidence that the proposed ACFP would lead to antibiotic-resistant bacteria in Tulare County in the future. Using antibiotics in animal feed for non-therapeutic use including growth enhancement has been phased out by the FDA.² Thus it is anticipated that in the future, animal feed used for new and expanded dairies under the ACFP would have limited amounts of antibiotics. See Master Response 3.

Comment 4a-51: *Hormones are injected into cattle in feedlots and dairies in order to increase production. As a result, animal manure has been shown to contain estrogens, progesterone, testosterone and synthetic hormones, which then enter into waste lagoons and are applied to farm fields. Several studies have found elevated levels of hormones in groundwater near dairy operations. (FWW Report, page 9)*

Response: The comment provides no evidence that the proposed ACFP would lead to hormones ending up in groundwater that is used for drinking water, or that even if this occurred, adverse health impacts would result. Bovine somatotropin (BST) is a hormone naturally produced in cows. In 1993 FDA approved commercial use of synthetic recombinant Bovine somatotropin or growth hormone (rbST or rbGH), injection form, to be used in cows to increase milk yield. Several studies have shown that bovine hormones are present in animal manures, and therefore in the dairy retention ponds and, thus, probably groundwater.¹⁶

There are no public health effects associated with bovine hormone in dairy irrigation water applied to crop lands. U.S. Food and Drug Administration approved the use of recombinant bovine growth hormone (rbst) in dairy cows "based on studies which show that" bGH is biologically inactive in humans even if injected, rbGH is orally inactive, and bGH and rbGH are biologically indistinguishable.¹⁷

Comment 4a-52: *Human exposure to hormones is of increasing concern to the public health community. Endocrine-disrupting hormones can interfere with normal hormone function and affect fetal and child development. (Ibid) Hormones have also been found to affect the development of aquatic life. (Ibid)*

The EIR should examine the potentially significant health impacts of both antibiotics and hormones. These impacts can be easily mitigated by minimizing the use of these two pollutants or, in some situations, simply banning their use.

Response: Please see Responses to Comments 4a-48 through 4a-51. The comment provides no evidence that the proposed ACFP would lead to hormones or antibiotics ending up in groundwater that is used for drinking water, or that even if this occurred, adverse health impacts would result.

Monitoring¹³

Comment 4a-53: *The current system of monitoring is so weak that it cannot come close to identifying the source and magnitude of pollutants into groundwater from animal confinement facilities. As a substitute for effective monitoring, the EIR rests mostly on management regimes and reporting that suffer from poor enforcement (see below).*

Response: Please see Master Response 3. The Draft EIR's water quality impact analysis adequately discloses the proposed Program's significant water quality impacts, and proposed mitigation measures to reduce these effects.

Comment 4a-54: *From a legal point of view, the suggestions below should be seen as mitigation measures proposed to reduce human health impacts from dairies and feedlots.*

Response: Monitoring programs are not mitigation measures under CEQA because studying an impact does not avoid or reduce it, and thus reduce environmental impacts. See, e.g., *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App. 4th 645. CEQA Guidelines Section 15370 defines "mitigation" as:

- a. Avoiding the impact altogether by not taking a certain action or parts of an action.
- b. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- c. Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
- d. Reducing or eliminating the impact over time by preservation and maintenance operation during the life of the action.
- e. Compensating for the impact by replacing or providing substitute resources or environments.

Comment 4a-55: *From a human health perspective, better monitoring will help inform the County regarding siting and management of animal confinement facilities in the future.*

Response: This comment does not raise an environmental issue related to EIR adequacy, and no further response is required. CEQA Guidelines Sections 15088(a), 15088(c). The last comment raises policy considerations, and will be considered by the Board of Supervisors prior to approval of the proposed Program.

Comment 4a-56: *As a preliminary question, it is confusing why the figures mapping nitrate contamination (EIR Figures 3.9-5 and 3.9-6) look at an MCL of 45 MG/L when the federal MCL is 10 MG/L. Please explain this discrepancy.*

Response: The Federal MCL is 10N (measured as nitrogen). The State MGL is 45 NO₃ (measured as nitrate) which is the same as 10N. The State MCL is referenced because it is more widely used and understood in California.¹⁸

Comment 4a-57: *First, the current system only monitors the dairy and feedlot facilities themselves, rather than the far greater location of groundwater pollutants-the fields in which waste manure are applied-and the properties most likely impacted-surrounding private wells. The EIR acknowledges that the fields on which manure is spread result in the greatest potential for groundwater contamination:*

"Information from the University of California and the CVDRMP both suggests that dairy ponds play a relatively small role in overall loading of nitrogen compounds to groundwater in a dairy setting. This is partly because ponds are designed to be relatively less permeable than cropland and are much smaller than the footprint of the surrounding cropland. Nutrients stored in the ponds have a much greater chance of entering groundwater after they leave the pond and are applied to crops than they do while stored in the pond itself.

The 2012 report to the California Legislature, "Addressing Nitrate in California's Drinking Water" noted that throughout the Salinas Valley and the entire four-county Tulare Lake Basin, the total area-wide contribution of nitrates from manure storage lagoons was about 220 tons annually, about 1,000 times less than the nitrogen loading from fertilized cropland in the same area." (EIR, pages 3.9-33-34)

Response: See Master Response 3 regarding the adequacy of existing monitoring programs.

Comment 4a-58: *Applicants for new or expanded dairy permits should be required to erect monitoring wells both upgradient and downgradient of the fields upon which their wastewater and manure are spread. This will help better define to what extent those fields are contributing to groundwater contamination. Of course, the monitoring wells on-site of the facilities should also be measuring upgradient and downgradient. A 2002 study came to the conclusion that wells downgradient of dairies had much higher levels of nitrates than those upgradient of dairies. (FWW Report, page 12)*

Response: See Master Response 3 regarding the adequacy of existing monitoring programs. After intensive study and discussion as General Order R5 2013-0122 was being prepared, the 2013 General Order prescribes on pages 6 and in MRP-1 through MRP-31, a feasible and enforceable groundwater Monitoring and Reporting Program (MRP). When implemented for new and expanded dairies, the MRP would help assure that new and expanded dairies under the proposed ACFP would not adversely affect beneficial uses of groundwater. That program, now in effect, will likely verify, over time, the conclusion of the cited 2002 study that wells downgradient of existing dairies may produce water with higher nitrate levels than wells upstream.

Also, for the County to implement such a monitoring program would duplicate the CVRWQCB required monitoring program, and thus be inconsistent with the Program objective to avoid overlap and duplication with the water quality oversight provided by the CVRWQCB.

Comment 4a-59: *Second, the monitoring that is done seems to be primarily into the deep aquifer beneath the facilities (EIR, Page 3.9-21). The EIR notes that groundwater contamination in the deep aquifer may be decades old, “most nitrates in drinking water wells today were applied to the surface decades ago.” (EIR, page 3.9-29, citing to Harter Report) This makes it difficult to determine how much new or expanding dairies are contributing to groundwater contamination. Are there monitoring techniques available that would better allow the County and the Regional Water Quality Control Board (RWQCB) to pinpoint the origin of contaminants? If the answer to that question is “yes”, then those improved monitoring measures should be required as part of the ACFP.*

Response: Under the aegis of the 2013 General Order, an MRP has been developed and is being implemented which will detect shallow groundwater impacts and mitigate potential impacts pertinent to new and expanded dairies. This makes it unnecessary to add additional measures to the ACFP.

This program is being implemented through the Central Valley Dairy Representative Monitoring Program (CVDRMP) Coalition. Monitoring data obtained by the CVDRMP will be used to identify specific management practices that are protective of water quality and appropriate for the range of conditions encountered at participant dairies. Best management practices for the protection of surface water and groundwater quality presently referenced by the 2013 General Order are likely to be amended over time based on the findings of the monitoring data evaluation by the CVDRMP.¹⁹ As indicated in Response to Comment 1-13, these changes would be reflected in ACFP implementation because ACFP Policy 2.4-1 has been modified to state that new facilities and facility expansions “shall comply with the *most current RWQCB regulatory requirements....*”

Comment 4a-60: *Ultimately, the goal is to protect drinking water from groundwater contamination originating from confined animal facilities. Since, according to the RWQCB, 85% of dairies in the Central Valley are within 300 feet of an offsite domestic water well, the EIR should analyze a requirement that new or expanding confinement facilities should be required to offer to test private or public wells adjacent to, or within a certain distance of, their facilities as well as adjacent to or near the fields upon which their waste manure is spread, on an annual basis. The information gathered as a result of such a requirement would increase the ability of the County and other governmental entities to gauge the extent of groundwater contamination and perhaps, as a result, develop an approach that better protects human health.*

Response: Please see Response to Comment 4a-59.

Comment 4a-61: *The situation is serious, as noted in a 2010 report by the state's Groundwater Ambient Monitoring and Assessment Domestic Well Project finding that 40% of private wells in Tulare County did not meet drinking water quality standards for nitrates. That same study showed that in Tulare County 33% of private wells tested positive for total coliform bacteria.*

Response: The comment, although addressing the severity of such contamination, does not specify the location of such private wells. Wells in Tulare County have also been impacted by crop fertilization having no association with dairies and their location as illustrated on corrected Figure 3.9-6.

Comment 4a-62: *The EIR should stipulate that, when a new dairy or feedlot is proposed, monitoring wells should be placed on the facility property prior to installation of the facility, in order to establish a baseline measurement of pollutants.*

Annual Compliance Reports should be filed electronically, and the results should be posted online for public access, with an annual summary of the reports in plain English. Monitoring results should also be placed online. These measures would allow the public to better understand the nature and breadth of groundwater contamination in the region.

Response: See Master Response 3 regarding the adequacy of existing monitoring programs. Please also see Responses to Comments 4a-58 and 4a-59. The 2013 General Order MRP, which is used by the Board as the basis for evaluation of new and expanded dairy facilities, requires such pre-operation monitoring. Annual Compliance Reports under the ACFP will be public records available upon request. However, they would not include groundwater monitoring reports, which would be available from the CVRWQCB.

Comment 4a-63: *Next, the County should require that monitoring wells test for antibiotics and endocrine disrupting hormones in addition to nitrates, lasts, and total coliform. As is explained above, these potential pollutants are both increasing health concerns.*

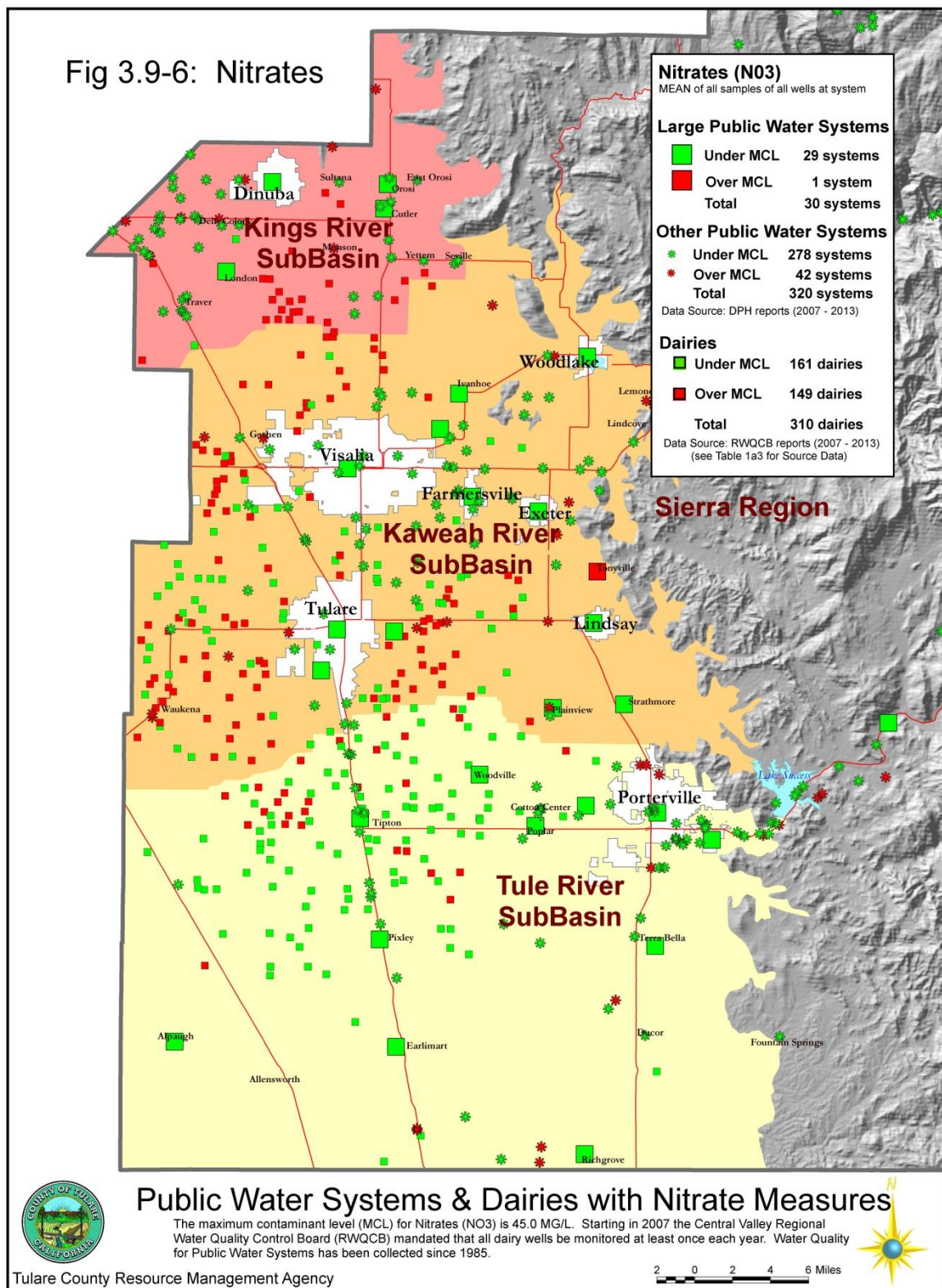
Response: As described in Responses to Comments 4a-49 through 4a-52, testing for antibiotics and hormones is not necessary to prevent significant water quality impacts. Such monitoring, if deemed essential by the CVRWQCB, would most efficiently be incorporated into an amendment to the 2013 General Order MRP and future WDRs and County regulations (see Master Response 3).

Other Mitigations¹³

Comment 4a-64: *Based on the information referred to above, the EIR should require as a mitigation measure that antibiotics be used only for therapeutic reasons, not as a preventative measure of for increasing milk or beef production. The use of hormone growth promoters should be banned.*

Response: Please see Master Response 4 and Responses to Comments 4a-49 through 4a-52 for a discussion of these concerns. Because there are no significant water quality impacts associated with antibiotics and hormones under the proposed ACFP, no mitigation measures are required. Also, the federal Food and Drug Administration (FDA) expertise has taken the lead on national approaches to regulating bovine antibiotics and hormones,²⁰ and the County recognizes FDA's expertise on these topics.

Fig 3.9-6: Nitrates



Comment 4a-65: *According to the Harter Report cited in the EIR, "Nitrate loading reductions are possible, some at modest cost." (EIR, page 3.9-30) The EIR goes on to state only a couple of these measures, " 'pump-and-fertilize' and improved groundwater recharge management are less costly long-term alternatives." (ibid) Has the EIR incorporated all the "modest cost" mitigation measures included in the Harter Report?*

Response: The information quoted from the Draft EIR is taken out of context. The following sentence in the Draft EIR states that “[L]arge reductions of nitrate loads to groundwater can have substantial economic cost.” The Draft EIR on p. 3.9-31 describes the measures from the Harter report that the CVRWQCB requires for Tulare County dairy farms; the Draft EIR “incorporates” these measures through CVRWQCB regulatory requirements that are integrated into the water quality impact analysis.

Comment 4a-66: *In what the EIR refers to as the Expert Panel Report, the report endorses a program for minimizing nitrate loads to groundwater via improved irrigation efficiency and other practices with the goal of recording and reporting a ratio of "applied (to crops) nitrogen" divided by "removed" nitrogen (via harvest and nitrogen sequestered in wood of trees). The EIR should impose a mitigation measure stating that dairies may not apply manure or wastewater to farmlands until those farmlands have established a program to reach the goal stated above by establishing a proper ratio and monitoring to see that it is achieved as part of a dairy's Nutrient Management Plan (NMP).*

Response: General Order R5-2013-0122, Attachment C, requires that dairies submit and comply with a Nutrient Management Plan for all land owned, rented or leased for nutrient management. Properties offsite not so controlled but utilized for nutrient recycling must, by written agreement, use manure or process wastewater at agronomic rates. The essential components of the recommended mitigation are already in effect and implemented by the CVRWQCB’s 2013 General Order, whose requirements would be applied to new and expanded dairies. See ACFP Policy 2.4-1, as revised.

Comment 4a-67: *All wastewater lagoons for new and expanded dairies should adopt the Tier 1 Standards set by the Regional Water Quality Control Board. EIR page 3.9-33. This may mean retrofitting the existing dairies if they apply to expand their herds.*

Response: The 2013 General Order, whose requirements would be applied to new and expanded dairies, are intended to protect beneficial uses of groundwater by use of either Tier 1 or Tier 2 pond standards. The comment provides no evidence that Tier 1 standards are universally required to protect beneficial uses.

Enforcement¹³

Comment 4a-68: *The proposed mitigation measures for water quality will mean little unless the County adopts a stringent monitoring and enforcement plan to monitor and enforce those provisions. CEQA contains crucial guidance for monitoring and enforcement of mitigation measures.*

Response: Under CEQA, the Mitigation Monitoring and Reporting Program (MMRP) is adopted following EIR certification at the time CEQA findings are made. (Public Resources Code Section 21081.6(a).) Although an MMRP is not required to be included in an EIR, a draft MMRP has been included in this Final EIR to allow public review.

Comment 4a-69: *Section 21081.6 of the Public Resources Code gives important guidance, saying in relevant part:*

“(a) When making the findings required [to approve an EIR and the associated project] or when adopting a mitigated negative declaration...the following requirement shall apply:

*(1) The public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of approval, adopted in order to mitigate or avoid significant effects on the environment. **The reporting or monitoring program shall be designed to ensure compliance during project implementation.** For those changes which have been required or incorporated into the project at the request of a responsible agency or a public agency having jurisdiction by law over natural resources affected by the project, that agency shall, if so requested by the lead agency or a responsible agency, prepare and submit a proposed reporting or monitoring program.” [Emphasis added]*

Response: This comment recites CEQA requirements for an MMRP (not an EIR) and does not raise environmental issues related to EIR adequacy, so no further response is required.

Comment 4a-70: *The CEQA Guidelines clarify this further by stating:*

*“A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, **until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.**” CEQA Guidelines, Section 15097 (a) [emphasis added]*

Thus, even where a mitigation measure may fall under the purview of another governmental body – such as the Air Pollution Control District or the Regional Water Quality Control Board – there remains an independent requirement that the Lead Agency ensure that mitigation measures are, in fact, completed.

Response: This comment recites CEQA requirements for an MMRP (not an EIR) and does not raise environmental issues related to EIR adequacy, so no further response is required. The Draft MMRP included in the Final EIR (Appendix C) meets CEQA requirements. It does not delegate monitoring of any EIR mitigation measures to other agencies, so the comment is not relevant. Also, please see responses to comments 4a-76 through 4a-84 regarding County monitoring and enforcement. It should be noted that some of the EIR mitigation measures that the County will be

monitoring do require compliance with regulatory requirements of other agencies; such regulatory compliance can serve as adequate CEQA mitigation. See *Tracy First v. City of Tracy* (2009) 177 Cal.App. 4th 912.

Comment 4a-71: *Section 21081.6 goes on to state that the adopted mitigation measures must be enforceable:*

“(b) A public agency shall provide that measures to mitigate or avoid significant effects on the environment are fully enforceable through permit conditions, agreements, or other measures. Conditions of project approval may be set forth in referenced documents which address required mitigation measures, or, in the case of the adoption of a plan, policy, regulation, or other public project, by incorporating the mitigation measures into the plan, policy, regulation, or project design.”

Response: The Draft EIR’s mitigation measures meet CEQA requirements for enforceability, and the comment does not allege that any particular Draft EIR mitigation measures are not enforceable. Project-specific mitigation measures would be implemented and enforced through either a streamlined Conformance Checklist Review process for eligible facility expansions (ACFP Policy 2.5-3, or a special use permit process for new facilities or expanded facilities not eligible for streamlined approvals. Also, please see responses to comments 4a-76 through 4a-84 regarding County monitoring and enforcement.

Comment 4a-72: *Finally, the CEQA Guidelines again emphasize the need for solid enforcement of mitigation measures by stating:*

“Reporting and monitoring are suited to all but the most simple projects. Monitoring ensures that project compliance is checked on a regular basis during and, if necessary after, implementation. Reporting ensures that the approving agency is informed of compliance with mitigation requirements.” (Guidelines, Section 15097 (c)(3))

Response: This comment recites CEQA requirements for a MMRP (not an EIR) and does not raise environmental issues related to EIR adequacy, so no further response is required. The Draft MMRP included in the Final EIR (Appendix C) meets CEQA requirements. Also, please see responses to comments 4a-76 through 4a-84 regarding County monitoring and enforcement.

Comment 4a-73: *In short, Public Resources Code Section 21081 requires a mitigation monitoring or reporting plan and "periodic reports" in order to "ensure" that mitigations required of a given development project are in fact implemented successfully. Clearly, the existence of an adequate system to monitor and enforce the required mitigation measures is necessary to ensure the public that those mitigation measures imposed on a development are completed.*

Response: This comment recites CEQA requirements for a MMRP (not an EIR) and does not raise environmental issues related to EIR adequacy, so no further response is required. The Draft

MMRP included in the Final EIR (Appendix C) meets CEQA requirements. Also, please see responses to comments 4a-76 through 4a-84 regarding County monitoring and enforcement.

Comment 4a-74: *Pursuant to PRC 21081.6, the County may not approve the project without concurrently adopting a mitigation monitoring and enforcement plan that has been fully vetted through the EIR process. The County may not abrogate this responsibility simply by promising that it will draft a Mitigation Monitoring and Reporting Plan (MMRP) in the future. Even if this approach was lawful under CEQA (which it is not) MMRPs do not lend themselves to public comment (i.e. they are not part of the EIR itself) and are typically released to the public only shortly before a final decision on a project or program. Thus the public does not typically get answers to questions about monitoring, reporting, and enforcement.*

Response: The County will adopt an MMRP at the time CEQA findings are made for the proposed Program Final EIR. Although an MMRP is not required to be included in an EIR, a draft MMRP meeting CEQA requirements has been included in this Final EIR (Appendix C) to allow public review. Also, please see responses to comments 4a-76 through 4a-84 regarding County monitoring and enforcement.

Comment 4a-75:

- *Please describe the County's current method of mitigation monitoring for dairies and feedlots.*

Response: Comments 75-83 do not raise environmental issues related to EIR adequacy, and no response is required. Nevertheless, Tulare County staff have provided responses to Comments 4a-75 through 4a-83 regarding County enforcement procedures.

Tulare County has a three-part dairy monitoring process that would continue under the proposed ACFP:

1. Annual Compliance Reporting: This is a “self-reporting” form which is submitted to the County on an annual basis as approved by the Tulare County Board of Supervisors Resolution Number 2000-258 and Tulare County Planning Commission Resolution Number 7839, Section C, Number 8 & 9. County staff then reviews and utilizes the information to review for compliance with permit requirements. Form information is also verified via on-site inspections. Additionally, for facilities with approved use permits, regular compliance reviews have been submitted to the Planning Commission for review and approval.
2. Physical Inspections: Inspections are set up to occur once every five years for a facility unless they fail to submit an Annual Compliance Report or if code enforcement complaints are received, including non-compliance or complaints received from other regulatory agencies.
3. Code Enforcement: Code enforcement is currently driven by complaints from the general public or by other regulatory agencies. Such complaints can lead to an administrative hearing and may include a code compliance agreement or placement of a lien on the property. For facilities being approved by use permit, a condition of approval is that the facility must comply with the mitigation measures approved for the project.

Comment 4a-76:

- *Does the County have a funding mechanism in place to ensure that lack of staff resources will not be an excuse for poor follow-through in mitigation monitoring? Please describe the County staff's ability to review all Annual Compliance Reports, Nutrient Management Plans, Corrective Action Plans, and other documents required to be submitted by the dairies and feedlots.*

Response: Existing funding mechanisms that would continue under the proposed ACFP are as follows. The applicant is required to submit a compliance monitoring deposit prior to approval. Additionally, fees are collected through the Annual Compliance Reporting process to offset the cost of reviewing the reports and determining compliance. These fees were authorized by Tulare County Board of Supervisors Resolution No. 2003-0556, and are updated annually with the Planning and Building Fees. Additionally, Sections 8 and Section 9 of Tulare County Ordinance Number 3285 fund and implement compliance activities for the dairy regulatory program. County staffing is sufficient to review the documents submitted.

Comment 4a-77:

- *Will the County agree to monitor and enforce mitigation measures utilizing a cost recovery system, thus requiring the project applicants to pay for adequate oversight?*

Response: Existing cost recovery systems that would continue under the proposed ACFP are as follows. As discussed in Response to Comment 4a-76, the County already has a mechanism in place in which the applicant is required to submit a compliance monitoring deposit prior to project approval and subject to additional fees through compliance monitoring. Additionally, fees are already collected through the Annual Compliance Reporting process to offset the cost of reviewing the reports and determining compliance. Additionally, Sections 8 and Section 9 of Tulare County Ordinance Number 3285 already fund and implement compliance activities for the dairy regulatory program.

Comment 4a-78:

- *What legal mechanisms does the County have in place to address problems with mitigation implementation or permit compliance? For example, can the County fine the developer, call the permit up for modification or revocation, or issue a stop-work order? Please list the possible enforcement mechanisms.*

Response: As indicated previously, the County has the ability to issue stop-work notices through code enforcement for buildings or uses that have occurred without approved permits. These violations can be brought forward to an administrative hearing or in cases of serious non-compliance, through a revocation as outlined under "Revocations and Modifications" in Section 18 of the Tulare County Zoning Ordinance, Ordinance Number 352. The County has adopted a fees schedule, which is updated annually, that enables the ability to "double fee" permits for applicants that have built structures or started/expanded uses without the proper permitting. The

most recent Planning and Development Fee Schedule was effective July 1, 2016, adopted by Tulare County Board of Supervisors Resolution Number 2016-0280.

Also, if non-compliance is not corrected, then administrative code enforcement hearings or a revocation hearing can be utilized consistent with due process requirements. Please see Tulare County Ordinance Code, Part I, Chapter 23, which applies to zoning ordinance violations, including special use permit conditions, and provides for the imposition of administrative fines. These procedures (including notices of violation and appeals) were most recently amended by an ordinance adopted on March 29, 2016.

Comment 4a-79:

- *If an Annual Compliance Report or other required document is not submitted, what will the County do to ensure the information is obtained in a timely manner?*

Response: Please see Responses to Comments 4a-75 through 4a-78. The County has actively reviewed and encouraged the submittal of Annual Compliance Reports in a timely manner. County staff follows up with a site visit requesting the form be turned in. There is typically a high response rate from animal confinement facilities. Tulare County received 95% (289) Annual Compliance Reports for 2011, 90% (272) Annual Compliance Reports for 2012, 85% (256) Annual Compliance Reports for 2013, and 87% (263) Annual Compliance Reports for 2014). Inspections are prioritized for facilities that do not report to ensure that facilities are maintaining compliance with reporting requirements. These procedures would continue under the proposed ACFP.

Comment 4a-80:

- *If a mitigation measure is not performed, or is not performed adequately, what will the County do to ensure that the problem is corrected?*

Response: Please see Responses to Comments 4a-75 through 4a-78. There are several forms of enforcement to ensure adequate implementation mitigation measures. The first approach (and most common) is to address non-compliance issues through the code-enforcement process. Additionally, if non-compliance is not corrected, then administrative code enforcement hearings or revocation hearings can be utilized, as outlined under “Revocations and Modifications” in Section 18 of the Tulare County Zoning Ordinance, Ordinance Number 352. These procedures would continue under the proposed ACFP.

Comment 4a-81:

- *If a project requires subsequent approvals from the County (e.g. a grading permit), what will the County do to ensure that the mitigation measures contained in the CEQA documentation and/or MMRP are incorporated into future project approvals?*

Response: County permitting staff reviews subsequent approvals, such as building permits, for consistency with previous planning and environmental approvals. As part of the review process, planning staff identifies what additional planning review has occurred and what zoning and

regulations apply to the site. Building permits include attached project documentation including the approval resolution, conditions of approval, and any additional mitigation monitoring program/plan. Before a building permit is issued all conditions must be complied with unless the condition or measure specifically indicates otherwise. The County also ensures that regulatory agency requirements are implemented before a building permit is issued.

Comment 4a-82:

- *Has the County ever issued a fine to a dairy or feedlot for noncompliance with permit conditions or for air or water quality violations?*

Response: The CVRWQCB and SJVAPCD have issued fines for noncompliance with their respective regulatory requirements. The County's goal is to coordinate inspections and enforcement with other regulatory agencies. The County has an active code enforcement program. Dairies and feedlots that have been non-compliant have been required to correct the issues identified. Additionally, code compliance agreements and liens have been utilized to obtain abatement. Aside from County reviews and inspections, other agencies (e.g., CVRWQCB, Irrigation Districts, SJVAPCD) regularly submit their enforcement letters, photos and documentation.

Comment 4a-83:

- *How will the County make available the compliance information submitted by dairies and feedlots? The EIR should specify that these reports be submitted electronically and are posted to the RMA's website in a manner easily accessible to the public.*

Response: The County updated the electronic permitting system in November 2015. County staff is currently building an electronic database to allow permitting information to be available electronically. It is a goal to also create a system where applicants can submit the Annual Reporting Information electronically through the County Website. When completed, records will be made available to the public as required by law. Until the electronic database has been completed, facility public records are available to the public as required by law.

Comment 4a-84: *The County, as Lead Agency, may not exclusively rely on the RWQCB to monitor and enforce water quality issues. As the County is undoubtedly aware, overwhelming evidence shows the RWQCB has an extremely poor track record of monitoring and enforcing the applicable its own permits, as well as law and regulations.*

As the FWW report details, on many occasions the agency sent out multiple notices of violation but did not levy fines or take further corrective actions to bring the violators into compliance.

Response: Please see Master Response 3 regarding the adequacy of CVRWQCB enforcement of the General Order. The County does not agree that there is "overwhelming evidence" that enforcement under the past or current (2013) General Orders is deficient.

CVRWQCB enforcement processes are described on Draft EIR p. 3.9-6. The comment, and the Food and Water Watch (FWW) report upon which it is based, addresses inspection, monitoring, and enforcement under an outdated 2007 General Order for existing dairies. It does not address inspection, monitoring, and enforcement under the reissued 2013 General Order. The criticisms of the CVRWQCB's enforcement are based on outdated, selective, and anecdotal observations. The May 6, 2016 letter from the CVRWQCB⁵ indicates the following:

- The commenter's conclusions were based on the first two years of General Order implementation, and the General Order is currently in its ninth year of implementation.
- During this time, the CVRWQCB staff has taken enforcement actions on nearly 1400 violations through issuance of Notices of Violation, and review of information submitted from dairy dischargers in response to the Notices. A number of these violations have resulted in further enforcement actions such as cleanup and abatement orders, investigations under Water Code Section 13267, fines, and in one case closure of a dairy referenced by the FWW report.

In addition, under Mitigation Measure 3.9-1, the County does have a proposed secondary enforcement role. The mitigation measure requires, as a component of the ACFP Annual Compliance Report, owners to submit evidence of compliance with all pertinent CVRWQB regulations and WDRs. If there is evidence of non-compliance, the County will notify the CVRWQCB and require the owner to submit a Corrective Action Plan. Regarding County enforcement in general, please see Responses to Comments 4a-75 through 4a-78.

Comment 4a-85: *In regards to the General Order applying to dairies, the FWW Report notes, at pages 17-18, that while the General Order allows the RWQCB to require dairies with high nitrate levels or other factors such as proximity to a private or municipal well to install a network of monitoring wells, and promises that 100-200 dairies a year would be enrolled in this program, as of 2011, only 75 dairies had received an order to comply with this provision of the General Order, and of 36 dairies in the Fresno region, none had in fact done so. This evidence shows the RWQCB does not have the ability or will (or both) to ensure dairies do not diminish the quality of water in Tulare.*

Response: Please see Master Response 3 and Response to Comment 4a-84 regarding the adequacy of CVRWQCB enforcement of the General Order. The 2011 data presented in this comment does not, in 2016, reflect the current status of CVRWQCB implementation of General Order R5-2013-0122 (adopted in 2013), and related regulations. The comment does not raise an environmental issue related to EIR adequacy, and no further response is required

Comment 4a-86: *Moreover, according to Food and Water Watch, the Regional Board could only provide data for nitrates, although wells are required to test for salts as well. (FWW Report, page 17). Also according to FWW's research, as of 2010, the Regional Board has **never** issued a cleanup and abatement order to a violating dairy.*

Response: Please see Master Response 3 and Response to Comment 4a-84 regarding the adequacy of CVRWQCB enforcement of the General Order. Again, the quoted 2010 is outdated and does

not reflect the current status of CVRWQCB implementation of 2013 General Order. Some of the “salts” data reflected in the Draft EIR contaminant mapping (Figures 3.9-8, 3.9-9, 3.9-10) was obtained from CVRWQCB-supplied records. The comment does not raise an environmental issue related to EIR adequacy, and no further response is required

Comment 4a-87: *Food and Water Watch noted that after inspections, where a violation is found, more than two years can pass before any remedial action is taken. Some of the examples of lax enforcement uncovered by Food and Water Watch are alarming, such as a dairy that was discharging wastewater to surface waters and was then reported by a neighbor. 27 years later, no corrective action had been taken.*

Response: Please see Master Response 3 and Response to Comment 4a-84 regarding the adequacy of CVRWQCB enforcement of the General Order. The comment does not raise an environmental issue related to EIR adequacy, and no further response is required.

Comment 4a-88: *Reporting from 1,412 dairies in 2007 showed that 60% of dairies had wells in excess of drinking water standards nitrates and 40% of dairies had at least twice the 10 mg/l standard, yet none of the dairies were fined for their exceedances or required to take remedial actions.*

Response: Please see Master Response 3 and Response to Comment 4a-84 regarding the adequacy of CVRWQCB enforcement of the General Order. The comment does not raise an environmental issue related to EIR adequacy, and no further response is required.

Comment 4a-89: *The Food and Water Watch report concludes, "As of this writing [2011], we have no sense of the effectiveness of the General Order since no monitoring has been conducted, apart from that done by dairies on their existing wells."*

Response: Please see Master Response 3 and Response to Comment 4a-84 regarding the adequacy of CVRWQCB enforcement of the General Order. The observation does not raise an environmental issue related to EIR adequacy, and no further response is required.

Comment 4a-90: *In short, reliance on the Regional Water Quality Control Board to monitor and enforce the laws regarding water quality at dairy and feedlots facilities does not meet the CEQA standard of having a program to “ensure” that all adopted mitigation measures are properly implemented.*

Response: Please see Master Response 3 and Response to Comment 4a-84 regarding the adequacy of CVRWQCB enforcement of the General Order. CVRWQCB regulatory requirements are integrated directly into the water quality impact analysis, and are not stand-alone EIR mitigation measures. Mitigation Measure #3.9.1 requires the County to review ACFP Annual Compliance reports; if there is evidence of noncompliance with CVRWQCB requirements, the County will require the owner to submit a Corrective Action Plan. The draft MMRP describes the process the County will use to monitor implementation of this mitigation measure.

Comment 4a-91: *The County should establish such a program on a cost-recovery basis, so as to ensure that adequate resources are available to meet the County's commitments. The County should then make clear what the consequences will be for noncompliance with permitted standards or for missing documentation (e.g. first a notice of violation, then escalating fines).*

Response: Responses to Comments 4a-75 through 4a-83 describe County enforcement procedures.

Comment 4a-92: *The EIR should analyze whether paving the areas of their facilities where cattle congregate (e.g. the freestall) would allow for better manure management and thus reduced water quality impacts. Would doing so also reduce PM10 and PM2.5 emissions?*

Response: The lack of appropriate bedding, with concomitant decreased cow health and milk production with the likelihood of hard-surface related hoof disease makes this suggestion infeasible.²¹ Bedding may be organic (sawdust, wood shavings, straw or composted manure solids) sand, or specially designed mattresses. Failure to provide and properly maintain bedding may result in clinical mastitis. Therefore, the Draft EIR did not include this suggestion as a potentially feasible mitigation measure.

Comment 4a-93: *In Table 3.3-8, the numbers for NOx emissions do not add up correctly.*

Response: Table 3.3-8 has been corrected. The total NOx is 1,188.

Facilities Location¹³

Comment 4a-94: *The siting of dairies should take into effect the few remaining wetlands in the County. In particular, the Pixley National Wildlife Refuge gets much of its water from groundwater wells. Dairies should not be located in areas where they can pollute the Refuge or other wetland or other biologically sensitive areas in the County.*

Response: The comment presents no evidence that dairies would be proposed for siting near Pixley National Wildlife Refuge or other biologically sensitive areas. Impact #3.42 discusses at a programmatic level the potential for dairies and other bovine facilities to have effects on sensitive natural communities, and Mitigation Measure #3.4.2 presents measures to avoid or reduce such impacts.

Air Quality¹³

Comment 4a-95: *The EIR notes that the Valley floor of Tulare County has only one air quality monitoring site, that being in the city of Visalia. This is inadequate to gauge air pollutants, especially PM10 and PM2.5, in the areas where dairies are concentrated. The County should work with the APCD to establish one or more air monitors in close proximity to areas of the County where dairies are common. Those monitors should also test for non-criteria pollutants ammonia and methane.*

Response: Draft EIR pages 3.3-12 and 3.3-13 discuss air quality monitoring data at the Visalia station. The issue of whether Visalia air quality monitoring data precisely represent particulate levels near dairies is not directly relevant to the EIR air quality impact analysis, since SCVAPCD mass emissions thresholds are used to determine impact significance. Using these thresholds, Impact #3.3.2 determines that emissions of PM₁₀ and PM_{2.5} under the proposed Program are significant.

Also, please note that the SJVAPCD monitoring network is focused on meeting regulatory monitoring requirements, and is focused on measuring ambient air quality conditions, not emissions from specific sources. The SJVAPCD monitoring network has been deemed adequate by EPA to meet all requirements in Tulare County.

Comment 4a-96: *To reduce fugitive dust, the EIR should analyze a requirement that dairies and feedlots pave their roads, up to the point where a public paved road exists.*

Response: Table 3.3-8 illustrates the minimal PM₁₀/PM_{2.5} impact of “Dairy Unpaved Road Dust”, and thus the lack of cost-effectiveness in reducing fugitive dust with such a pavement requirement. In addition, SJVAPCD Regulation VIII (Fugitive Dust Prohibitions) has provisions to limit fugitive dust emissions from unpaved roads (see Draft EIR p. 3.3-7. Dust control at agricultural facilities is addressed by District Rule 4550 (Conservation Management Practices) and District Rule 8081 (Agricultural Sources).

Conclusion¹³

Comment 4a-97: *As discussed above, there are numerous ways in which the DEIR and CAP should be changed, both to satisfy the requirements of the law and, more importantly, to better address the serious environmental impacts this industry brings to the County.*

Response: The comment does not identify any specific new alleged deficiencies in the Draft EIR or Draft Dairy CAP. As discussed in response to preceding comments, the Draft EIR and Draft Dairy CAP do meet applicable legal requirements and make substantial progress in reducing the potential for adverse environmental impacts caused by new or expanded dairies and other bovine facilities.

Asian Pacific Environmental Network – Association of Irrigated Residents
California Environmental Justice Alliance (CEJA) – Center for Community Action
and Environmental Justice – Center on Race, Poverty & the Environment
Central Valley Air Quality Coalition – Central California Environmental Justice
Network – Clean Water and Air Matter – Committee for a Better Shafter
Communities for a Better Environment – Food & Water Watch
Global Community Monitor – Institute for Agricultural and Trade Policy
Iowa Citizens for Community Improvement – Merced Bicycle Coalition
Dr. David Pepper – Physicians for Social Responsibility Los Angeles
Sierra Club California – Socially Responsible Agriculture Project

June 10, 2015

Via Electronic Mail

Ryan McCarthy
Craig Segall
California Air Resources Board
1001 I Street
Sacramento, CA 95814
ryan.mccarthy@arb.ca.gov
craig.segall@arb.ca.gov

**Re: Comments on Short Lived Climate Pollutant Reduction Strategy Concept
Paper**

4b-1

Pursuant to Senate Bill 605 (Lara), the Air Resources Board has released the Short Lived Climate Pollutant Reduction Strategy Concept Paper (hereafter “Concept Paper”) to discuss potential strategies which the Board would evaluate for inclusion in the Short Lived Climate Pollutant Reduction Strategy. These comments on the Concept Paper are submitted on behalf of the Asian Pacific Environmental Network, Association of Irrigated Residents, California Environmental Justice Alliance (CEJA), Center for Community Action and Environmental Justice, Center on Race, Poverty & the Environment, Central Valley Air Quality Coalition, Central California Environmental Justice Network, Clean Water and Air Matter, Committee for a Better Shafter, Communities for a Better Environment, Food & Water Watch, Global Community Monitor, Institute for Agricultural and Trade Policy, Iowa Citizens for Community Improvement, Merced Bicycle Coalition, Dr. David Pepper, Physicians for Social Responsibility – Los Angeles, Sierra Club California, and the Socially Responsible Agriculture Project.

California Dairies account for sixty percent of California's methane emissions.¹ In the San Joaquin Valley, *at least* eighty-seven percent of methane emissions are from dairy (and other cattle) operations.² As a result, the Board should ensure that dairies do their fair share to reduce methane emissions and should not avoid regulation, which would unfairly place a greater reduction burden on other sources of greenhouse gases. Given the dire need to stabilize our climate, California has taken the lead by adopting Assembly Bill 32, the California Global Warming Solutions Act, to reduce greenhouse gases by twenty percent below 1990 levels. On April 29, 2015, Governor Brown adopted Executive Order B-30-15 calling for even greater reductions – forty percent by 2030 – and leaders in the California Senate have proposed even more aggressive policy to decarbonize our energy and transportation systems.³

The Concept Paper discussed covered lagoons and manure scraping as strategies for reducing manure-based methane emissions, which represents roughly thirty percent of California's total methane emissions.⁴ The Paper also briefly addressed breeding and dietary strategies for controlling enteric methane emissions, which also account for roughly thirty percent of total emissions.⁵

We urge the Air Resources Board to investigate and include additional control options in the Strategy. First, there is no reason why the Board should not evaluate and consider a decarbonized dairy industry, especially when other carbon-intensive sectors of the California economy must transition if California is to achieve proposed targets above and beyond AB 32. Pasture-based dairy systems provide multiple benefits, including avoiding methane production from anaerobic decomposition, carbon sequestration, lower cow density per acre (causing less enteric emissions), reduced water consumption, and improved animal welfare conditions for dairy cattle. Second, the Board should investigate and consider the use of biofilters/bioreactors combined with enclosed freestall barns to capture and treat methane and volatile organic compound (VOC) emissions. Biofiltration has been achieved in practice to treat methane and VOC emissions. Given the very large methane and VOC emissions reduction potential from freestall barns, the Board should thoroughly investigate and determine cost-effectiveness in the context of current and proposed climate stabilization goals.

In developing the strategy, the state board shall do all of the following:

- (1) Complete an inventory of sources and emissions of short-lived climate pollutants in the state based on available data;
- (2) Identify research needs to address any data gaps;
- (3) Identify existing and potential new control measures to reduce emissions;

¹ Short Lived Climate Pollutant Reduction Strategy, Concept Paper at 21 (hereafter "Concept Paper").

² D.R. Genter, et al., Emissions of organic carbon and methane from petroleum and dairy operations in California's San Joaquin Valley, *Atmos. Chem. Phys.*, 14, 4955–4978 (2014).

³ See, e.g., Senate Bill 350 (De León); Senate Bill 32 (Pavley) (setting targets of 80% below 1990 levels by 2050).

⁴ Concept Paper at 21.

⁵ Concept Paper at 21-22.

- (4) Prioritize the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities, as identified pursuant to Section 39711; and
- (5) Coordinate with other state agencies and districts to develop measures identified as part of the comprehensive strategy.

Health & Safety Code § 39730(a). Given this legislative direction, the Board should investigate the environmental, economic, and co-benefits of pasture-based and enclosed barn control measures.

I. Pasture-Based Dairy Operations Provide Significant Environmental and Economic Benefits.

The Concept Paper declined to discuss pasture-based dairying as an option, even though dairies in California have successfully operated pasture-based systems for years. Only in the last several decades has a highly intensive, confinement system evolved to mostly displace pasture-based dairy farming. The Board should evaluate pasture-based dairy systems and include them in the strategy because they present multiple co-benefits in addition to substantially reducing methane emissions.

4b-2

At the Public Workshop on May 27, 2015, dairy industry representatives sought public subsidies, including funding from the Greenhouse Gas Reduction Fund, for anaerobic digesters. To the extent the Board relies on incentive funding, such incentives should be instead directed towards dairy producers who operate pasture-based systems and confinement operators who transition to pasture-based systems because of the multiple co-benefits discussed below. For the reasons stated in Section II, *infra*, anaerobic digesters do not provide co-benefits, but instead contribute criteria pollutant emissions in nonattainment air basins like the San Joaquin Valley, and should thus not receive incentive funding. The Legislature specifically directed the Board to “[p]rioritize the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities.” Health & Safety Code § 39730(a)(4). Prioritizing incentives for pasture-based systems meets this legislative directive.

Also at the public workshop, ARB staff stated that ARB has not determined how to consider control measures’ cost effectiveness when measures have multiple benefits, and asked the public to provide methodology. The Center on Race, Poverty & the Environment stands ready to work with staff during the development of the Strategy to ensure that the multiple benefits documented below and in Section II appropriately weigh such co-benefits.

A. Environmental Benefits of Pasture-Based Systems.

4b-3

While beef and dairy production are the most energy intensive of all animal products, contributing 65 percent of livestock sector GHG emissions,⁶ some reports now suggest that grass-fed ruminant livestock may be a less carbon-intensive, carbon-neutral, or even a carbon sequestering management system for ruminant livestock. This is because grasslands can, when properly managed, sequester carbon dioxide from the atmosphere. It is also because the manure management on pasture avoids anaerobic methane emissions created in lagoon-based confinement systems and nitrous oxide emissions from liquid manure applications for on-farm nitrogen disposal and feed production. This means pasture-based systems drastically reduce greenhouse gas emission and have the potential to actually offset emissions, creating a carbon sink.

4b-4

First, when assessing the environmental benefits of pasture-based systems viewed in light of existing science and identifying data gaps, the Board must account for the fact that all analyses draw a box around what activities studies include in emission assessments and what activities are not included. For example, in 2012 the EPA estimated that all agriculture in the U.S. accounted for 8.1 percent of total U.S. GHG emissions. However, this estimate did not include emissions from land-use change (growing and transporting feed crops) because those are allocated to a different sector.⁷ On the opposite end of the spectrum, the World Watch Institute's 2009 global assessment of livestock production's impact on GHG emissions ranges up to 51 percent, and includes carbon dioxide emitted in respiration from animals and loss of photosynthetic absorption of carbon dioxide from plant destruction.⁸ A life cycle analysis examines the environmental impacts associated with the entire production of a particular product. An effective Strategy should address as many emissions points and opportunities for mitigation during the full lifecycle of California dairy production.

Pasture-based systems most directly reduce methane emissions because methane emissions from manure – thirty percent of total California emissions – come from anaerobic manure decomposition in waste lagoons.⁹ Methane is emitted when manure is stored in water, because the anaerobic environment lacks oxygen. The most common liquid condition is the waste lagoon, found on most California confinement (non-pasture) systems. For instance, emissions from dairy cow manure management in the U.S. increased by 115 percent from 1990 to 2012 because of the increased usage of waste lagoon systems.¹⁰ Mostly due to this increase (the other large increase in emissions was from swine, which increased by 53 percent), overall

⁶ Gerber, P.J., Steinfeld, H., Henderson, B., Mottet, A., Opio, C., Dijkman, J., Falcucci, A. & Tempio, G. 2013. *Tackling climate change through livestock – A global assessment of emissions and mitigation opportunities*. Rome: Food and Agriculture Organization of the United Nations (FAO), xii.

⁷ US EPA. (5 August 2014). Life Cycle Assessment (LCA). Retrieved from <http://www.epa.gov/nrmrl/std/lca/lca.html>.

⁸ Gerber et al. (2013), 15.

⁹ Steinfeld, Henning, Pierre Gerber, Tom Wassenaar, Vincent Castel, Mauricio Rosales, Cees de Haan. (2006). *Livestock's Long Shadow: environmental issues and options*. Rome: FAO, 97.

¹⁰ Gerber et al. (2013), 27.

- methane emissions from manure in the U.S. grew by 68 percent, and account for about half of all dairy methane emissions.¹¹ When stored in dry conditions, as is more common on extensive and alternative production systems, including pasture-based and dry-stack systems, manure emits little methane.
- 4b-5 Pasture-based systems not only remove the need for liquid waste storage, but they also provide two additional environmental benefits: reduction in greenhouse gas emissions from feed production, and creating a net sink through carbon sequestration. Globally, the production, processing, and transport of feed accounts for 45 percent of the industrial animal emissions. Half of these emissions are from synthetic fertilizer use, one quarter are from land-use change, and one quarter are from manure used as fertilizer.¹² The shift to pasture-based systems reduces the need for on-site feed production (for nitrogen disposal) and off-site feed production and therefore substantially reduces GHGs.
- 4b-6 Estimates for the potential of carbon sequestration in grasslands vary widely (especially at the global scale). This is primarily because farmers and land managers use a wide range of management practices. One 2010 report estimated that properly managed grasslands could sequester as much as 0.7 Gt CO₂ from the atmosphere.¹³ Another study reported potential sequestration of up to 88 to 210 Gt CO₂ in grasslands over a 25 to 30 year period.¹⁴ The UN FAO reports on grassland management assert grasslands could sequester .81-1.51 Gt CO₂.^{15,16} A recent study finds that converting to pastures managed using intensive grazing principles can capture up to 8 metric tons of carbon per hectare, or 3.6 tons per acre per year in the soil.¹⁷ Grasslands can also act as a methane sink when managed properly. The average methane uptake of grasslands is not well documented, though a recent study measured uptake at a range between 0.05 to .12 tons CO₂ equivalent per hectare per year.¹⁸
- 4b-7 Pasture-based systems stock fewer cows per acre than confinement systems, which reduces enteric emissions. “The amount of methane emitted by animals is directly related to the number of animals, so that a more intensive farm will have higher emissions, though the

¹¹ US EPA (2014), *U.S. Inventory of Greenhouse Gas Emissions and Sinks: 1990-2012*, 6-9.

¹² Gerber et al. (2013), 17.

¹³ Conant, R.T., 2010. *Challenges and Opportunities for Carbon Sequestration in Grassland Systems: A Technical Report on Grassland Management and Climate Change Mitigation*. FAO. Vol. 9: 3, 14.

¹⁴ S. Itzkan, *The Potential of Restorative Grazing to Mitigate Global Warming by Increasing Carbon Capture on Grasslands* (2014), 7.

¹⁵ Milne, Elinor, Aspinall, R., Veldkamp, T. (2014). Landscape Ecology v.24:9, Integrated modelling of natural and social systems in land change science, 1145-1147.

¹⁶ Gerber et al. (2013), 53.

¹⁷ Machmuller, Megan B., et al., Emerging land use practices rapidly increase soil organic matter, *Nat Commun*, Vol. 6 (2015).

¹⁸ DeLonge, Marcia, Justine J. Owen, and Whendee Silver (2014). *Greenhouse Gas Mitigation Opportunities in California Agriculture: Review of California Rangeland Emissions and Mitigation Potential*. NI GGMOCA R 4. Durham, NC: Duke University, 12.

emissions per unit of product (e.g. meat, milk) might be lower.”¹⁹ Further, enteric emissions may decrease based on departing from silage and grain-based Total Mixed Rations and feeding more grass to dairy cows. For instance, EPA studies have shown that corn- and soybean-fed ruminants raised in confinement systems produce more methane than grazing livestock.²⁰

4b-8

Excess nitrogen from confined dairy systems is also a significant environmental concern, leading to nitrate contamination in groundwater.²¹ The Board should seek input from the State Water Board on pasture-based systems’ co-benefits to groundwater quality as nitrate mitigation.

B. Economic Benefits of Pasture-Based Systems.

4b-9

Given the directive in Health & Safety Code § 39730(a), the Board should thoroughly investigate the economic benefits of pasture-based systems. Incentivizing a shift to pasture-based dairy production brings with it an exciting opportunity for new economic benefits to be realized by producers as well as by California taxpayers. For producers making the move from confinement systems to pasture, there is a significant potential for lower overall costs of production. This begins with the cost of producing and transporting feed. Grazing on forage in well-managed pasture reduces the need to purchase feed. Unlike annual crops, perennial forage crops provide a long-term source of feed whose expense can be spread out over time. Nor is there as much need for capital investment in facilities and equipment, and far less handling and management of manure is required.²² And in many instances, pasture can be maintained without herbicides or commercial fertilizers.²³ Similarly, producers can avoid drug costs. Cows maintained on pasture have less need for antibiotics and other drugs that are routinely applied in a large-scale confinement operation (and that are contributing to the growing crisis of antibiotic

¹⁹ Greenpeace, Cool Farming: Climate impacts of agriculture and mitigation options, available at <http://eprints.lancs.ac.uk/68831/1/1111.pdf>

²⁰ U.S. Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–1996. Washington; U.S. Environmental Protection Agency, 1998, referenced in Koneswaran, Gowri, and Danielle Nierenberg. “Global Farm Animal Production and Global Warming: Impacting and Mitigating Climate Change.” Environmental Health Perspectives 116.5 (2008): 578-82.

²¹ California Water Boards, Recommendations Addressing Nitrate Contamination in Groundwater, 2013, available at http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/docs/nitrate_rpt.pdf.

²² See generally USDA NRCS, *Profitable Grazing-Based Dairy Systems*, Technical Note 1 (May 2007), at http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044245.pdf. See also <http://www.mofga.org/Publications/MaineOrganicFarmerGardener/Fall2003/Pasture/tabid/1454/Default.aspx>

²³ See, e.g., Animal Welfare Approved, *A Breath Fresh Air: The truth about pasture-based livestock production and environmental sustainability* 14.

resistance in people²⁴). Herds raised on pasture tend to be healthier than their intensively confined counterparts, which can translate to lower veterinary bills.²⁵ In other words, pasture is profitable.²⁶

The economic benefits to producers are not limited to avoided costs. High quality pasture-raised dairy can command a premium in the marketplace, rewarding more sustainable, animal- and environmentally friendly production practices. Consumers are also increasingly choosing pasture based or grass-fed options for their higher nutrient profiles and animal welfare practices. These trends are evidenced by significant growth in sales and market share of products displaying these claims. According to SPINS market data, leading brands with certified organic and grass-fed product labels grew by 80% between 2012-2014.²⁷ Animal products with claims of “pasture-raised,” better animal welfare practices and grass-fed grew by 24%, 23% and 55% respectively from 2012-2013. Even California’s own Annies has developed a grass-fed mac and cheese brand.²⁸

Given the many economic benefits, why would dairy farmers opt for confinement systems over grazing on pasture? According to USDA NRCS:

... [C]onfinement dairying is the only system many producers know. In spite of high debts and low profit margins resulting from increased mechanization and facilities costs and low milk prices, farmers are reluctant to try a grazing system and learn how to operate it. A mistake farmers sometimes make is to prolong the decision to switch to a grazing-based system until their debt margin is too great to be easily overcome, even with improved profitability.²⁹

²⁴ E.g., U.S. Centers for Disease Control and Prevention, *Antibiotic Resistance Threats in the United States* 36 (2013) (noting strong scientific evidence that antibiotic use in food-producing animals can harm public health).

²⁵ <http://extension.psu.edu/animals/dairy/nutrition/forages/pasture/articles-on-pasture-and-grazing/pasture-based-systems-for-dairy-cows-in-the-united-states>

²⁶ USDA NRCS, *Profitable Grazing-Based Dairy Systems*, Technical Note 1, at 8 (May 2007) (citing studies).

²⁷ SPINS Trend Watch, <http://www.spins.com/trends/protein-infographic.pdf>

²⁸ <http://consumergoods.edgl.com/news/Annie-s-Debuts-Grass-Fed-Mac---Cheese97937>

²⁹ USDA NRCS, *Profitable Grazing-Based Dairy Systems*, Technical Note 1, at 4 (May 2007).

“Lower milk production associated with grazing-based herds is the most frequently cited reason that some dairy producers do not adopt this system. The rationale does not necessarily consider both costs and return, however. Milk production levels at less than maximum can produce greater economic returns if costs are reduced significantly, as has been observed by some dairy farmers and economists. It really is more realistic to consider the optimum milk production level that will return the best economic results over input costs.” *Id.* at 5.

Moving to pasture to capture the economic benefits is not novel: for years, dairy farmers have embraced (or re-embraced) grazing to avoid the rising costs of inputs.³⁰

Additionally, each of the *environmental and natural resource benefits* from pasture-based dairy production also represents a further *economic benefit* to California and its taxpayers. Pollution of surface water, extensive nitrate groundwater contamination in the Central Valley, significant methane emissions, and high levels of water consumption are all components of the “true” cost of dairy production under the predominant confinement model. But because these impacts are externalized, they are not included in the price of dairy products; instead, they are left to be absorbed later by the taxpayer in the form of unwelcome social and environmental consequences, or cleanup costs. By contrast, a well-managed pasture system imposes no such involuntary costs on the public.

Benefits to public health are also available. A 2013 study published in PLoS ONE found that grass-fed organic dairy has far higher levels of Omega-3 fats than grain-fed dairy.³¹ Researchers at Washington State University recently found that organic cow’s milk contains 62% more omega-3 fatty acids and 25% less omega-6 fatty acids than conventional cow’s milk.³²

Economic challenges, solutions, and benefits associated with decarbonizing California dairy production should be thoroughly investigated and considered by the Board during the development of this Strategy.

C. Water Consumption Benefits of Pasture-Based Systems.

4b-10

An additional co-benefit of pasture-based systems is the potential to produce milk in California with less water demand, a critical co-benefit which the current drought aptly underscores. Given this historic drought and likely future climate disruption-related drought, water usage should be considered when evaluating various methane control strategies, including the benefits of pasture-based systems. It is true that pasture-based dairy farms in California rely on irrigated pasture during dry months, and the Board should consider the amount of water used for irrigated pasture. However, the Board should also weigh the water-intensive practices at confinement systems which, in addition to using water for feed and manure management, have higher per acre stocking rates than pasture systems, which equates to greater water consumption by dairy cattle. We provide the following to document water consumption and urge the Board to perform a full analysis when considering the feasibility of pasture-based systems as a methane control strategy.

³⁰ <http://extension.psu.edu/animals/dairy/nutrition/forages/pasture/articles-on-pasture-and-grazing/pasture-based-systems-for-dairy-cows-in-the-united-states>

³¹ Benbrook CM, Butler G, Latif MA, Leifert C, Davis DR. (2013). Organic Production Enhances Milk Nutritional Quality by Shifting Fatty Acid Composition: A United States-Wide, 18-Month Study. *PLoS One*.

³² Benbrook, C. (2014).

The total water consumed by confinement dairies varies significantly based on multiple factors. However, feeding confinement dairy cattle Total Mixed Rations (which includes feed grains and corn silage) involves more stages in the supply chain than pasture-raised cattle, with each stage consuming large amounts of water: irrigating feed crops, processing feed at mills, direct water consumption by cattle, and managing manure.^{33,34} Dairy cows raised on well-managed pasture, in contrast, require fewer inputs of feed grains, and manure is incorporated into the pasture system, rather than necessitating feed cropland as a nitrogen disposal system.³⁵

Researchers at the University of Twente in the Netherlands estimated that industrial milk production in the United States consumes 61,000 liters of surface and groundwater per ton of milk produced, roughly 30.5 gallons per pound.³⁶ The Water Education Foundation estimates that whole milk requires 90 gallons of water to produce one pound of milk.³⁷ The amount of water an individual confinement dairy cow consumes varies depending on temperature, conditions, age, and lactating status. Canadian estimates place dairy cattle consumption at an average of 1.3-3.5 gallons per day as calves, 3.8-9.7 gallons per day for heifers, and 34.9-40.9 gallons per day for milking cows at high production.³⁸ Penn State College of Agricultural Sciences estimates dry cows consume 9-13 gallons per day and a 1,350-pound Holstein cow producing 60 pounds of milk per day would have a total water intake of 30.6 gallons per day.³⁹

Additionally, raising dairy cattle in confinement systems involves large amounts of feed inputs such as grain and soy, which consume water during production and processing. Recommended daily rations for dairy cows often include corn, oats, barley, alfalfa hay, and soybean.⁴⁰ In California, producing corn silage requires 18.5 gallons of water per pound, corn grain requires 119 gallons of water per pound, oats 196.62 gallons, alfalfa hay 129 gallons,

³³ Australian Lot Feeders' Association. *Water*. Accessed on May 19, 2015. Available at: http://feedlots.com.au/index.php?option=com_content&view=article&id=93&Itemid=120.

³⁴ S. Gadberry. Water for Beef Cattle, Agriculture and Natural Resources FSA3021, University of Arkansas Division of Agriculture.

³⁵ 15 Cal. Code Regs. § 22563(a) ("Application of manure and wastewater to disposal fields or crop lands shall be at rates which are reasonable for the crop, soil, climate, special local situations, management system, and type of manure.")

³⁶ M.M Mekonnen & A.Y. Hoekstra. A Global Assessment of the Water Footprint of Farm Animal Products. 15 *Ecosystems*, 401. (2012). The figure was provided as 61 cubic metres per ton. 61 cubic metres = 61,000 litres.

³⁷ M. Keith. Water inputs in California food production. Sacramento, CA: Water Education Foundation. (1991).

³⁸ Ontario Ministry of Agriculture, Food and Rural Affairs. Water Requirements of Livestock Factsheet. (May 2007). Available at: <http://www.omafr.gov.on.ca/english/engineer/facts/07-023.htm>.

³⁹ Penn State, Water intake and quality for dairy cattle, available at <http://extension.psu.edu/animals/dairy/nutrition/nutrition-and-feeding/water-and-water-quality/water-intake-and-quality-for-dairy-cattle>

⁴⁰ L.I. Chiba. *Animal Nutrition Handbook Section 15: Dairy Cattle Nutrition and Feeding*. Auburn University. (2014).

soybeans 480.05 gallons, and barley 216.1 gallons of water.⁴¹ Estimates of the pounds of feed required per day for milking cows range from 55 to 66 pounds per day.^{42,43} Given the average water consumption of 193.23 gallons per pound for common feed inputs, the daily diet of a single milking cow at high production likely required over 10,000 gallons of water to produce. Estimates of water use during the milling stage are small—0.024 gallons per pound for corn, for example⁴⁴—but this amount adds up quickly in intensive systems.

Most models estimating total water consumption at dairies do not incorporate water usage associated with manure management in feedlot systems. Dairies employ different manure storage and management strategies and related water usage varies significantly, but the dominant confinement systems widely used in the San Joaquin Valley rely exclusively on liquefied manure management in lagoons. Lagoon systems are associated with the highest water consumption, used to flush manure from the freestall barns and milking parlors into the lagoon system. Lagoons have low cost, and the flushing systems (pipes, pumps, etc.) minimize the labor involved in transporting the manure.⁴⁵ Estimates of the amount of water used for flushing in lagoon systems can be easily determined by the Board. However, manure flushing and storage systems in pasture-based systems are either not necessary or drastically reduced in size, and thus the associated water consumption is avoided or substantially lessened.

II. The Board should Evaluate Biofilter Controls for Enteric Emissions at Freestall Barns in Confinement Systems.

4b-11

Assuming that the entire California dairy industry does not convert to pasture-based systems, the Board should require enclosed barns vented to biofilter treatment systems to significantly reduce enteric methane emissions from milk cows. The Concept Paper recognizes that enteric emissions account for roughly half of total dairy methane emissions – 30% of total statewide methane emissions – but does not evaluate the technological feasibility or cost-effectiveness of freestall barn enclosures with methane captured and vented to biofilters.⁴⁶ Given the legislative mandate in Senate Bill 605, as well as the massive statewide emissions of enteric methane, the Board should evaluate and include this mitigation in the Strategy.

⁴¹ M. Keith. Water inputs in California food production. Sacramento, CA: Water Education Foundation. (1991).

⁴² C. Benbrook. *Shades of Green: Quantifying the Benefits of Organic Dairy Production*. Ireland: The Organic Centre. (March 2009). 66.36 pounds of feed are required per day to sustain one milking cow in production for 365 days

⁴³ D. Fischer & M. Hutjens. How many pounds of feed does a cow eat in a day? University of Illinois Extension. (April 2007). Available at: <http://www.extension.org/pages/37808/how-many-pounds-of-feed-does-a-cow-eat-in-a-day#.VVz4oEbsdQo>. A typical diet for a dairy cow will include 26-30 pounds of hay (dry matter) and 22 pounds of grain mix (corn, soybeans).

⁴⁴ K.D. Casey, Ph.D. & L.A. McDonald. Final Report: Peak Water Demand in Texas Beef Cattle Feedlots. Amarillo, TX: Texas A&M. (2008).

⁴⁵ D. Pfost & C. Fulhage. Beef Manure Management Systems in Missouri. University of Missouri Department of Agricultural Engineering. (October 2000). Available at: <http://extension.missouri.edu/p/EQ377>.

⁴⁶ Concept Paper at 21.

In modern, confinement-style dairies, milk cows are housed in freestall barns without access to pasture. The majority of dairies in California employ this model. Freestall barns are open-sided roofed structures with concrete floors that facilitate milk cow feeding and manure handling, with manure typically flushed and liquefied periodically into liquid manure storage lagoons and eventually disposed of in adjacent crop land. Enclosed freestall barns vented to biofilters allow for the capture and treatment of enteric methane and volatile organic compound emissions.

Biofiltration of methane provides 80% methane reductions without the harmful co-pollutant emissions associated with methane combustion.⁴⁷ In a biofilter or bioreactor, methane is vented through a medium containing methanotrophs (methane consuming microorganisms) which oxidize the methane to carbon dioxide.⁴⁸ Biofilters can also treat emissions from covered liquid manure storage lagoons (anaerobic digesters).⁴⁹ The San Joaquin Valley Unified Air Pollution Control District has verified “that biofilters have been used to control odors and/or emissions from wastewater treatment plants, composting operations, and enclosed barns at some poultry and swine confined animal facilities.”⁵⁰ According to the EPA, biofilters offer a significant cost advantage and operational efficiency over other treatment systems.⁵¹ There can be no question that biofilters are technologically feasible for methane treatment, and the Board should further investigate the use of biofilter systems as part of the Short Lived Climate Pollutant Strategy.

4b-12

Enclosing freestall barns would allow for the capture and treatment of methane and at the same time offer the co-benefit of increasing milk production. The San Joaquin Valley Air District has recognized the operational flexibility of enclosed barns and that the decrease in heat stress would increase milk production by 1.8 to 2.7 kg/day/cow.⁵² The energy required to operate the biofilter and maintain cow comfort in the enclosed barns may come from on-site distributed generation solar systems.

4b-13

Enclosed barns vented to biofilters also offer the co-benefit of reducing VOC emissions from fresh waste, enteric emissions, and corn silage. Corn silage emits massive amounts of VOC in the San Joaquin Valley, with dairy corn silage VOC emissions forming more ozone than the VOC emitted by passenger vehicles.⁵³ Enteric emissions and fresh waste also emit VOC.⁵⁴

⁴⁷ Quiang Huang, Journal of Arid Land, Vol. 3, No. 1, 61-70 (2011); VOC reduction citation.

⁴⁸ Huang (2011).

⁴⁹ Huang, (2011).

⁵⁰ San Joaquin Valley Unified Air Pollution Control District, Van Der Kooi Dairy Supplemental Environmental Impact Report at 9-10, 2008.

⁵¹ U.S. EPA, Using Bioreactors to Control Air Pollution, EPA-456/R-03-003, September 2003.

⁵² San Joaquin Unified APCD, Final Draft Staff Report with Appendices for Proposed Rule 4570: Confined Animal

Facilities at 30, May 18, 2006, attached as Exhibit 1.

⁵³ Cody J. Howard, et al., Reactive Organic Gas Emissions from Livestock Feed Contribute Significantly to Ozone production in Central California, Environ. Sci. Technol. (2010), 44, 2309–2314, attached as Exhibit 2; San Joaquin Valley Unified Air Pollution Control District Air

4b-14 Because biofilters achieve a VOC reduction of at least 80%,⁵⁵ the use of enclosed barns not only reduces enteric methane significantly, but also controls VOC, which acts as an ozone and fine particulate matter (PM2.5) precursor. The San Joaquin Valley, home to the majority of California's dairy industry, is nonattainment for both ozone and PM2.5. Reducing VOC emissions to help attain ozone and PM2.5 standards also provides an economic benefit. Two economists at Cal State Fullerton, Jane Hall and Victor Brajer, estimate that if the San Joaquin Valley met the current health-based federal air quality standards for PM2.5 and ozone, Valley residents would save approximately \$6 billion *each year* – or \$1,600 per Valley resident – in measurable health costs.⁵⁶

4b-15 Because of the multiple co-benefits, the Air Resources Board should thoroughly evaluate the cost-effectiveness of enclosed barns vented to biofilters. The evaluation should include the benefits of both methane and VOC controls, as well as the economic benefits of increased milk production. Furthermore, the Board should compare and evaluate enclosed barn and biofilter cost-effectiveness pursuant to the AB 32 emissions standard of “maximum technologically feasible and cost-effective reductions”⁵⁷ in order to achieve both a 40% reduction from 1990 levels by 2030 as called for in Executive Order B-30-15 and the 80% reduction from 1990 levels by 2050 as proposed in Senate Bill 32 (Pavley).

III. Anaerobic Digesters Present Nutrient Loading and Air Pollution Negative Consequences.

4b-16 The Concept Paper identifies anaerobic digesters as a potential mitigation option with the co-benefit of electricity production by combusting methane. While anaerobic digesters have been promoted as a solution to methane emissions associated with liquefied manure storage, research has demonstrated that anaerobic digesters are not the ‘silver bullet’ for manure management. The nutrient loads (nitrogen and phosphorus) loads are not reduced during the digestion process. The resulting effluent must still be managed appropriately and thus, digesters do not effectively alleviate the environmental challenges associated with storing large quantities of manure-based nitrogen, or applying it to crop fields in a manner that does not exacerbate Central Valley groundwater contamination.⁵⁸ In California, nitrate contamination of groundwater has been identified as a significant problem, so the Board should work closely with

Pollution Control Officer's Revision of the Dairy VOC Emission Factors at 34-35 (2012), attached as Exhibit 3.

⁵⁴ San Joaquin Valley Unified Air Pollution Control District Air Pollution Control Officer's Revision of the Dairy VOC Emission Factors at 16-22 (2012).

⁵⁵ San Joaquin Unified APCD, Final Draft Staff Report with Proposed Rule 4566: Organic Material Composting Operations at 14, August 18, 2011, attached as Exhibit 4; Final Draft Staff Report for Proposed Rule 4570 (2006) at 30.

⁵⁶ <http://business.fullerton.edu/centers/ices/reports/Benefits%20of%20Meeting%20Clean%20Air%20Standards.pdf>

⁵⁷ Health & Safety Code § 38562(a).

⁵⁸ Lazarus WF. 2009; Humenik, F. et al. *Anaerobic Digestion of Animal Manure: The History and Current Needs*. North Carolina State University, Waste Management Programs, College of Agriculture and Life Sciences.

the State Water Board and Central Valley Regional Water Board on limiting the amount of nitrogen produced in confinement systems to prevent nitrogen discharges to groundwater or into the air (as volatilized ammonia gas).

4b-18

Utilization of biogas in digesters still carries air quality implications due to emissions from the combustion process. Of particular concern are nitrogen oxides (NOx) created during combustion of digester biogas, especially in nonattainment areas like the San Joaquin Valley where ozone and fine particulate matter (PM2.5) pollution levels are already above acceptable levels (and where the Board and the Valley Air District have not even come close to attaining the 1997 PM2.5 National Ambient Air Quality Standards).⁵⁹ As described above and in combination with enclosed barns, anaerobic digesters can vent to a biofilter without the negative co-pollutants associated with combustion.

IV. The Board should not Include Dairies in the Cap and Trade Regulation.

4b-19

The Concept Paper states that the Board is evaluating a petition to regulate dairies under the Cap and Trade Regulation.⁶⁰ The Board should not pursue such a strategy because Cap and Trade implicates environmental justice and civil rights concerns when communities living near industrial cap and trade facilities are overwhelmingly people of color.⁶¹ Use of allowances generated by dairies at industrial facilities would deny on-site reductions for communities of color living near industrial facilities like refineries and power plants.

V. Conclusion.

4b-20

The Air Resources Board has made an important first step towards reducing methane emissions from dairies under the Strategy required by Senate Bill 605. Given the significance of those emissions, and the multiple co-benefits associated with pasture-based systems and enclosed barns vented to biofilter treatment systems, Board staff should thoroughly investigate these options and include them in the final Strategy for adoption by the Board. Thank you for your work to date and we look forward to working with you and other Board staff to ensure significant methane reductions from California dairies.

Sincerely,



Brent Newell
Center on Race, Poverty & the Environment

⁵⁹ Lazarus WF. 2009.

⁶⁰ Concept Paper at 21.

⁶¹ Manuel Pastor, et al, Minding the Climate Gap, available at http://dornsife.usc.edu/assets/sites/242/docs/mindingthegap_executive_summary.pdf

Miya Yoshitani
Asian Pacific Environmental Network

Tom Frantz
Association of Irrigated Residents

Amy Vanderwarker
California Environmental Justice Alliance (CEJA)

Penny Nelson
Center for Community Action and Environmental Justice

Dolores Weller
Central Valley Air Quality Coalition

Cesar Campos
Central California Environmental Justice Network

Renee Wilson
Clean Water and Air Matter

Rodrigo Romo
Committee for a Better Shafter

Bahram Fazeli
Communities for a Better Environment

Patty Lovera, Director
Food & Water Watch

Denny Larson
Global Community Monitor

Ben Lilliston
Institute for Agricultural and Trade Policy

Adam Mason
Iowa Citizens for Community Improvement

Justin Hicks
Merced Bicycle Coalition

Dr. David Pepper

Comment Letter 4b: Sierra Club Kern-Kaweah Chapter
Craig K. Breon

Comment 4b-1: *Pursuant to Senate Bill 605 (Lara), the Air Resources Board has released the Short Lived Climate Pollutant Reduction Strategy Concept Paper (hereafter "Concept Paper") to discuss potential strategies which the Board would evaluate for inclusion in the Short Lived Climate Pollutant Reduction Strategy. These comments on the Concept Paper are submitted on behalf of the Asian Pacific Environmental Network, Association Irrigated Residents, California Environmental Justice Alliance (CEJA), Center for Community Action and Environmental Justice, Center on Race, Poverty & the Environment, Central Valley Air Quality Coalition, Central California Environmental Justice Network, Clean Water and Air Matter, Committee for a Better Shafter, Communities for a Better Environment, Food & Water Watch, Global Community Monitor, Institute for Agricultural and Trade Policy, Iowa Citizens for Community Improvement, Merced Bicycle Coalition, Dr. David Pepper, Physicians for Social Responsibility -Los Angeles, Sierra Club California, and the Socially Responsible Agriculture Project.*

California Dairies account for sixty percent of California's methane emissions.¹ In the San Joaquin Valley, at least eighty-seven percent of methane emissions are from dairy (and other cattle) operations.² As a result, the Board should ensure that dairies do their fair share to reduce methane emissions and should not avoid regulation, which would unfairly place a greater reduction burden on other sources of greenhouse gases. Given the dire need to stabilize our climate, California has taken the lead by adopting Assembly Bill 32, the California Global Warming Solutions Act, to reduce greenhouse gases by twenty percent below 1990 levels. On April 29, 2015, Governor Brown adopted Executive Order B-30-15 calling for even greater reductions – forty percent by 2030 – and leaders in the California Senate have proposed even more aggressive policy to decarbonizes our energy and transportation systems.³

The Concept Paper discussed covered lagoons and manure scraping as strategies for reducing manure-based methane emissions, which represents roughly thirty percent of California's total methane emissions.⁴ The Paper also briefly addressed breeding and dietary strategies for controlling enteric methane emissions, which also account for roughly thirty percent of total emissions.⁵

We urge the Air Resources Board to investigate and include additional control options in the Strategy. First, there is no reason why the Board should not evaluate and consider a decarbonized dairy industry, especially when other carbon-intensive sectors of the California economy must transition if California is to achieve proposed targets above and beyond AB 32. Pasture-based dairy systems provide multiple benefits, including avoiding methane production from anaerobic decomposition, carbon sequestration, lower cow density per acre (causing less enteric emissions), reduced water consumption, and improved animal welfare conditions for dairy cattle. Second, the Board should investigate and consider the use of biofilters/bioreactors combined with enclosed freestall barns to capture and treat methane and volatile organic compound (VOC) emissions. Biofiltration has been achieved in practice to treat methane and VOC emissions. Given the very large methane and VOC emissions reduction potential from freestall barns, the Board should thoroughly investigate and determine cost-effectiveness in the context of current and proposed climate stabilization goals.

In developing the strategy, the state board shall do all of the following:

- (1) Complete an inventory of sources and emissions of short-lived climate pollutants in the state based on available data;*
- (2) Identify research needs to address any data gaps;*
- (3) Identify existing and potential new control measures to reduce emissions;*
- (4) Prioritize the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities, as identified pursuant to Section 39711; and*
- (5) Coordinate with other state agencies and districts to develop measures identified as part of the comprehensive strategy.*

Health & Safety Code § 39730(a). Given this legislative direction, the Board should investigate the environmental, economic, and co-benefits of pasture-based and enclosed barn control measures.

Response: The Asian Pacific Environmental Network, et al. comments directed to CARB were attached to and referenced in the Sierra Club Draft EIR comment letter; please see responses to the Sierra Club comments (letter 4(a)) referencing these comments, which were directed to CARB. The comments were dated June 10, 2015, well before publication of the Draft EIR in January 2016; therefore, the comments do not raise environmental issues related to the adequacy of the Draft EIR's analysis of future impacts associated with implementation of the proposed Program. The comments request CARB to make changes to its Short Lived Climate Pollutant Reduction Strategy Concept Paper. Also, since the comments were submitted to CARB, CARB has issued its SLCP Strategy and state legislation has been enacted that specifically addresses the dairy sector. Please see Master Response 1B.

A Lead Agency is not required to respond to “non-project-specific secondary materials” submitted to support comments on CEQA documents. (*Environmental Protection & Information Center v. California Department of Forestry and Fire Protection* (2008) 44 Cal.4th 459, 484.) Generic studies, by themselves, are not substantial evidence that a particular project may have a significant environmental effect in a particular study area. (See, e.g., *Save the Plastic Bag Coalition v. City of Manhattan Beach* (2011) (52 Cal. 4th 155, 175.) Nevertheless, for information purposes, responses to selected comments have been provided here.

Comment 4b-2:

I. Pasture-Based Dairy Operations Provide Significant Environmental and Economic Benefits.

The Concept Paper declined to discuss pasture-based dairying as an option, even though dairies in California have successfully operated pasture-based systems for years. Only in the last several decades has a highly intensive, confinement system evolved to mostly displace pasture-based dairy farming. The Board should evaluate pasture-based dairy systems and include them in the

strategy because they present multiple co-benefits in addition to substantially reducing methane emissions.

*At the Public Workshop on May 27, 2015, dairy industry representatives sought public subsidies, including funding from the Greenhouse Gas Reduction Fund, for anaerobic digesters. To the extent the Board relies on incentive funding, such incentives should be instead directed towards dairy producers who operate pasture-based systems and confinement operators who transition to pasture-based systems because of the multiple co-benefits discussed below. For the reasons stated in Section II, *infra*, anaerobic digesters do not provide co-benefits, but instead contribute criteria pollutant emissions in nonattainment air basins like the San Joaquin Valley, and should thus not receive incentive funding. The Legislature specifically directed the Board to "[p]rioritize the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities." Health & Safety Code § 39730(a)(4). Prioritizing incentives for pasture-based systems meets this legislative directive.*

Also at the public workshop, ARB staff stated that ARB has not determined how to consider control measures' cost effectiveness when measures have multiple benefits, and asked the public to provide methodology. The Center on Race, Poverty & the Environment stands ready to work with staff during the development of the Strategy to ensure that the multiple benefits documented below and in Section II appropriately weigh such co-benefits.

Response: Please see Master Response 4 for a discussion of a pasture-based alternative to the proposed ACFP. Also, see Master Response 1B regarding state legislation enacted since these comments were made.

Comment 4b-3:

A. *Environmental Benefits of Pasture-Based Systems.*

While beef and dairy production are the most energy intensive of all animal products, contributing 65 percent of livestock sector GHG emissions,⁶ some reports now suggest that grass-fed ruminant livestock may be a less carbon-intensive, carbon-neutral, or even a carbon sequestering management system for ruminant livestock. This is because grasslands can, when properly managed, sequester carbon dioxide from the atmosphere. It is also because the manure management on pasture avoids anaerobic methane emissions created in lagoon-based confinement systems and nitrous oxide emissions from liquid manure applications for on-farm nitrogen disposal and feed production. This means pasture-based systems drastically reduce greenhouse gas emission and have the potential to actually offset emissions, creating a carbon sink.

Response: Please see Master Response 4 and Responses to Comments 4a-12 through 4a-26 regarding pasture-based systems.

Comment 4b-4: *First, when assessing the environmental benefits of pasture-based systems viewed in light of existing science and identifying data gaps, the Board must account for the fact that all analyses draw a box around what activities studies include in emission assessments and what activities are not included. For example, in 2012 the EPA estimated that all agriculture in the U.S. accounted for 8.1 percent of total U.S. GHG emissions. However, this estimate did not include emissions from land-use change (growing and transporting feed crops) because those are allocated to a different sector.⁷ On the opposite end of the spectrum, the World Watch Institute's 2009 global assessment of livestock production's impact on GHG emissions ranges up to 51 percent, and includes carbon dioxide emitted in respiration from animals and loss of photosynthetic absorption of carbon dioxide from plant destruction.⁸ A life cycle analysis examines the environmental impacts associated with the entire production of a particular product. An effective Strategy should address as many emissions points and opportunities for mitigation during the full lifecycle of California dairy production.*

Pasture-based systems most directly reduce methane emissions because methane emissions from manure- thirty percent of total California emissions- come from anaerobic manure decomposition in waste lagoons.⁹ Methane is emitted when manure is stored in water, because the anaerobic environment lacks oxygen. The most common liquid condition is the waste lagoon, found on most California confinement (non-pasture) systems. For instance, emissions from dairy cow manure management in the U.S. increased by 115 percent from 1990 to 2012 because of the increased usage of waste lagoon systems.¹⁰ Mostly due to this increase (the other large increase in emissions was from swine, which increased by 53 percent), overall methane emissions from manure in the U.S. grew by 68 percent, and account for about half of all dairy methane emissions.¹¹ When stored in dry conditions, as is more common on extensive and alternative production systems, including pasture-based and dry stack systems, manure emits little methane.

Response: Please see Master Response 4 and Responses to Comments 4a-12 through 4a-26 regarding pasture-based systems.

Comment 4b-5: *Pasture-based systems not only remove the need for liquid waste storage, but they also provide two additional environmental benefits: reduction in greenhouse gas emissions from feed production, and creating a net sink through carbon sequestration. Globally, the production, processing, and transport of feed accounts for 45 percent of the industrial animal emissions. Half of these emissions are from synthetic fertilizer use; one quarter are from land-use change, and one quarter are from manure used as fertilizer.¹² The shift to pasture-based systems reduces the need for on-site feed production (for nitrogen disposal) and off-site feed production and therefore substantially reduces GHGs.*

Response: Please see Master Response 4 and Responses to Comments 4a-12 through 4a-26 regarding pasture-based systems.

Comment 4b-6: *Estimates for the potential of carbon sequestration in grasslands vary widely (especially at the global scale). This is primarily because farmers and land managers use a wide range of management practices. One 2010 report estimated that properly managed grasslands could sequester as much as 0.7 Gt CO₂ from the atmosphere.¹³ Another study reported potential sequestration of up to 88 to 210 Gt CO₂ in grasslands over a 25 to 30 year period.¹⁴ The UN FAO*

reports on grassland management assert grasslands could sequester 81-1.51 Gt CO₂.^{15 16} A recent study finds that converting to pastures managed using intensive grazing principles can capture up to 8 metric tons of carbon per hectare, or 3.6 tons per acre per year in the soil.¹⁷ Grasslands can also act as a methane sink when managed properly. The average methane uptake of grasslands is not well documented, though a recent study measured uptake at a range between 0.05 to 12 tons CO₂ equivalent per hectare per year.¹⁸

Response: Please see Master Response 4 and Responses to Comments 4a-12 through 4a-26 regarding pasture-based systems.

Comment 4b-7: *Pasture-based systems stock fewer cows per acre than confinement systems, which reduces enteric emissions. “The amount of methane emitted by animals is directly related to the number of animals, so that a more intensive farm will have higher emissions, though the emissions per unit of product (e.g. meat, milk) might be lower.”¹⁹ Further, enteric emissions may decrease based on departing from silage and grain-based Total Mixed Rations and feeding more grass to dairy cows. For instance, EPA studies have shown that corn- and soybean-fed ruminants raised in confinement systems produce more methane than grazing livestock.²⁰*

Response: Please see Master Response 4 and Responses to Comments 4a-12 through 4a-26 regarding pasture-based systems.

Comment 4b-8: *Excess nitrogen from confined dairy systems is also a significant environmental concern leading to nitrate contamination in groundwater.²¹ The Board should seek input from the State Water board on pasture-based systems co-benefits to groundwater quality as nitrate mitigation.*

Response: Impacts of the proposed Program’s confined dairy systems on groundwater nitrate concentrations are evaluated in the Draft EIR, Impact #3.9-1.

Comment 4b-9:

B. Economic Benefits of Pasture-Based Systems.

Given the directive in Health & Safety Code § 39730(a), the Board should thoroughly investigate the economic benefits of pasture-based systems. Incentivizing a shift to pasture-based dairy production brings with it an exciting opportunity for new economic benefits to be realized by producers as well as by California taxpayers. For producers making the move from confinement systems to pasture, there is a significant potential for lower overall costs of production. This begins with the cost of producing and transporting feed. Grazing on forage in well-managed pasture reduces the need to purchase feed. Unlike annual crops, perennial forage crops provide a long-term source of feed whose expense can be spread out over time. Nor is there as much need for capital investment in facilities and equipment, and far less handling and management of manure is required.²² And in many instances, pasture can be maintained without herbicides or commercial fertilizers.²³ Similarly, producers can avoid drug costs. Cows maintained on pasture have less need for antibiotics and other drugs that are routinely applied in a large-scale confinement operation (and that are contributing to the growing crisis of antibiotic resistance in people²⁴).

Herds raised on pasture tend to be healthier than their intensively confined counterparts, which can translate to lower veterinary bills.²⁵ In other words, pasture is profitable.²⁶

The economic benefits to producers are not limited to avoided costs. High quality pasture-raised dairy can command a premium in the marketplace, rewarding more sustainable, animal- and environmentally friendly production practices. Consumers are also increasingly choosing pasture based or grass-fed options for their higher nutrient profiles and animal welfare practices. These trends are evidenced by significant growth in sales and market share of products displaying these claims. According to SPINS market data, leading brands with certified organic and grass-fed product labels grew by 80% between 2012-2014.²⁷ Animal products with claims of "pasture-raised," better animal welfare practices and grass-fed grew by 24%, 23% and 55% respectively from 2012-2013. Even California's own Annies has developed a grass-fed mac and cheese brand.²⁸

Given the many economic benefits, why would dairy farmers opt for confinement systems over grazing on pasture? According to USDA NRCS:

... [C]onfinement dairying is the only system many producers know. In spite of high debts and low profit margins resulting from increased mechanization and facilities costs and low milk prices, farmers are reluctant to try a grazing system and learn how to operate it. A mistake farmers sometimes make is to prolong the decision to switch to a grazing-based system until their debt margin is too great to be easily overcome, even with improved profitability.²⁹

Moving to pasture to capture the economic benefits is not novel: for years, dairy farmers have embraced (or re-embraced) grazing to avoid the rising costs of inputs.³⁰

Additionally, each of the environmental and natural resource benefits from pasture-based dairy production also represents a further economic benefit to California and its taxpayers. Pollution of surface water, extensive nitrate groundwater contamination in the Central Valley, significant methane emissions, and high levels of water consumption are all components of the "true" cost of dairy production under the predominant confinement model. But because these impacts are externalized, they are not included in the price of dairy products; instead, they are left to be absorbed later by the taxpayer in the form of unwelcome social and environmental consequences, or cleanup costs. By contrast, a well-managed pasture system imposes no such involuntary costs on the public.

Benefits to public health are also available. A 2013 study published in PLoS ONE found that grass-fed organic dairy has far higher levels of Omega-3 fats than grain-fed dairy.³¹ Researchers at Washington State University recently found that organic cow's milk contains 62% more omega-3 fatty acids and 25% less omega-6 fatty acids than conventional cow's milk.³²

Economic challenges, solutions, and benefits associated with decarbonizing California dairy production should be thoroughly investigated and considered by the Board during the development of this Strategy.

Response: This comment on economic benefits is directed to CARB as a state agency and is not relevant to the local proposed Program evaluated in the Draft EIR. Also, a project's economic effects are not treated as significant environmental effects by CEQA. CEQA Guidelines Section 15131(a).

Comment 4b-10:

C. Water Consumption Benefits of Pasture-Based Systems.

An additional co-benefit of pasture-based systems is the potential to produce milk in California with less water demand, a critical co-benefit which the current drought aptly underscores. Given this historic drought and likely future climate disruption-related drought, water usage should be considered when evaluating various methane control strategies, including the benefits of pasture-based systems. It is true that pasture-based dairy farms in California rely on irrigated pasture during dry months, and the Board should consider the amount of water used for irrigated pasture. However, the Board should also weigh the water-intensive practices at confinement systems which, in addition to using water for feed and manure management, have higher per acre stocking rates than pasture systems, which equates to greater water consumption by dairy cattle. We provide the following to document water consumption and urge the Board to perform a full analysis when considering the feasibility of pasture-based systems as a methane control strategy.

The total water consumed by confinement dairies varies significantly based on multiple factors. However, feeding confinement dairy cattle Total Mixed Rations (which includes feed grains and corn silage) involves more stages in the supply chain than pasture-raised cattle, with each stage consuming large amounts of water: irrigating feed crops, processing feed at mills, direct water consumption by cattle, and managing manure.^{33, 34} Dairy cows raised on well-managed pasture, in contrast, require fewer inputs of feed grains, and manure is incorporated into the pasture system, rather than necessitating feed cropland as a nitrogen disposal system.³⁵

Researchers at the University of Twente in the Netherlands estimated that industrial milk production in the United States consumes 61,000 liters of surface and groundwater per ton of milk produced, roughly 30.5 gallons per pound.³⁶ The Water Education Foundation estimates that whole milk requires 90 gallons of water to produce one pound of milk.³⁷ The amount of water an individual confinement dairy cow consumes varies depending on temperature, conditions, age, and lactating status. Canadian estimates place dairy cattle consumption at an average of 1.3-3.5 gallons per day as calves, 3.8-9.7 gallons per day for heifers, and 34.9-40.9 gallons per day for milking cows at high production.³⁸ Penn State College of Agricultural Sciences estimates dry cows consume 9-13 gallons per day and a 1,350-pound Holstein cow producing 60 pounds of milk per day would have a total water intake of 30.6 gallons per day.³⁹

Additionally, raising dairy cattle in confinement systems involves large amounts of feed inputs such as grain and soy, which consume water during production and processing. Recommended daily rations for dairy cows often include corn, oats, barley, alfalfa hay, and soybean.⁴⁰ In California, producing corn silage requires 18.5 gallons of water per pound, corn grain requires 119 gallons of water per pound, oats 196.62 gallons, alfalfa hay 129 gallons, soybeans 480.05 gallons, and barley 216.1 gallons of water.⁴¹ Estimates of the pounds of feed required per day for

milking cows range from 55 to 66 pounds per day.^{42,43} Given the average water consumption of 193.23 gallons per pound for common feed inputs, the daily diet of a single milking cow at high production likely required over 10,000 gallons of water to produce. Estimates of water use during the milling stage are small – 0.024 gallons per pound for corn, for example⁴⁴ - but this amount adds up quickly in intensive systems.

Most models estimating total water consumption at dairies do not incorporate water usage associated with manure management in feedlot systems. Dairies employ different manure storage and management strategies and related water usage varies significantly, but the dominant confinement systems widely used in the San Joaquin Valley rely exclusively on liquefied manure management in lagoons. Lagoon systems are associated with the highest water consumption, used to flush manure from the freestall barns and milking parlors into the lagoon system. Lagoons have low cost, and the flushing systems (pipes, pumps, etc.) minimize the labor involved in transporting the manure.⁴⁵ Estimates of the amount of water used for flushing in lagoon systems can be easily determined by the Board. However, manure flushing and storage systems in pasture-based systems are either not necessary or drastically reduced in size, and thus the associated water consumption is avoided or substantially lessened.

Response: There is, for dairy operations in Tulare County, no water use savings with a pasture-based dairy system.

Appendix G to the Draft EIR, Programmatic Water Supply Evaluation, discusses the usage of water currently required, onsite and offsite, to sustain Tulare County's dairies. Pages 2-3 and 2-4 of that report calculate the onsite and offsite dairy animal feed crop requirement to require an average of 53.5 inches (4.5) feet of irrigation water. Pages 2-5 and 2-6 provide calculations based on that average supporting an incremental water demand of 139,400 acre feet for the projected 119,000 additional cows by 2023 utilizing ACFP confined and semi-confined facilities similar to those currently used in the County.

The 119,000 additional cows projected for 2023 would require for a pasture-based alternative growth (see Response to Comment 4a-12) 168,000 acres of irrigated pasture, if the land were available. Such pasture historically requires approximately 5 acre feet of water per acre per year because of Tulare County's limited rainfall and hot summer season according to State Department of Water records for typical water years (see Table 1 below). The total water usage required for the alternative would thus be 840,000 acre feet plus a minimal increment for stock watering and for milking facilities sanitation.²²

Table 1

Table 1. Estimated 1980 County Average Unit Applied Water^{1/}
(acre-feet per acre)

County	Grain	Rice ^{2/}	Cotton	Sugar Beets	Corn	Other Field	Alfalfa	Pasture	Tomatoes	Other Truck	Almond Pistachio	Other Deciduous	Citrus Olive	Grapes
Alameda	0.7					2.4	4.0	4.3		2.6		3.5		2.1
Alpine					2.7	2.2		4.8						3.0
Amador								5.3						
Butte	1.1	7.5		4.0	3.1	2.8	4.8	5.7		2.1	2.6	3.7	2.2	3.4
Calaveras								4.9						
Colusa	0.9	8.5		4.0	3.1	3.1	5.8	6.6	3.6	2.2		3.7		3.3
Contra Costa	1.2			4.0	3.2	2.4	4.0	5.0	2.9	2.7		3.7		2.9
Del Norte								1.8		1.0				
El Dorado								4.3				1.9		
Fresno	1.3	6.3	3.7	3.8	3.6	2.9	4.3	6.0	3.3	1.9	2.7	3.7	2.6	3.4
Glenn	0.9	8.5		4.0	3.1	3.1	5.8	6.6	3.6	2.2	2.6	3.7	2.8	3.3
Humboldt							1.6	1.8		1.0				
Imperial	3.6					4.8	6.5	7.9		2.3			5.5	
Inyo							7.2	7.2						
Kern	2.2	6.7	3.7	3.9	3.1	2.7	5.1	7.0	3.3	2.0	3.1	4.3	3.0	3.1
Kings	1.4	6.7	3.7	3.8	3.5	3.1	4.3	6.2	3.3	1.8	2.9	4.3	2.9	3.8
Lake							3.7	4.2				2.3		2.3
Lassen	1.9				2.7		3.2	3.5						
Los Angeles	0.5					3.7	6.5	7.2		2.5		4.0		
Madera	1.2		3.8	3.7	3.5	2.4	5.1	6.3	3.3	2.1	2.8	3.9	2.8	3.7
Marin														
Mariposa								4.0						
Mendocino								3.2				2.0		0.9
Merced	1.1	6.7	3.7	3.7	3.5	2.6	4.8	6.1	3.2	2.1	2.6	3.9	3.0	3.5
Modoc	2.0					3.0	3.3	4.1		3.0				
Mono							5.9	4.9 ^{3/}						1.8
Monterey				3.5		2.2	3.9	3.5	2.4	2.1		2.0		1.2
Napa								4.0				1.8		
Nevada								4.2					2.4	
Orange						3.1				2.5				
Placer	1.4	7.4				2.4		4.8				4.8		
Plumas	0.5						3.0	3.5						
Riverside ^{4/}	0.4					3.2	4.4	5.3		2.2		3.2	2.3	2.1
	2.8					3.8	6.5	9.2		3.0		5.6	5.8	4.7
Sacramento	1.2	7.2		3.8	3.2	1.0	4.2	5.0	3.1	2.0		3.7		2.8
San Benito				2.1		1.5	3.2	3.4	2.3	2.5		1.5		1.3
San Bernardino	0.5					3.4	4.9	5.6		2.5		3.5	2.6	2.3
San Diego	0.5					2.3	3.7	4.2		2.5		2.9	2.1	1.7
San Francisco														
San Joaquin	1.1	6.7		3.8	3.2	2.2	4.1	4.8	3.0	2.5	2.4	3.0		2.7
San Luis Obispo	0.6					2.1	3.7	3.8	1.8			3.2	2.0	1.3
San Mateo										2.5				
Santa Barbara	0.6					2.2	3.4	3.5		2.3		2.7	2.0	1.3
Santa Clara	0.3					2.5		3.7		2.5		2.7		1.2
Santa Cruz								2.7		1.6		1.0		
Shasta	1.3					3.0	3.5	6.2		2.3				
Sierra							3.0	3.5						
Siskiyou	1.9					2.1	3.2	3.3		2.9				
Solano	1.3			3.8	3.2	1.6	4.3	5.2	3.1	2.1		3.1		1.7
Sonoma						2.0		3.4				1.8		1.0
Stanislaus	1.1	6.7		3.8	3.6	2.3	4.9	6.0	3.3	2.2	2.7	4.0	2.4	3.5
Sutter	0.9	7.8		3.9	3.2	3.0	4.5	5.6	3.5	2.1	2.6	3.7		
Tehama	0.9	6.8		4.0		2.8	5.8	6.6		2.2	2.6	3.7	2.8	3.4
Trinity								3.0						
Tulare	1.4	6.7	3.8	3.7	3.5	2.7	5.1	6.5	2.9	2.1	2.7	4.2	2.8	3.8
Tuolumne								4.0						
Ventura	0.5					2.6	4.4	5.4		2.5		3.5	2.5	1.7
Yolo	1.3	7.4		3.8	3.2	2.0	4.3	5.2	3.1	2.4		3.7		2.9
Yuba	1.4	7.4			3.2	2.4	4.4	5.0		2.0		3.7		2.9

^{1/}Based on Department of Water Resources Bulletin 160-83, "The California Water Plan - Projected Use and Available Water Supplies to 2010," December 1983.

^{2/}See text for comments on recent trends of significant decreases in values for some areas.

^{3/}Includes areas with less than full season supply.

^{4/}Upper value is for coastal drainage portion of county; lower value is for the desert portion.

Comment 4b-11:

II. The Board should Evaluate Biofilter Controls for Enteric Emissions at Freestall Barns in Confinement Systems.

Assuming that the entire California dairy industry does not convert to pasture-based systems, the Board should require enclosed barns vented to biofilter treatment systems to significantly reduce enteric methane emissions from milk cows. The Concept Paper recognizes that enteric emissions account for roughly half of total dairy methane emissions- 30% of total statewide methane emissions- but does not evaluate the technological feasibility or cost- effectiveness of freestall barn enclosures with methane captured and vented to biofilters.⁴⁶ Given the legislative mandate in Senate Bill 605, as well as the massive statewide emissions of enteric methane, the Board should evaluate and include this mitigation in the Strategy.

In modern, confinement-style dairies, milk cows are housed in freestall barns without access to pasture. The majority of dairies in California employ this model. Freestall barns are open-sided roofed structures with concrete floors that facilitate milk cow feeding and manure handling, with manure typically flushed and liquefied periodically into liquid manure storage lagoons and eventually disposed of in adjacent crop land. Enclosed freestall barns vented to biofilters allow for the capture and treatment of enteric methane and volatile organic compound emissions.

Biofiltration of methane provides 80% methane reductions without the harmful co- pollutant emissions associated with methane combustion.⁴⁷ In a biofilter or bioreactor, methane is vented through a medium containing methanotrophs (methane consuming microorganisms) which oxidize the methane to carbon dioxide.⁴⁸ Biofilters can also treat emissions from covered liquid manure storage lagoons (anaerobic digesters).⁴⁹ The San Joaquin Valley Unified Air Pollution Control District has verified "that biofilters have been used to control odors and/or emissions from wastewater treatment plants, composting operations, and enclosed barns at some poultry and swine confined animal facilities."⁵⁰ According to the EPA, biofilters offer a significant cost advantage and operational efficiency over other treatment systems.⁵¹ There can be no question that biofilters are technologically feasible for methane treatment, and the Board should further investigate the use of biofilter systems as part of the Short Lived Climate Pollutant Strategy.

Response: Please see Master Response 1D concerning the reasons that vented enclosures with biofilters are deemed to be infeasible for Central Valley facilities. CARB's SLCP Strategy does not incorporate vented enclosures with biofilters as an emissions reduction approach.

Comment 4b-12: *Enclosing freestall barns would allow for the capture and treatment of methane and at the same time offer the co-benefit of increasing milk production. The San Joaquin Valley Air District has recognized the operational flexibility of enclosed barns and that the decrease in heat stress would increase milk production by 1.8 to 2.7 kg/day/cow.⁵² The energy required to operate the biofilter and maintain cow comfort in the enclosed barns may come from on-site distributed generation solar systems.*

Response: The SJVAPCD offers enclosed barns vented to a VOC control device as an optional Rule (Class II) 4570 mitigation measure for the milk parlor. However, mandatory implementation

of enclosed barns with biofilters is not included as an EIR mitigation measure because it may not be effective in substantially lessening criteria pollutant and GHG emissions for freestall or corral-based animals, and because it is considered economically infeasible. See Draft EIR pages 3.7-15 and 3.7-16.

In addition, there is limited climatic justification or necessity for enclosed barns with mechanical heating or cooling systems in the San Joaquin Valley or Tulare County. Such barns, and mechanical ventilation with its potential for system breakdown, mold production, and air-draft health impacts on cows, have the likelihood of creating cow health problems thus reducing milk production rather than increasing such production because of an assumed reduction in stress.

Prevention of heat stress in Tulare County's climate, a key factor in cow-health related milk production, is best and most feasibly accomplished in open free-stall barns and in corollary dairy cow-congregation areas with a variety of cooling measures – high pressure foggers, spray-and-fan systems, and feedline spray systems.²³

Comment 4b-13: *Enclosed barns vented to biofilters also offer the co-benefit of reducing VOC emissions from fresh waste, enteric emissions, and corn silage. Corn silage emits massive amounts of VOC in the San Joaquin Valley, with dairy corn silage VOC emissions forming more ozone than the VOC emitted by passenger vehicles.⁵³ Enteric emissions and fresh waste also emit VOC.⁵⁴ Because biofilters achieve a VOC reduction of at least 80%,⁵⁵ the use of enclosed barns not only reduces enteric methane significantly, but also controls VOC, which acts as an ozone and fine particulate matter (PM_{2.5}) precursor. The San Joaquin Valley, home to the majority of California's dairy industry, is nonattainment for both ozone and PM_{2.5}.*

Response: Please see Response to Comment 4b-12 with respect to enclosure of freestall barns. The SJVAPCD offers enclosure of silage and milk parlors in a vented, VOC-controlled structure as optional Class II mitigation measures vented to a VOC control device (e.g., a biofilter) as an optional Rule 4570 mitigation measure (a Class 2 mitigation measure, Table 3.1).

Comment 4b-14: *Reducing VOC emissions to help attain ozone and PM_{2.5} standards also provides an economic benefit. Two economists at Cal State Fullerton, Jane Hall and Victor Brajer, estimate that if the San Joaquin Valley met the current health-based federal air quality standards for PM_{2.5} and ozone, Valley residents would save approximately \$6 billion each year – or \$1,600 per Valley resident – in measurable health costs.⁵⁶*

Response: The Draft EIR acknowledges the health impacts of atmospheric ozone and PM_{2.5} on pages 3.3-14 through 3.3-16. Please note that EIRs are not required to consider economic impacts or include cost-benefit analyses. See CEQA Guidelines Section 15064(e).

Comment 4b-15: *Because of the multiple co-benefits, the Air Resources Board should thoroughly evaluate the cost-effectiveness of enclosed barns vented to biofilters. The evaluation should include the benefits of both methane and VOC controls, as well as the economic benefits of increased milk production. Furthermore, the Board should compare and evaluate enclosed barn and biofilter cost-effectiveness pursuant to the AB 32 emissions standard of "maximum technologically feasible and cost-effective reductions"⁵⁷ in order to achieve both a 40% reduction*

from 1990 levels by 2030 as called for in Executive Order B-30-15 and the 80% reduction from 1990 levels by 2050 as proposed in Senate Bill 32 (Pavley).

Response: This comment requests CARB to make changes to its Short Lived Climate Pollutant Reduction Strategy Concept Paper, and is not directly relevant to the Draft EIR. Since this comment was made, CARB has issued the final SLCP Strategy, which does not incorporate vented enclosures with biofilters as an emissions reduction approach. Also, please see Response to Comment 4b-12.

Comment 4b-16:

III. Anaerobic Digesters Present Nutrient Loading and Air Pollution Negative Consequences.

The Concept Paper identifies anaerobic digesters as a potential mitigation option with the co-benefit of electricity production by combusting methane. While anaerobic digesters have been promoted as a solution to methane emissions associated with liquefied manure storage, research has demonstrated that anaerobic digesters are not the 'silver bullet' for manure management.

Response: Anaerobic digesters are included as Strategy E10 in the Dairy CAP's list of Category B GHG reduction strategies (Dairy CAP Table 4). The Dairy CAP offers a large number of potential GHG reduction strategies. Please see Master Responses 1B and 1D regarding emissions reduction strategies and state legislation providing incentive funding for anaerobic digesters and other manure management strategies.

Comment 4b-17: *The nutrient loads (nitrogen and phosphorus) loads are not reduced during the digestion process. The resulting effluent must still be managed appropriately and thus, digesters do not effectively alleviate the environmental challenges associated with storing large quantities of manure-based nitrogen, or applying it to crop fields in a manner that does not exacerbate Central Valley groundwater contamination.⁵⁸ In California, nitrate contamination of groundwater has been identified as a significant problem, so the Board should work closely with the State Water Board and Central Valley Regional Water Board on limiting the amount of nitrogen produced in confinement systems to prevent nitrogen discharges to groundwater or into the air (as volatilized ammonia gas).*

Response: The Central Valley Regional Water Quality Board (CVRWQCB) has completed an EIR²⁴ comprehensively analyzing the environmental impacts of manure digesters and co-digester facilities. The CVRWQCB's General Order, and its nutrient program requirements regulating the application of manure, digester solids, and dairy wastewaters, will adequately limit and regulate the amount of nitrogen produced in confinement systems.²⁵ (See Draft EIR Section 3.9, in particular Impact #3.9-1). The comment is addressed to the SWRCB and CVRWQB, and does not pertain to Draft EIR adequacy.

Comment 4b-18: *Utilization of biogas in digesters still carries air quality implications due to emissions from the combustion process. Of particular concern are nitrogen oxides (NOx) created during combustion of digester biogas, especially in nonattainment areas like the San Joaquin*

Valley where ozone and fine particulate matter (PM2.5) pollution levels are already above acceptable levels (and where the Board and the Valley Air District have not even come close to attaining the 1997 PM2.5 National Ambient Air Quality Standards).⁵⁹ As described above and in combination with enclosed barns, anaerobic digesters can vent to a biofilter without the negative co-pollutants associated with combustion.

Response: As part of its dairy permitting program, the SJVAPCD regulates NOx emissions from combustion of digester biogas. (See, e.g., Rules 4311 and 4570.) The suggested alternative of venting anaerobic digester biogas to a biofilter negates benefits of the renewable energy derived from biogas combustion either at the digester site or as injection to existing natural gas transmission lines.

Comment 4b-19:

IV. The Board should not Include Dairies in the Cap and Trade Regulation.

The Concept Paper states that the Board is evaluating a petition to regulate dairies under the Cap and Trade Regulation.⁶⁰ The Board should not pursue such a strategy because Cap and Trade implicates environmental justice and civil rights concerns when communities living near industrial cap and trade facilities are overwhelmingly people of color.⁶¹ Use of allowances generated by dairies at industrial facilities would deny on-site reductions for communities of color living near industrial facilities like refineries and power plants.

Response: This comment discusses regulation of dairies under the State's CAP and Trade Regulation, and is not directly relevant to the Draft EIR for the proposed Program.

Comment 4b-20:

V. Conclusion.

The Air Resources Board has made an important first step towards reducing methane emissions from dairies under the Strategy required by Senate Bill 605. Given the significance of those emissions, and the multiple co-benefits associated with pasture-based systems and enclosed barns vented to biofilter treatment systems, Board staff should thoroughly investigate these options and include them in the final Strategy for adoption by the Board. Thank you for your work to date and we look forward to working with you and other Board staff to ensure significant methane reductions from California dairies.

Response: This comment requests CARB to make changes to its Short Lived Climate Pollutant Reduction Strategy Concept Paper, and is not directly relevant to the Draft EIR. Please see responses to Comments 4b-1 through 4b-15.



**What's in the Water? Industrial Dairies, Groundwater Pollution
and Regulatory Failure in California's Central Valley**

Executive Summary

Groundwater is lifeblood for the state of California, particularly the Central Valley region. Groundwater moves through underground aquifers ranging in depth from just below the soil surface to several thousand feet down. It feeds agricultural crops and livestock, fuels industry, and supplies half of the Central Valley's drinking water.¹

4c-1

This vital resource should be protected by our state and local leaders and public agencies, but groundwater in the Central Valley has become tremendously polluted, to the point where it is common for local wells to contain unsafe levels of toxic chemicals. Groundwater contamination in the Central Valley is caused by a number of different sources. This report focuses on the massive dairies that have come to dominate the Central Valley over the last 20 years. These dairies generate nearly five times more waste than the human population of Los Angeles each year,² and their waste has been found to leach into groundwater. Yet until 2007, groundwater pollution from dairies was virtually unregulated.

This report begins by discussing the ways in which industrial dairy production generally, and industrial dairies in the Central Valley in particular, affect groundwater quality. The report then uses available data to examine the state of Central Valley groundwater around the large dairies. Although the data are limited, groundwater monitoring near dairies in the Central Valley indicates that water is highly degraded and that public and environmental health may be at serious risk.

This pollution has happened on the watch of the Central Valley Regional Water Quality Control Board (CVRWQCB), the agency charged with protecting the quality of groundwater in the Central Valley. Although the board implemented a new set of requirements, called the General Order, in late 2007 to reduce dairy contamination of groundwater, this report finds that enforcement of the new requirements — and the requirements themselves — are insufficient, allowing contamination to continue.

Key findings include:

4c-2

- **The General Order is not living up to the promise of protecting groundwater quality and preventing pollution.** Although the 2007 General Order is a vast improvement over the previous policy of allowing dairies to operate without waste discharge requirements, our review finds that limitations of the General Order allow groundwater to continue to be degraded. The General Order as written also makes it difficult to gauge the degree of risk to public health from dairy waste contamination of groundwater. It does not require dairies to monitor groundwater for all of the contaminants for which the state has drinking water quality standards, even in cases where initial testing shows that dairy waste has reached and is affecting the aquifer.

4c-3

- **The Central Valley Regional Board's failure to implement regulations until late 2007 allowed serious groundwater contamination from industrial dairies in the Central Valley.** The General Order requires dairies to submit annual reports on groundwater quality. Sixty percent of the nearly 1,500 dairies covered under the new rules reported that their own wells were contaminated with nitrates above the drinking water standard of 10 milligrams per liter (mg/L)³ at the time that the rules came into effect.⁴ Forty percent of the dairies — more than 550 facilities — reported that they had nitrate levels of at least twice the drinking water standard.⁵

4c-4

- **Pollution from dairies may be posing a significant risk to private household wells in the Central Valley.** Eighty-five percent of dairies reported that they were located within 300 feet of an off-site domestic (household) well.⁶

4c-5

- **The CVRWQCB is not analyzing the data supplied by dairies from their on-site wells in a timely manner, nor is it reporting this data in a way that is useful to the stakeholders involved.** As a result, it is nearly impossible to track improvements or backsliding over time on specific dairies — in other words, it is impossible to tell if the General Order is having an effect.



- 4c-6 • **When dairies submit data showing groundwater contamination in their on-site wells, the CVRWQCB is not requiring them to take further steps to test and monitor their groundwater to determine the scope of the problem,** although the General Order explicitly allows the board to require additional monitoring. Only 4 percent of dairies that reported nitrate levels in their own wells of between 10 and 20 mg/L, and 9 percent of dairies with nitrate levels over 20 mg/L, received enforcement letters requiring them to implement further groundwater monitoring in the first year after the reports were due.⁷
 - 4c-7 • **Enforcement of penalties against dairies that do not turn in required paperwork is nonexistent.** We found that 71 dairies failed to turn in part or all of the required paperwork on time in the first year after the General Order was implemented.⁸ Many failed to turn in nutrient management plans, the documents in which dairy operators lay out how they will manage manure to avoid water quality impacts. These plans are the heart of the General Order and their absence is a serious concern. A review of dairy files and the CVRWQCB's database of civil liability actions found that none of these dairies had been fined for late paperwork.⁹
 - 4c-8 • **Enforcement of the General Order is also a major problem.** Our review found that the CVRWQCB has failed to take adequate enforcement action in cases where dairies are violating this and other state and federal water quality laws and regulations. For example, in one dairy's file at the board office, we found evidence of nine different inspections and six notices of violation from board staff for unauthorized waste discharge into a river that fed a groundwater aquifer. Several of the documents explicitly mentioned that the dairy was in violation of the Antidegradation Policy, the Basin Plans, Title 27 and the California Water Code — the laws and regulations that the General Order is supposed to uphold — as well as the federal Clean Water Act. As of this writing, the dairy continues to be in violation of both state and federal law, 27 years after a neighbor brought the first and 17 years after board staff carried out the first inspection. No fines have ever been issued.¹⁰
 - 4c-9 • **There is a serious lag time between when CVRWQCB staff inspections of the dairies identify violations — including discharges to surface water or groundwater — and when dairies receive notices of violation.** In one example, inspectors found that a dairy was violating the General Order but did not send a notice of violation for six months. The dairy responded to the notice; a full eight months later, board staff sent a letter to the dairy letting the operator know that its response was insufficient. To date, two years have passed since the staff identified a violation on the dairy, but the problem has not been resolved.
 - 4c-10 • **Federal policy plays a role.** Although the board is responsible for implementing and enforcing state water laws and regulations, this report finds that federal agricultural policies have driven dairies to get larger over time, concentrating production and waste in the Central Valley. Federal policy changes must also accompany state and regional action in order to help California's dairy industry become more sustainable and to reduce the public health and environmental costs associated with industrial-scale facilities.
- The report recommends:***
- 4c-11 • The governor and the California State Legislature must prioritize groundwater protection by directing the State Water Quality Control Board to implement a comprehensive statewide monitoring program for groundwater quality and quantity.
 - Groundwater protection should be prioritized by devoting more funds to the regional water boards for adequate staffing.



***What's in the Water? Industrial Dairies, Groundwater Pollution
and Regulatory Failure in California's Central Valley***

- The governor and state legislators must appoint board members who will implement the Antidegradation Policy and prioritize the protection of beneficial uses of state waters, especially domestic and municipal supply.
- Despite existing budget and staffing limitations, the CVRWQCB can and should take action to improve outcomes under the General Order.
 - » Fine bad actors that remain in violation of water quality laws if they do not remedy the problem after a notice of violation is issued.
 - » Implement a groundwater monitoring program that can assess water quality by including all contaminants of concern listed in the region's Basin Plans.
 - » Implement a groundwater monitoring program that can track the impacts of the General Order and identify the sources of pollution.
 - » Require that data be gathered and reported in a standardized way and submitted electronically.
 - » In cases where dairies are complying with the General Order but data show that contamination continues to occur, require dairies to implement more stringent best practices, including lagoon liners.
 - » Require clean up and abatement actions where dairies have contributed to pollution of state waters.
- At the federal level, Congress, the U.S. Department of Agriculture (USDA) and the U.S. Department of Justice must address the factors that drive dairies to industrialize, and they must better support more decentralized dairy supply chains.

Comment Letter 4c: Food & Water Watch

Comment 4c-1: *Groundwater is lifeblood for the state of California, particularly the Central Valley region. Groundwater moves through underground aquifers ranging in depth from just below the soil surface to several thousand feet down. It feeds agricultural crops and livestock, fuels industry, and supplies half of the Central Valley's drinking water.*

This vital resource should be protected by our state and local leaders and public agencies, but groundwater in the Central Valley has become tremendously polluted, to the point where it is common for local wells to contain unsafe levels of toxic chemicals. Groundwater contamination in the Central Valley is caused by a number of different sources. This report focuses on the massive dairies that have come to dominate the Central Valley over the last 20 years. These dairies generate nearly five times more waste than the human population of Los Angeles each year, and their waste has been found to leach into groundwater. Yet until 2007, groundwater pollution from dairies was virtually unregulated.

This pollution has happened on the watch of the Central Valley Regional Water Quality Control Board (CVRWQCB), the agency charged with protecting the quality of groundwater in the Central Valley. Although the board implemented a new set of requirements, called the General Order, in late 2007 to reduce dairy contamination of groundwater, this report finds that enforcement of the new requirements – and the requirements themselves – are insufficient, allowing contamination to continue.

Response: The Food & Water Watch (FWW) report was attached to and referenced in the Sierra Club Draft EIR comment letter; please see responses to the Sierra Club comments referencing this report. The WFF report was published in 2011, five years before publication of the Draft EIR; therefore, the full report itself cannot be considered a comment that raises environmental issues related to the adequacy of the Draft EIR's analysis of future impacts associated with implementation of the proposed Program.

A Lead Agency is not required to respond to “non-project-specific secondary materials” submitted to support comments on CEQA documents. (Environmental Protection & Information Center v. California Department of Forestry and Fire Protection (2008) 44 Cal.4th 459, 484.) Generic studies, by themselves, are not substantial evidence that a particular project may have a significant environmental effect in a particular study area. (See, e.g., Save the Plastic Bag Coalition v. City of Manhattan Beach (2011) (52 Cal.4th 155, 175.) Nevertheless, for information purposes, responses have been provided here to the key points made in the Executive Summary.

Please see Master Response 3 and Response to Comment 4a-84 regarding the adequacy of CVRWQCB enforcement of the General Order. The Food and Water Watch (FWW) addresses inspection, monitoring, and enforcement under an outdated 2007 General Order for existing dairies. It does not address inspection, monitoring, and enforcement under the reissued 2013 General Order. The criticisms of the CVRWQCB's enforcement are based on outdated, selective, and anecdotal observations.

Comment 4c-2: *The General Order is not living up to the promise of protecting groundwater quality and preventing pollution.* Although the 2007 General Order is a vast improvement over the previous policy of allowing dairies to operate without waste discharge requirements, our review finds that limitations of the General Order allow groundwater to continue to be degraded. The General Order as written also makes it difficult to gauge the degree of risk to public health from dairy waste contamination of groundwater. It does not require dairies to monitor groundwater for all of the contaminants for which the state has drinking water quality standards, even in cases where initial testing shows that dairy waste has reached and is affecting the aquifer.

Response: See Master Response 3 and Responses to Comments 4a-84 and 4c-1.

Comment 4c-3: *The Central Valley Regional Board's failure to implement regulations until late 2007 allowed serious groundwater contamination from industrial dairies in the Central Valley.* The General Order requires dairies to submit annual reports on groundwater quality. Sixty percent of the nearly 1,500 dairies covered under the new rules reported that their own wells were contaminated with nitrates above the drinking water standard of 10 milligrams per liter (mg/L) at the time that the rules came into effect. Forty percent of the dairies – more than 550 facilities – reported that they had nitrate levels of at least twice the drinking water standard.

Response: See Master Response 3 and Responses to Comments 4a-84 and 4c-1. The Draft EIR documents nitrate contamination near dairies on pages 3.9-21 through 3.9-31.

Comment 4c-4: *Pollution from dairies may be posing a significant risk to private household wells in the Central Valley.* Eighty-five percent of dairies reported that they were located within 300 feet of an off-site domestic (household) well.

Response: See Master Response 3 and Responses to Comments 4a-84 and 4c-1.

Comment 4c-5: *The CVRWQCB is not analyzing the data supplied by dairies from their on-site wells in a timely manner, nor is it reporting this data in a way that is useful to the stakeholders involved.* As a result, it is nearly impossible to track improvements or backsliding over time on specific dairies – in other words, it is impossible to tell if the General Order is having an effect.

Response: See Master Response 3 and Responses to Comments 4a-84 and 4c-1.

Comment 4c-6: *When dairies submit data showing groundwater contamination in their on-site wells, the CVRWQCB is not requiring them to take further steps to test and monitor their groundwater to determine the scope of the problem,* although the General Order explicitly allows the board to require additional monitoring. Only 4 percent of dairies that reported nitrate levels in their own wells of between 10 and 20 mg/L, and 9 percent of dairies with nitrate levels over 20 mg/L, received enforcement letters requiring them to implement further groundwater monitoring in the first year after the reports were due.

Response: See Master Response 3, and Responses to Comments 4a-84 and 4c-1.

Comment 4c-7: *Enforcement of penalties against dairies that do not turn in required paperwork is nonexistent.* We found that 71 dairies failed to turn in part or all of the required paperwork on time in the first year after the General Order was implemented. Many failed to turn in nutrient management plans, the documents in which dairy operators lay out how they will manage manure to avoid water quality impacts. These plans are the heart of the General Order and their absence is a serious concern. A review of dairy files and the CVRWQCB's database of civil liability actions found that none of these dairies had been fined for late paperwork.

Response: See Master Response 3 and Responses to Comments 4a-84 and 4c-1.

Comment 4c-8: *Enforcement of the General Order is also a major problem.* Our review found that the CVRWQCB has failed to take adequate enforcement action in cases where dairies are violating this and other state and federal water quality laws and regulations. For example, in one dairy's file at the board office, we found evidence of nine different inspections and six notices of violation from board staff for unauthorized waste discharge into a river that fed a groundwater aquifer. Several of the documents explicitly mentioned that the dairy was in violation of the Antidegradation Policy, the Basin Plans, Title 27 and the California Water Code – the laws and regulations that the general Order is supposed to uphold – as well as the federal Clean Water Act. As of this writing, the dairy continues to be in violation of both state and federal law, 27 years after a neighbor brought the first and 17 years after board staff carried out the first inspection. No fines have ever been issued.

Response: See Master Response 3 and Responses to Comments 4a-84 and 4c-1.

Comment 4c-9: *There is a serious lag time between when CVRWQCB staff inspections of the dairies identify violations – including discharges to surface water or groundwater – and when dairies receive notices of violation.* In one example, inspectors found that a dairy was violating the General Order but did not send a notice of violation for six months. The dairy responded to the notice; a full eight months later, board staff sent a letter to the dairy letting the operator know that its response was insufficient. To date, two years have passed since the staff identified a violation on the dairy, but the problem has not been resolved.

Response: See Master Response 3 and Responses to Comments 4a-84 and 4c-1.

Comment 4c-10: *Federal policy plays a role.* Although the board is responsible for implementing and enforcing state water laws and regulations, this report finds that federal agricultural policies have driven dairies to get larger over time, concentrating production and waste in the Central Valley. Federal policy changes must also accompany state and regional action in order to help California's dairy industry become more sustainable and to reduce the public health and environmental costs associated with industrial-scale facilities.

Response: This comment does not raise an environmental issue related to EIR adequacy, and no response is required. CEQA Guidelines Sections 15088(a), 15088(c).

Comment 4c-11: *The governor and the California State Legislature must prioritize groundwater protection by directing the State Water Quality Control Board to implement a comprehensive statewide monitoring program for groundwater quality and quantity.*

Groundwater protection should be prioritized by devoting more funds to the regional water boards for adequate staffing.

The governor and state legislators must appoint board members who will implement the Antidegradation Policy and prioritize the protection of beneficial uses of state waters, especially domestic and municipal supply.

Despite existing budget and staffing limitations, the CVRWQCB can and should take action to improve outcomes under the General Order.

- *Fine bad actors that remain in violation of water quality laws if they do not remedy the problem after a notice of violation is issued.*
- *Implement a groundwater monitoring program that can assess water quality by including all contaminants of concern listed in the region's Basin Plans.*
- *Implement a groundwater monitoring program that can track the impacts of the General Order and identify the sources of pollution.*
- *Require that data be gathered and reported in a standardized way and submitted electronically.*
- *In cases where dairies are complying with the General Order but data show that contamination continues to occur, require dairies to implement more stringent best practices, including lagoon liners.*
- *Require clean up and abatement actions where dairies have contributed to pollution of state waters.*

At the federal level, Congress, the U.S. Department of Agriculture (USDA) and the U.S. Department of Justice must address the factors that drive dairies to industrialize, and they must better support more decentralized dairy supply chains.

Response: This comment sets forth recommendations for federal and state government, and does not raise an environmental issue related to EIR adequacy, so no response is required. Nevertheless, it should be noted that the Sustainable Groundwater Management Act of 2014, which was enacted after the FWW report was published, does establish a statewide groundwater management program. See Draft EIR p. 3.9-8 for a description.

**Comments on the Air Quality and Greenhouse Gas Emissions Analysis Provided in the
Draft Environmental Impact Report (DEIR)**

for the

**Animal Confinement Facilities Plan (ACFP), and Dairy and Feedlot Climate Action Plan
(CAP)**

January 2016

by

**Dr. Ranajit (Ron) Sahu
Consultant**

Documents Reviewed

- 5-1 | In preparing these comments I have reviewed the following documents provided in the record for the above DEIR:
- Chapters 1, Chapter 2, Section 3.3, Section 3.7, and Chapter 5 for the DEIR;
 - Appendix A, Appendix B, Appendix C, Appendix E, Appendix P, and Appendix Q
- In addition, as I note in the comments, I have consulted additional documents and papers as needed.

Comments

- 5-2 | 1. This programmatic DEIR only considers one alternative in addition to the no project alternative.¹ This is far too limiting to be consistent with or to meet the objectives of the underlying ACFP² or the CAP. As others have commented, additional alternatives not solely reliant on the use of digesters as the means to practically control methane emissions from just new facilities (or significantly expanded existing facilities) need to be considered. This is a fatal flaw that renders this DEIR a meaningless document.
- 5-3 | 2. Not including the analysis of options to control and reduce greenhouse gas emissions from existing facilities makes the DEIR a meaningless analytical document to support the CAP. This is a fatal flaw and renders the CAP moot.
- 5-4 | 3. Comment 1 notwithstanding, the Draft EIR finds that there are at least three significant, unavoidable air quality impacts³ and three additional significant, unavoidable greenhouse gas impacts.⁴ All three identified impacts are major. Yet, the DEIR provides no assurances as to
- 5-5 | how any of these significant impacts will be mitigated. Instead, the DEIR simply passes the

¹ See, for example, Executive Summary, p. ES-3 and ES-4.

² These objectives are listed, for example in Chapter 1, Section 1.3 or Appendix A, Section 1.3.

³ See Impacts #3.3.1, 3.3.2, and 3.3.3, Section 6.2.

⁴ See Impacts #3.7.1, 3.7.2 and 3.7.3, Section 6.2.

buck to the San Joaquin Valley Air Pollution Control District, the air quality regulator, to deal with the problem.⁵ It is unclear how a program that will result in significant impacts by the actions of Tulare County can simply be mitigated by another agency. It should be the primary responsibility of the proposing Agency (i.e., Tulare County) to identify the appropriate mitigations or to choose alternatives that do not cause the significant, unmitigated impacts to begin with. Without this, the programmatic DEIR is merely a disjointed, check-the-box exercise, with no meaning – other than to provide thin cover to allow massive increases in numerous air pollutants without any means of dealing with them.

5-6 | To see how ludicrous this is, one can imagine the reaction if a private facility were to propose a new facility or a major expansion of an existing facility, who would then prepare a Draft EIR or similar analysis showing significant impacts, and simply note that air quality issues and GHG increases will be dealt with by the air quality regulator – with no additional details. This would not pass muster to say the least because it violates a fundamental equity – namely that it is the responsibility of the project proponent to (a) conduct the proper analysis; and (b) propose appropriate mitigations to offset the impacts resulting from that analysis. By not following this, Tulare County is simply abdicating its own responsibilities.

5-7 | Based on this, the DEIR is fatally compromised and should simply be set aside.

5-8 | 4. The program objectives, as stated in Sections 2.1.1 and 2.1.2 are confusing. For the CAP, the program objectives seem to simply: (a) update the CAP so as to “improve the way dairies and other bovine confinement facilities are regulated”; and (b) to address the growth in dairies and bovine confinement facilities. For existing facilities, the goal of the program seems to simply be the identification and automatic grandfathering of such facilities, regardless of current non-compliance. For expanded facilities the goal appears to be a grandfathering, via this EIR of
5-9 | unspecified smaller expansions via a checklist⁶ and possibly additional CEQA review of larger
5-10 |

⁵ As the mitigation measure for Impact #3.3.1 notes, “...the County will notify the SJVAPCD...” p. 3.3-26. Similarly, the mitigation measures for Impacts #3.3.2 and #3.3.3 simply also note that “...the County will notify the SJVAPCD...” p. 3.3-32. The requirement, in all three cases, that the owner will be required to “submit a Corrective Action Plan” is utterly meaningless since it contains no details whatsoever – such as the need to mitigate the respective impacts to below significance.

5-11 | expansions. For new facilities the program goal seems to be additional and new CEQA review. See Section 2.1.3. Thus, the current “programmatic” analysis would appear to apply to existing facilities that might undertake smaller expansions, which would then not need to conduct any additional CEQA analysis, including air quality or GHG analysis. Since existing facilities that want to undertake larger expansions and all new facilities would need their own project-specific CEQA analysis, per Section 2.1.3, this programmatic EIR is of no use.

5-12 | Yet, in spite of these stated program goals, the air quality and GHG analysis does not limit its analysis to existing facilities that are undertaking or planning small expansions. Rather, contrary to the program goals in Section 2.1.3, these analyses appear to provide programmatic cover to new facilities.

5-13 | The EIR should address this confusion by clearly stating the goals of the program for which this EIR is being prepared. It would help if the goals include clearly the scope that is not intended to be covered by the program. Following from this clear set of scope/goals for the program, the requisite air quality and greenhouse gas analysis can then be conducted.

5-14 | 5. GHG reduction measures considered in the analysis are incomplete, too limiting, and meaningless. Appendix B of the DEIR contains the CAP in the form of a report by consultant Ramboll Environ. At the outset, this report states “[N]otably, at both the state and federal regulatory levels, GHG emissions reduction targets are not imposed on livestock emissions. (internal citation omitted) This is due, in large part, to the unavailability of feasible means to substantially reduce livestock emissions. Consequently, livestock emissions reduction strategies are exclusively limited to voluntary and incentive-based programs. (internal citation omitted)”⁷

5-15 | Based on this assumption, the analysis makes no effort to evaluate potential candidate approaches for lowering methane emissions from livestock. Instead, it simply assumes that the only viable approach is a combination of measures in Table 4, with a specific emphasis on the use of digesters, as discussed in Section 8 of Appendix B.

⁶ I note that the checklist would apply to expansions when each such expansion can emit up to 25,000 metric tons of greenhouse gases, for example – which is not a small quantity. See Appendix A to ACFP, p. A-1, (pdf p. 22 of the Appendices). Considering the number of existing dairies and bovine confinement facilities in Tulare County, the County with the largest number of such facilities in CA, and the resulting possibilities of expansion, the cumulative allowable GHG emissions that are grandfathered and covered by this checklist approach is mind boggling.

⁷ Appendix B, p. 2 and p. 19.

- 5-16 | 6. Appendix B, Table 3 shows the sources and quantities of GHG in the baseline and future
years. The three largest sources are manure decomposition, enteric digestion, and emissions
5-17 | from farm agricultural soils. Table 4 discusses the GHG reduction strategies considered in the
analysis. An examination of the strategies in Table 4 applicable to dairy operations shows that
5-18 | the analysis only considered feed additives and Total Mixed Ration (TMR) feeding strategies
5-19 | along with the use of digesters to use methane for energy production. None of the measures
5-20 | considered led to any quantitative reductions of the projected massive GHG emissions increases.
5-21 | I note also that while the analysis mentions diet changes, footnote 48 effectively discourages any
feed changes. Not surprisingly, the analysis does not attempt any quantitative reduction from
5-22 | introducing these strategies at expanding or new facilities. As noted previously, the analysis did
not include any strategies for reduction of GHG (or any pollutants) from existing facilities.
Thus, even though Table 3 shows that the “project” will increase GHG emissions by well over
1.5 million tons per year by 2023 as compared to the baseline of 2013, there are no viable
options to mitigate any of these reductions. Instead, expanding and new facilities are simply
asked to accomplish unspecified voluntary reductions and possibly the use of digesters. The
numerous other reduction measures in Table 4 applicable to non-dairy operations are likely to
result, even if implemented, relatively small emissions reductions, based on the inventories
provided in Table 3.
- 5-23 | Even considering the subset of measures that expanding or new facilities “must” implement, as
shown in Table 5, it is obvious that the measures D1 through D4 for dairy operations are so
generic and non-quantitative, as to be meaningless. And, measures D5 through D7, which
expanding or new facilities must consider are equally meaningless since it relies mainly on
pushing digesters at facilities.
- 5-24 | The analysis does not provide any discussion or context for whether measures D1 through D7,
individually or collectively can make a meaningful dent in the massive increase in projected
emissions of GHGs in the 2013-2023 timeframe.
- 5-25 | 7. The analysis states that “...the most promising technology for addressing animal-related GHG
emissions is the implementation of digesters.”⁸ However, the report does not provide any basis

- for this optimism. The track record for success using digesters to reduce methane emissions at existing facilities is not promising.
- 5-26 As a recent Wall Street Journal article notes, digesters, due to their high maintenance costs and general complexity, are being shut down by farmers across the US given lower energy costs from other sources.⁹
- 5-27 A more detailed discussion of digesters in California is even more damning.¹⁰ As this report states:
- “[A]lthough 29 digesters have been installed in the state since 1989, recent reports indicate that there may now be only 13 California dairies with an operational anaerobic digester. Eleven of these are located at large dairy farms in the Inland Valleys, and two are located at smaller dairies in Marin County. Despite the availability of both federal and state funding for digester construction, numerous policy initiatives to promote these solutions, and the creation of a CARB compliance offset protocol for livestock projects, only a tiny fraction of California’s roughly 1,400 dairies currently have working digesters. Of the larger California dairies with 500 or more cows—a herd size that U.S. EPA considers conducive to digester installation—less than two percent currently use an anaerobic digester to handle their methane emissions.”¹¹
- 5-28 While digesters might be promising in specific cases, their widespread and successful implementation, as assumed by the Environ analysis, is simply unlikely to materialize.
- 5-29 Instead, the CAP should consider a far more diversified mix of strategies for reducing GHG emissions. Tulare County, with its large number of dairies and feedlots might be in the best position to implement just such a diverse mix of strategies.
- 5-30 To that end, the six recommendations in the recent CalCAN report are worth considering and a revised analysis should consider these recommendations:

⁸ Appendix B, p. 38.

⁹ WSJ, February 18, 2016.

¹⁰ See report titled Diversified Strategies for Reducing Methane Emissions from Dairy Operations, CalCAN, October 2015. Available at <http://calclimateag.org/wp-content/uploads/2015/11/Diversified-Strategies-for-Methane-in-Dairies-Oct.-2015.pdf>

¹¹ *Ibid.*, p.3.

- 5-31 | (i) Diversify beyond a focus on funding anaerobic digestion systems and reconsider digester strategies to ensure long-term benefits of public investment;
- 5-32 | (ii) To maximize the benefits of public investment, focus on digester strategies that support long-term operation of at least 20 years. Pursue projects and funding structures that shift digester operation and maintenance away from individual dairy producers to third-party operators that can provide performance guarantees on state-subsidized digesters. Ensure that California dairies benefit from a non-regulatory approach, which addresses GHG emissions and reduces financial risk, while providing compensation for the use of their manure waste;
- 5-33 | (iii) Provide adequate incentives for co-digestion projects that offer the dual benefits of reduced methane emissions from dairy manure and landfills;
- 5-34 | (iv) Develop dry manure management incentives that result in economical methane reductions, job creation, and provide other co-benefits such as compost production. To the extent the current analysis includes dry manure systems as mitigation measure D6, for example, more detail should be provided;
- 5-35 | (v) Develop demonstration projects for pasture-based dairy practices, bringing together interested dairy operators, technical providers (e.g., USDA NRCS, RCDs, etc.) and university researchers (e.g., UC Davis and Chico State dairy programs, etc.) to create opportunities for ‘mixed’ dairy systems that incorporate aspects of pasture grazing into their operations; and
- 5-36 | (vi) Support research and demonstration on strategies that reduce emissions from enteric fermentation. Include strategies that are relevant for organic and pasture-based systems because they maximize environmental co-benefits. As a recent “Cow of the Future” draft report from the Innovation Center for US Dairy¹² states, a combination of advances in management practices, herd structure, genetic selection, rumen function, and feed efficiency, is expected to result in 25% reduction of enteric methane emissions on a per pound of milk production basis by 2020. Tulare County would seem like the perfect place to incorporate these research and demonstration

¹² Available at http://www.usdairy.com/~media/usd/public/cowofthefuturewhitepaper_7-25-11.pdf.ashx.

- projects to effect reductions in enteric methane emission, which Table 3 of Environ’s analysis shows, is the second largest source of GHG emissions.
- 5-37 | 8. In addition to the comments above, I ask that the revised analysis justify or support numerous assumptions made in the air quality and GHG emissions analysis:
- 5-38 | (a) Provide support for the assumption that Tulare County has the same distribution of waste management systems as the state of CA. See FN [c] to Table A-7 in the Ramboll Environ report;
- 5-39 | (b) Provide support for the applicability of CARB values for VS, B0, and MCF to the herds in Tulare County – see FN [d], [e], and [f] to Table A-7 in the Ramboll Environ report;
- 5-40 | (c) Support for the manure production rates (lb/day/head) obtained from the SJVAPCD (personal communication with Ramon Norman), as used in Table 4, on pdf page 334 of the Appendices to the DEIR. Please provide the basis for Mr. Norman’s numbers.
- 5-41 | (d) Support for the surface area factors used in Table 9 on pdf page 337 (and also Table 9 on pdf page 384) of the Appendices to the DEIR. Please provide the basis for Mr. Norman’s data.
- 5-42 | (e) Support for the ammonia emission factors used in Tables 11 and 12, on pdf pages 338 and 339, respectively. Similar to the above, please provide the basis for Mr. Norman’s data.
- 5-43 | (f) Complete details of the personal communications (with Mr. Sheraz Gill of the SJVAPCD) supporting the calculations provided in Table 22 on pdf page 349 of the Appendices to the DEIR.

Comment Letter 5: Dr. Ranajit (Ron) Sahu

Comment 5-1: *In preparing these comments I have reviewed the following documents provided in the record for the above DEIR:*

- Chapters 1, Chapter 2, Section 3.3, Section 3.7 and Chapter 5 for the DEIR;
- Appendix A, Appendix B, Appendix C, Appendix E, Appendix P, and Appendix Q

In addition, as I note in the comments, I have consulted additional documents and papers as needed.

Response: This comment does not raise an environmental issue related to EIR adequacy, and no further response is required. CEQA Guidelines Sections 15088(a), 15088(c).

Comment 5-2: *This programmatic DEIR only considers one alternative in addition to the no project alternative.¹ This is far too limiting to be consistent with or to meet the objectives of the underlying ACFP² or the CAP. As others have commented, additional alternatives not solely reliant on the use of digesters as the means to practically control methane emissions from just new facilities (or significantly expanded existing facilities) need to be considered. This is a fatal flaw that renders this DEIR a meaningless document.*

Response: Master Response 4 explains why the Draft EIR’s range of alternatives meets CEQA requirements. There is no set number of alternatives that constitutes a reasonable range. EIRs may properly consider in detail a single action alternative in addition to the no project alternative. See, e.g., *Marin Municipal Water District v. KG Land Cal. Corp.* (1991) 235 Cal. App. 3d 1652. Also, the Draft EIR’s alternatives are not “solely reliant” on the use of digesters to reduce GHG emissions. Digesters are one of many GHG reduction strategies included in the Dairy CAP. Dairy CAP Table 4 lists over 40 potential GHG reduction strategies in the following categories: dairy operations; energy conservation and efficiency; transportation; water, solid waste and recycling, and miscellaneous.

Comment 5-3: *Not including the analysis of options to control and reduce greenhouse gas emissions from existing facilities makes the DEIR a meaningless analytical document to support the CAP. This is a fatal flaw and renders the CAP moot.*

Response: Please see Master Response 1 for an explanation of the overall approach to the Dairy CAP. Under the Dairy CAP, the County will encourage and promote the availability of incentive funding, such as the utilization of the 2016 Budget Act’s \$50 million allocation, to support and incentivize the voluntary construction of manure digesters and other methane emissions reduction projects by existing dairies. The County has limited land use authority over existing dairy dairies.

Comment 5-4: *Comment 1 notwithstanding, the Draft EIR finds that there are at least three significant, unavoidable air quality impacts³ and three additional significant, unavoidable greenhouse gas impacts.⁴*

Response: This comment does not raise an environmental issue related to EIR adequacy, and no further response is required. CEQA Guidelines Sections 15088(a), 15088(c).

Comment 5-5: *All three identified impacts are major. Yet, the DEIR provides no assurances as to how any of these significant impacts will be mitigated. Instead, the DEIR simply passes the buck to the San Joaquin Valley Air Pollution Control District, the air quality regulator, to deal with the problem.⁵ It is unclear how a program that will result in significant impacts by the actions of Tulare County can simply be mitigated by another agency. It should be the primary responsibility of the proposing Agency (i.e., Tulare County) to identify the appropriate mitigations or to choose alternatives that do not cause the significant, unmitigated impacts to begin with. Without this, the programmatic DEIR is merely a disjointed, check-the-box exercise, with no meaning – other than to provide thin cover to allow massive increases in numerous air pollutants without any means of dealing with them.*

Response: The Draft EIR's air quality and GHG mitigation measures meet CEQA requirements. Regarding air quality mitigation, Mitigation Measure #3.3.1 requires facility owners to submit evidence of full compliance with all SJVAPCD permits and regulations; if there is noncompliance the County will notify the SJVAPCD and require the owner to submit a Corrective Action Plan to achieve compliance. Compliance with regulatory agency requirements is a common and reasonable CEQA mitigation measure. See, e.g., *Oakland Heritage Alliance v. City of Oakland* (2011) 195 Cal. App. 4th 884.

Impacts #3.3.1, 3.3.2, and 3.3.3 would remain significant after mitigation for the reasons explained in Draft EIR pages 3.3-27 through 3.3-33. The comment does not suggest any additional potentially feasible air quality mitigation measures that the Draft EIR should have considered.

Regarding the adequacy of the Draft EIR's GHG mitigation measures, please see Master Response 2.

Comment 5-6: *To see how ludicrous this is, one can imagine the reaction if a private facility were to propose a new facility or a major expansion of an existing facility, who would then prepare a Draft EIR or similar analysis showing significant impacts, and simply note that air quality issues and GHG increases will be dealt with by the air quality regulator – with no additional details. This would not pass muster to say the least because it violates a fundamental equity – namely that it is the responsibility of the project proponent to (1) conduct the proper analysis; and (2) propose appropriate mitigations to offset the impacts resulting from that analysis. By not following this, Tulare County is simply abdicating its own responsibilities.*

Response: Please see Response to comment 5-5. The Draft EIR on p. 3.3-1 through 3.3-10 thoroughly describes the SJVAPCD regulations that would serve to reduce the proposed Program's air pollutant emissions. The County is not "abdicating" its mitigation responsibilities. A specific Program objective (see Draft EIR p. 2-2) is to avoid overlap and duplication with water quality and air quality oversight provided by the RWCB and the SJVAPCD. Mitigation Measure #3.3.1 helps achieve this objective by requiring the County to assure facility compliance with SJVAPCD regulations.

Comment 5-7: *Based on this, the DEIR is fatally compromised and should simply be set aside.*

Response: Please see responses to comments 5-5 and 5-6.

Comment 5-8: *The program objectives, as stated in Sections 2.1.1 and 2.1.2 are confusing. For the CAP, the program objectives seem to simply: (a) update the CAP so as to “improve the way dairies and other bovine confinement facilities are regulated”; and (b) to address the growth in dairies and bovine confinement facilities.*

Response: Draft EIR Section 2.1.2 states the five program objectives. The language cited by the commenter is not included in the statement of project objectives, but rather in the Program background section (Section 2.1.1), and as such is appropriate to provide context.

Comment 5-9: *For existing facilities, the goal of the program seems to simply be the identification and automatic grandfathering of such facilities, regardless of current non-compliance.*

Response: Program objective 2 does not provide for “automatic grandfathering” of existing facilities regardless of compliance. Rather, it calls for “procedures to achieve compliance” for those existing facilities that are not in compliance. See Draft EIR p. 2-2.

Comment 5-10: *For expanded facilities the goal appears to be grandfathering, via this EIR of unspecified smaller expansions via a checklist⁶ and possibly additional CEQA review of larger expansions. For new facilities the program goal seems to be additional and new CEQA review.*

Response: The “goal” language included in the comment is not a Program objective. The relevant Program objective (number 4) is to update and simplify the permitting processes for expanded and new bovine facilities. Regarding footnote 6, Draft Dairy CAP Section 5.2.2 explains the rationale for use of 25,000 MT CO₂e/year as the streamlined analysis level for proposed facility expansions.

Comment 5-11: *See Section 2.1.3. Thus, the current "programmatic" analysis would appear to apply to existing facilities that might undertake smaller expansions, which would then not need to conduct any additional CEQA analysis, including air quality or GI-IG analysis. Since existing facilities that want to undertake larger expansions and all new facilities would need their own project-specific CEQA analysis, per Section 2.1.3, this programmatic EIR is of no use.*

Response: Consistent with CEQA Guidelines Section 15168, the ACFP and Dairy CAP Program EIR will be used for subsequent project review in two different ways. First, for those facility expansions within the scope of the Program EIR, no additional CEQA analysis would be required. Second, for facility expansions not eligible for streamlined review, and for new facilities, a new CEQA document would be prepared, but project-specific CEQA reviews would be made more efficient by tiering from the Program EIR. For example, programmatic alternatives, mitigation measures, and cumulative impacts will already have been evaluated, and project-specific CEQA documents would not need to repeat these analyses. See Draft EIR Section 1.4 and CEQA Guidelines Section 15168(b).

Comment 5-12: *Yet, in spite of these stated program goals, the air quality and GHG analysis does not limit its analysis to existing facilities that are undertaking or planning small expansions. Rather, contrary to the program goals in Section 2.1.3, these analyses appear to provide programmatic cover to new facilities.*

Response: See Response to Comment 5-11. CEQA documents for new facilities would be required to conduct project-specific air quality impact analyses, but can rely on the Program EIR's analysis of cumulative air quality impacts of all expanded and new dairy and other bovine facilities. One advantage of a Program EIR is to ensure consideration of cumulative impacts, which then need not be re-considered on CEQA documents prepared for later activities. CEQA Guidelines Sections 15168(b), (c).

Comment 5-13: *The EIR should address this confusion by clearly stating the goals of the program for which this EIR is being prepared. It would help if the goals include clearly the scope that is not intended to be covered by the program. Following from this clear set of scope/goals for the program, the requisite air quality and greenhouse gas analysis can then be conducted.*

Response: The Program objectives are clearly stated in Draft EIR Section 2.1.2. Responses to Comments 5-8 through 512 answer the commenter's specific questions about the goals (i.e., objectives) and scope of the proposed Program.

Comment 5-14: *GHG reduction measures considered in the analysis are incomplete, too limiting, and meaningless.*

Response: Please see Master Response 1D regarding the scope of GHG reduction strategies in the Dairy CAP, including the expansion and clarification as to certain items in response to comments on the Draft EIR.

Comment 5-15: *Appendix B of the DEIR contains the CAP in the form of a report by consultant Ramboll Environ. At the outset, this report states "[N]otably, at both the state and federal regulatory levels, GHG emissions reduction targets are not imposed on livestock emissions. (internal citation omitted) This is due, in large part, to the unavailability of feasible means to substantially reduce livestock emissions. Consequently, livestock emissions reduction strategies are exclusively limited to voluntary and incentive-based programs. (internal citation omitted)"⁷ Based on this assumption, the analysis makes no effort to evaluate potential candidate approaches for lowering methane emissions from livestock. Instead, it simply assumes that the only viable approach is a combination of measures in Table 4, with a specific emphasis on the use of digesters, as discussed in Section 8 of Appendix B.*

Response: Please see Master Response 1 for an explanation of the overall approach to the Dairy CAP and Master Response 1C regarding the addition of voluntary benchmark targets in Section 6 of the Dairy CAP. (Also, see Master Response 1D and its discussion of the scope and range of emissions reduction strategies incorporated in the Dairy CAP.)

Comment 5-16: *Appendix B, Table 3 shows the sources and quantities of GHG in the baseline and future years. The three largest sources are manure decomposition, enteric digestion, and emissions from farm agricultural soils.*

Response: The Dairy CAP does present an inventory of GHG emissions for the proposed Program. This comment does not raise an environmental issue related to EIR adequacy, and no further response is required. CEQA Guidelines Section 15088(a), 15088(c)

Comment 5-17: *Table 4 discusses the GHG reduction strategies considered in the analysis. An examination of the strategies in Table 4 applicable to dairy operations shows that the analysis only considered feed additives and Total Mixed Ration (TMR) feeding strategies along with the use of digesters to use methane for energy production. None of the measures considered led to any quantitative reductions of the projected massive GHG emissions increases.*

Response: Please see Master Response 1D and its discussion of emissions reduction strategies incorporated in the Dairy CAP. Also, please see Master Response 1C regarding the voluntary benchmark targets added to the Dairy CAP.

Comment 5-18: *I note also that while the analysis mentions diet changes, footnote 48 effectively discourages any feed changes.*

Response: This footnote notes that diet changes are not always feasible or warranted and that they may have little effect on GHG emissions generated per unit of milk.

Comment 5-19: *Not surprisingly, the analysis does not attempt any quantitative reduction from introducing these strategies at expanding new facilities.*

Response: Please see Master Responses 1A and 1E regarding the approach to the Dairy CAP and its implementation.

Comment 5-20: *As noted previously, the analysis did not include any strategies for reduction of GHG (or any pollutants) from existing facilities.*

Response: Please see Response to Comment 5-3.

Comment 5-21: *Thus, even though Table 3 shows that the “project” will increase GHG emissions by well over 1.5 million tons per year by 2023 as compared to the baseline of 2013, there are no viable options to mitigate any of these reductions. Instead, expanding and new facilities are simply asked to accomplish unspecified voluntary reductions and possibly the use of digesters.*

Response: Please see Master Responses 1A, 1B, 1D, 1E and 2, which explain the approach taken to the Dairy CAP, its adequacy for CQEA streamlining, and the adequacy of the Draft EIR’s GHG analysis and mitigation measures.

Comment 5-22: *The numerous other reduction measures in Table 4 applicable to non-dairy operations are likely to result, even if implemented, relatively small emissions reductions, based on the inventories provided in Table 3.*

Response: The inventories of baseline GHG emissions from existing facilities and projected future 2023 emissions with the implementation of the proposed Program show that the most significant sources of GHG emissions are manure decomposition and enteric digestion. This is noted in Section 3 of the Dairy CAP.

Comment 5-23: *Even considering the subset of measures that expanding or new facilities “must” implement, as shown in Table 5, it is obvious that the measures D1 through D4 for dairy operations are so generic and non-quantitative, as to be meaningless. And, measures D5 through D7, which expanding or new facilities must consider are equally meaningless since it relies mainly on pushing digesters at facilities.*

Response: The Dairy CAP, as revised, incorporates emissions reduction strategies for animal-related GHG emissions identified in CARB’s SLCP Strategy and the CalCAN Memo. Please see Master Responses 1A, 1B, 1D and 1E regarding the scope of emissions reduction strategies for animal-related emissions.

Comment 5-24: *The analysis does not provide any discussion or context for whether measures D1 through D7, individually or collectively can make a meaningful dent in the massive increase in projected emissions of GHGs in the 2013-2023 timeframe.*

Response: Please see Response to Comment 5-23.

Comment 5-25: *The analysis states that “...the most promising technology for addressing animal-related GHG emissions is the implementation of digester.”⁸ However, the report does not provide any basis for this optimism. The track record for success using digesters to reduce methane emissions at existing facilities is not promising.*

Response: Please see Master Responses 1A, 1B, 1C, 1D, 1E regarding the new source of incentive funding for digesters and other emissions-reducing strategies under AB 1613, which was enacted after the circulation of the Draft EIR, and the legislative initiatives to address the barriers to digesters and biomethane use.

Comment 5-26: *As a recent Wall Street Journal article notes, digesters, due to their high maintenance costs and general complexity, are being shut down by farmers across the US given lower energy costs from other sources.⁹*

Response: Please see Responses to Comments 5-23 and 5-25.

Comment 5-27: *A more detailed discussion of digesters in California is even more damning.¹⁰ As this report states:*

“[A]lthough 29 digesters have been installed in the state since 1989, recent reports indicate that there may now be only 13 California dairies with an operational anaerobic digester. Eleven of these are located at large dairy farms in the Inland Valleys, and two are located at smaller dairies in Marin County. Despite the availability of both federal and state funding for digester construction, numerous policy initiatives to promote these solutions, and the creation of a CARB compliance offset protocol for livestock projects, only a tiny fraction of California’s roughly 1,400 dairies currently have working digesters. Of the larger California dairies with 500 or more cows – a herd size that U.S. EPA considers conducive to digester installation – less than two percent currently use an anaerobic digester to handle their methane emissions.”¹¹

Response: Please see Responses to Comments 5-23 and 5-25.

Comment 5-28: *While digesters might be promising in specific cases, their widespread and successful implementation, as assumed by the Environ analysis, is simply unlikely to materialize.*

Response: Please see Responses to Comments 5-23 and 5-25.

Comment 5-29: *Instead, the CAP should consider a far more diversified mix of strategies for reducing GHG emissions. Tulare County, with its large number of dairies and feedlots might be in the best position to implement just such a diverse mix of strategies.*

Response: Please see Master Response 1D and its discussion of the range and scope of emissions reduction strategies incorporated in the Dairy CAP.

Comment 5-30: *To that end, the six recommendations in the recent CalCAN report are worth considering and a revised analysis should consider these recommendations.*

Response: Please see Master Response 1D. The Dairy CAP has been revised to incorporate the emissions reduction strategies recommended in the CalCAN Memo.

Comment 5-31: *Diversify beyond a focus on funding anaerobic digestion systems and reconsider digester strategies to ensure long-term benefits of public investment.*

Response: Please see Responses to Comments 5-23 and 5-25.

Comment 5-32: *To maximize the benefits of public investment, focus on digester strategies that support long-term operation of at least 20 years. Pursue projects and funding structures that shift digester operation and maintenance away from individual dairy producers to third-party operators that can provide performance guarantees on state-subsidized digesters. Ensure that California dairies benefit from a non-regulatory approach, which addresses GHG emissions and reduces financial risk, while providing compensation for the use of their manure waste.*

Response: Please see Responses to Comments 5-23 and 5-25. These recommendations appear to be directed to state policymakers and do not apply to the proposed Program evaluated under the Draft EIR.

Comment 5-33: *Provide adequate incentives for co-digestion projects that offer the dual benefits of reduced methane emissions from dairy manure and landfills.*

Response: Please see Responses to Comments 5-23, 5-25 and 5-32.

Comment 5-34: *Develop dry manure management incentives that result in economical methane reductions, job creation, and provide other co-benefits such as compost production. To the extent the current analysis includes dry manure systems as mitigation measure D6, for example, more detail should be provided.*

Response: The Dairy CAP has been revised to expand the range of dry manure management practices in Table 6, under Strategy D6. Also, please see Responses to Comments 5-23, 5-25 and 5-32.

Comment 5-35: *Develop demonstration projects for pasture-based dairy practices, bringing together interested dairy operators, technical providers (e.g., USDA NRCS, RCDs, etc.) and university researchers (e.g., UC Davis and Chico State dairy programs, etc.) to create opportunities for ‘mixed’ dairy systems that incorporate aspects of pasture grazing into their operations.*

Response: Please see Responses to Comments 5-23, 5-25 and 5-32.

Comment 5-36: *Support research and demonstration on strategies that reduce emissions from enteric fermentation. Include strategies that are relevant for organic and pasture-based systems because they maximize environmental co-benefits. As a recent “Cow of the Future” draft report from the Innovation Center for US Dairy¹² states, a combination of advances in management practices, herd structure, genetic selection, rumen function, and feed efficiency, is expected to result in 25% reduction of enteric methane emissions on a per pound of milk production basis by 2020. Tulare County would seem like the perfect place to incorporate these research and demonstration projects to effect reductions in enteric methane emission, which Table 3 of Environ’s analysis shows, is the second largest source of GHG emissions.*

Response: Please see Responses to Comments 5-23, 5-25 and 5-32.

Comment 5-37: *In addition to the comments above, I ask that the revised analysis justify or support numerous assumptions made in the air quality and GHG emissions analysis.*

Response: The Draft EIR’s air quality and GHG analysis assumptions are sufficiently supported in the Draft EIR text, the Dairy CAP text, and associated appendices. This comment fails to identify any specific assumptions of concern, so it is not possible to formulate a further meaningful response.

Comment 5-38: *Provide support for the assumption that Tulare County has the same distribution of waste management systems as the state of CA. See Fin [c] to Table A-7 in the Ramboll Environ report.*

Response: This footnote is intended to reflect the fact that the number of animals per waste management system assumes that the number of animals per waste management system is equivalent to that used by CARB statewide. The language of the footnote has been revised to clarify that.

Comment 5-39: *Provide support for the applicability of CARB values for VS, BO, and MCF to the herds in Tulare County – see FN [d], [e], and [f] to Table A-7 in the Ramboll Environ report.*

Response: The cited footnotes reference the fact that the calculation of manure management methane emissions for dairy cows under Table A-6 and for dairy heifers under Table A-7 utilize CARB's assumptions, which is an authoritative source, as to solids excreted per animal, maximum methane producing capacity for these types of animals and the methane conversion factor. Utilizing CARB's assumptions also assures that the Dairy CAP's calculations are in alignment with CARB's assumptions for purposes of its actions, studies and reports, including the Scoping Plan and the SLCP Strategy.

Comment 5-40: *Support for the manure production rates (lb/day/head) obtained from the SJVAPCD (personal communication with Ramon Norman), as used in Table 4, on pdf page 334 of the Appendices to the DEIR. Please provide the basis for Mr. Norman's numbers.*

Response: Manure production rates were based on the ASAE D384.2/NRCS Ag Waste Management Field Handbook and the average of linear interpolations from ASAE D384.2/NRCS Ag Waste Management Field Handbook and Ohio Livestock Manure Management Guide (Bulletin 604, January 2006, based on MWPS-18).²⁶

Comment 5-41: *Support for the surface area factors used in Table 9 on pdf page 337 (and also Table 9 on pdf page 384) of the Appendices to the DEIR. Please provide the basis for Mr. Norman's data.*

Response: According to Mr. Norman, engineer for the SJVAPCD, the information in Table 9 for the surface area of the total mixed ration was provided to the SJVAPCD by dairy industry representatives when it last amended Rule 4570, and the SJVAPCD has found that these estimates are generally reasonable. For additional information, please see: <https://www.gpo.gov/fdsys/pkg/FR-2012-01-17/pdf/2012-582.pdf>.²⁷

Comment 5-42: *Support for the ammonia emission factors used in Tables 11 and 12, on pdf pages 338 and 339, respectively. Similar to the above, please provide the basis for Mr. Norman's data.*

Response: The SJVAPCD's current ammonia emission factors for dairy cattle are based on ammonia excretion data,²³ proportioning the ammonia emissions factor for milk cows to those of other cattle.

Comment 5-43: *Complete details of the personal communications (with Mr. Sheraz Gill of the SJVAPCD) supporting the calculations provided in Table 22 on pdf page 349 of the Appendices to the DEIR.*

Response: The GHG Emission Factors used in the EIR were based on the 2007 Dairy Greenhouse Gas Emission Factors for Dairies from CARB Documentation of California's Greenhouse Gas Inventory (3rd Edition – Last updated on 5/12/2010). (The more conservative value for anaerobic treatment lagoons from CARB's previous California GHG emissions inventory was used rather than the reduced value in the latest inventory).²⁴



March 23, 2016

County of Tulare
Resource Management Agency
5961 South Mooney Boulevard
Visalia, California 93277

Project: Draft Environmental Impact Report for the Animal Confinement Facilities and Dairy and Feedlot Climate Action Plan (SCH #2011111078)

District CEQA Reference No: 20160082

To Whom It May Concern:

6-1

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the Draft Environmental Impact Report which evaluates the environmental effects of the proposed adoption and implementation of the Tulare County Animal Confinement Facilities Plan (ACFP) and the Dairy and Feedlot Climate Action Plan (DFCAP). The objectives of the ACFP and DFCAP are to: 1) continue the regulation of the County's dairy industry to protect and enhance the County's resources, assure public health and safety, and minimize environmental impacts; 2) identify and document those existing bovine facilities which are operating under valid Regional Water Quality Control Board (RWQCB) and District approvals, and to specify procedures to achieve compliance by those existing bovine facilities that are not yet in compliance; 3) modify, as feasible, the scope of County regulatory responsibilities to avoid overlap and duplication with the water quality and air quality oversight provided by the RWQCB and the District; 4) update and simplify the permitting processes for bovine oversight provided by the RWQCB and the District; 4) update and simplify the permitting process for bovine facility expansions and the establishment of new bovine facilities consistent with the ACFP; 5) develop a DFCAP that analyzes cumulative greenhouse gas (GHG) impacts for dairy and other bovine facilities, and streamlines project-specific GHG impact analysis.

Seyed Sadradin
Executive Director/Air Pollution Control Officer

Northern Region
4801 Enterprise Way
Madera, CA 93654-8716
Tel: (209) 557-6400 FAX: (209) 557-6411

Central Region (Main Office)
1980 E. Gettyburg Avenue
Visalia, CA 93278-0244
Tel: (209) 230-0800 FAX: (209) 230-0961

Southern Region
34648 Pioneer Court
Bakersfield, CA 93308-4705
Tel: (805) 382-5600 FAX: (805) 382-5595

www.svalley.org

www.feedlotliving.com

ATTACHMENT 6

The District appreciates the opportunity to comment on the Draft EIR and offers the following comments:

1) District Attainment Status

The Draft EIR should be clarified to indicate the San Joaquin Valley Air Basin is designated a non-attainment area for state ambient air quality standards for PM10.

6-2

The Draft EIR (page 3.3-3) states "under both the federal and state Clean Air Acts, the San Joaquin Valley Air Basin is a non-attainment area (standards have not been attained) for ozone, and PM2.5." The District would like to clarify the District is currently designated as extreme nonattainment for the 8-hour ozone standard, attainment for PM10 and CO, and non-attainment for PM2.5 for the federal air quality standards. At the state level, the District is designated as non-attainment for the 8-hour ozone, PM10, and PM2.5 standards. The District suggests the County of Tulare clarify the discussion on page 3.3-3. Further information on the District's attainment status can be found at: <http://www.valleyair.org/aginfo/attainment.htm>.

2) District Permitting Requirements

The Draft EIR should be clarified to indicate the appropriate offset requirements for dairy operations.

The District suggests the below paragraph on page 3.3-8 in the Draft EIR be clarified. The District's suggested language is in ~~strikeout~~/underline as follows:

6-3

"Under state law (SB700 of 2003), new and modified dairies with the potential to emit half of the major source threshold (42.5 0 tons of Oxides of Nitrogen (NOx) or Volatile Organic Compounds (VOC) emissions criteria-pollutants) or more annually are required to obtain authorities to construct and permits to operate from an APCD. New and modified stationary sources are required by SJVAPCD Rule 2201 to mitigate their emissions using BACT, and with the exception of non-major stationary sources, to offset emissions when above the applicable thresholds. The SJVAPCD has established dairy VOC emissions factors to help determine which operations require permitting, and help establish BACT for new and expanding dairies."

3) Districts CEQA Significance Threshold for Assessing Health Impacts

The Draft EIR should be clarified to indicate the District's established cancer risk significance threshold of 20 in a million.

6-4 The District suggests the County of Tulare clarify the discussion on page 3.3-33 to include the District's current cancer risk significance threshold. The District recommends the below statement be revised as follows:

"Carcinogens: maximally exposed individual risk equals or exceeds ~~40~~ 20 in one million; and"

The District appreciates the opportunity to comment on the Draft EIR for the proposed County of Tulare Programs. If you have any questions or require further information, please call Mark Montelongo at (559) 230-5905.

Sincerely,

Arnaud Marjollet
Director of Permit Services



Brian Clements
Program Manager

AM: mrm

**Comment Letter 6: San Joaquin Valley Air Pollution Control District
Brian Clements**

Comment 6-1: *The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the Draft Environmental Impact Report which evaluates the environmental effects of the proposed adoption and implementation of the Tulare County Animal Confinement Facilities Plan (ACFP) and the Dairy and Feedlot Climate Action Plan (DFCAP). The objectives of the ACFP and DFCAP are to: 1) continue the regulation of the County's dairy industry to protect and enhance the County's resources, assure public health and safety, and minimize environmental impacts; 2) identify and document those existing bovine facilities which are operating under valid Regional Water Quality Control Board (RWQCB) and District approvals, and to specify procedures to achieve compliance by those existing bovine facilities that are not yet in compliance; 3) modify, as feasible, the scope of County regulatory responsibilities to avoid overlap and duplication with the water quality and air quality oversight provided by the RWQCB and the District; 4) update and simplify the permitting processes for bovine oversight provided by the RWQCB and the District; 4) update and simplify the permitting process for bovine facility expansions and the establishment of new bovine facilities consistent with the ACFP; 5) develop a DFCAP that analyzes cumulative greenhouse gas (GHG) impacts for dairy and other bovine facilities, and streamlines project-specific GHG impact analysis.*

Response: This comment does not raise an environmental issue related to EIR adequacy, no response is required. CEQA Guidelines Sections 15088(a), 15088(c).

Comment 6-2: *The Draft EIR should be clarified to indicate the San Joaquin Valley Air Basin is designated a non-attainment area for state ambient air quality standards for PM₁₀. The Draft EIR (page 3.3-3) states "under both the federal and state Clean Air Acts, the San Joaquin Valley Air Basin is a non-attainment area (standards have not been attained) for ozone, and PM_{2.5}." The District would like to clarify the District is currently designated as extreme nonattainment for the 8-hour ozone standard, attainment for PM₁₀ and CO, and non-attainment for PM_{2.5} for the federal air quality standards. At the state level, the District is designated as non-attainment for the 8-hour ozone, PM₁₀, and PM_{2.5} standards. The District suggests the County of Tulare clarify the discussion on page 3.3-3. Further information on the District's attainment status can be found at <http://www.valleyair.org/aginfo/attainment.htm>.*

Response: Paragraph 5 on page 3.3-3 has been replaced and reads as follows: "Federal and state air quality laws require identification of areas not meeting the AAQS. These areas must develop regional air quality plans to attain the standards. Under both the federal and state Clean Air Acts, an air basin is considered non-attainment if AAQS have not been attained. For the federal AAQS, the San Joaquin Valley Air Basin (SJVAB) is currently designated an extreme nonattainment area for the ozone standard, non-attainment for the PM_{2.5} standard, and attainment for the PM₁₀ standard. For the state AAQS, the SVVAPCD is currently designated as a non-attainment area for the 8-hour ozone, PM₁₀, and PM_{2.5} standards. The SJVAB is designated either attainment or unclassified for the other AAQS." These revisions to setting information do not affect the accuracy of the Draft EIR air quality impact analyses.

Comment 6-3: *“Under state law (SB700 of 2003), new and modified dairies with the potential to emit half of the major source threshold (~~12.50~~ tons of Oxides of Nitrogen (NOx) or Volatile Organic Compounds (VOC emissions criteria pollutants) or more annually are required to obtain authorities to construct and permits to operate from an APCD. New and modified stationary sources are required by SJVAPCD Rule 2201 to mitigate their emissions using BACT, and with the exception of non-major stationary sources, to offset emissions when above the applicable thresholds. The SJVAPCD has established dairy VOC emissions factors to help determine which operations require permitting, and help establish BACT for new and expanding dairies.*

Response: Paragraph 7 on page 3.3-8 has been revised and reads as follows:

“Under state law (SB 700 of 2003), new and modified dairies with the potential to emit half of any applicable major source emission threshold (5.0 tons of NOx or VOC or more annually) are required to obtain authorities to construct and permits to operate from an APCD. New and modified stationary sources are required by SJVAPCD Rule 2201 to mitigate their emissions using BACT, and with the exception of non-major stationary sources, to offset emissions when above the applicable thresholds. The SJVAPCD has established dairy VOC emissions factors to help determine which operations require permitting, and help establish BACT for new and expanding dairies.” These revisions to setting information do not affect the accuracy of the Draft EIR air quality impact analyses.

Comment 6-4: ***The Draft EIR should be clarified to indicate the District’s established cancer risk significance threshold of 20 in a million.** The District suggests the County of Tulare clarify the discussion on page 3.3-33 to include the District’s current cancer risk significance threshold. The District recommends the below statement be revised as follows:*

“Carcinogens: maximally exposed individual risk equals or exceeds ~~10~~ 20 in one million; and”
This revision does not require further revisions to the Impact #3.3.4 impact analysis.

Response: The 2nd paragraph on page 3.3-33 is revised to read as follows:

“Carcinogens: maximally exposed individual risk equals or exceeds 20 in one million; and”

>>> Hector Guerra 2/16/2016 4:56 PM >>>

From Caltrans... "no comment"

>>> "Deel, David@DOT" <david.deel@dot.ca.gov> 02/16/2016 4:45 PM >>>
Hector

Caltrans has a NO COMMENT on GPA 10-002: Animal Confinement Facilities Plan - SCH # 2011111078 to update the current animal confinement plan in the Environmental Resources Element of the County's General Plan.

Thank you for your assistance in this matter.
If you have further questions, please contact me.

Respectfully,

DAVID DEEL | CALTRANS District 6
Associate Transportation Planner
Office of Planning & Local Assistance North Section
IGR & Transit Representative Tulare County
Training Coordinator Planning Unit
Desk: 559.488.7396
1352 W. Olive Avenue
P.O. Box 12616
Fresno, CA 93778-2616

| ^^^^^^^^ || |
 | Caltrans | || |
 Provide a safe, sustainable, integrated, and efficient transportation system to enhance
 California's economy and livability.
 | _ _ . . = [' _] []
 Caltrans Mission:
 Caltrans Vision:
 A performance-driven, transparent, and accountable organization that values its people,
 resources and partners, and meets new challenges through leadership, innovation, and
 teamwork.
 (((((((@)"(@) {###} (@)

**Comment Letter 7: Caltrans
David Deel**

Comment 1: *Caltrans has “No comment” on GPA 10-002: Animal Confinement Facilities Plan – SCH #2011111078 to update the current animal confinement plan in the Environmental Resources Element of the County’s General Plan.*

Response: This comment does not raise an environmental issue related to EIR adequacy, no response is required. CEQA Guidelines Sections 15088(a), 15088(c).

¹ Pioneering study finds small amounts of dairy antibiotics in groundwater/U.C. Davis

<https://www.ucdavis.edu/news/pioneering-study-finds-small-amounts-dairy-antibiotics-gro...> 3/20/2017

² <https://www.fda.gov/AnimalVeterinary/NewsEvents/CVMUpdates/ucm535154.htm>

³ <https://www.epa.gov/wqc/contaminants-emerging-concern-including-pharmaceuticals-and-personal-care-products>
Accessed May 23, 2016

⁴ http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy/recycledwater_ced.shtml
Accessed May 23, 2016

⁵ Letter to Tulare County Resource Management Agency from Dale E. Essary, PE, Senior Engineer, Confined Animals Unit, Central California Regional Water Quality Control Board letter, May 6, 2016.

⁶ Correspondence to Mary D. Nichols, California Air Resources Board from Deanne Meyer, Ph.D., Livestock Waste Management Specialist, UC Davis; Peter H. Robinson, Ph.D., Dairy Nutritionist, UC Davis; Jennifer Heguy, Dairy Advisor San Joaquin, Stanislaus, Merced Counties; Betsy Karle, Dairy Advisor Glenn, Tehama, Shasta, Butte, Sutter and Yuba Counties. September 14, 2015.

⁷ USDA 2014 Pacific Regional Land Values and Cash Rents <https://www.nass.usda.gov/statistics-bystate/california/public> Accessed 3/20/17

⁸ Profitable Grazing-Based Dairy Systems. USDA, NRCS. May 2007. Available at:
http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044245.pdf Accessed April 14, 2016

⁹ General Order No. R5-2013-0122, p. 20 Land Applications Specifications

¹⁰ <http://www.water.ca.gov/landwateruse/anlwuest.cfm> Accessed June 22, 2016

¹¹ <https://agresearchmag.ars.usda.gov/2011/may/cows/>

¹² The responses are following the format set by the commenter and the headings do not signify any agreement or conclusion but are for information purposes only.

¹³ Profitable Grazing-Based Dairy Systems. USDA, NRCS. May 2007. Available at
http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044245.pdf. Accessed April 27, 2016

¹⁴ Improving Water Quality and Manure Management of Humboldt County Dairies, 2015. Available at:
http://humboldtrcd.org/index_files/humboldt_dairy_enhancement.htm Accessed 4/27/2016

¹⁵ http://www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2015/May/StudySession/final/13.pdf.
Accessed May 24, 2016

¹⁶ Review of Animal Waste Management Regulations, Task 2 Report: Evaluate Title 27 Effectiveness to Protect Groundwater Quality, Brown, Vence & Associates Final Report, October 2003
waterboards.ca.gov/centralvalley/water_issues/dairies/historical_dairy_program_info/bva_final_task2_rpt_toc.pdf.
Accessed April 15, 2016

¹⁷ Report on the Food and Drug Administration’s Review of the Safety of Recombinant Bovine Somatotropin. April 23, 2009. <http://www.fda.gov/AnimalVeterinary/SafetyHealth/ProductSafetyInformation/ucm23032>. Accessed April 23, 2016

¹⁸ Central Valley Water Quality Control Board Central Valley Region Order R5-2014-0029 Findings page 5 item 17

¹⁹ Central Valley Dairy Representative Monitoring Program, April 1, 2014. Available at:
http://www.waterboards.ca.gov/centralvalley/water_issues/dairies/groundwater_monitoring/vdrmp_ar_cov.pdf

²⁰ FDA Consumer Updates <http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm378100htm> and
<http://www.fda.gov/AnimalVeterinary/SafetyHealth/ProductSafetyInformation/ucm055436.htm>.

Accessed May 25, 2016

²¹ John K. Bernard, Bedding Strategies in Free-stall Barns, 2004. Available at:

<http://dairyifas/dpc/2004/Bernard.pdf>

²² <http://www.water.ca.gov/landwateruse/anlwuest.cfm> Accessed June 22, 2016

²³ Dairy Cow Corral Behavior <http://ucce.ucdavis.edu/files/repositoryfiles/ca3711p9-72328.pdf>

²⁴ Dairy Manure Digester and Co-digester Facilities Draft and Final EIRs.

<http://www.calrecycle.ca.gov/SWFacilities/Compostables/AnaerobicDig/DairyDigDEIR.pdf>;

http://www.waterboards.ca.gov/centralvalley/water_issues/confined_animal_facilities/program_regs_requirements/dairy/dairy_peir_final_cert.pdf. Accessed March 3, 2017.

²⁵ www.calepa.ca.gov/digester/ Accessed June 23, 2016

²⁶ Email from Ramon Norman, Air Quality Engineer, SJVAPCD, April 22, 2016

²⁷ Email from Ramon Norman, Air Quality Engineer, SJVAPCD, April 28, 2016

SECTION THREE

MODIFICATIONS TO THE DRAFT EIR

SECTION THREE – MODIFICATIONS TO THE DRAFT EIR

3.1 Introduction

This chapter presents changes to the Draft EIR text that respond to comments on the Draft EIR, as well make minor clarifications and corrections to the Draft EIR. Changes are shown in underline and strike-out format.

3.2 Modifications to Definitions and Executive Summary

Page xi, paragraph 4, line 2. Change to: mature cow (1,400 pounds) represents one animal unit, as defined by the existing ACFP.

Page ES-2, paragraph 4. Change last sentence to read: “The proposed ~~amended~~ ACFP provides for permitting of all existing and proposed facilities or facilities expansion.

Page ES-2, paragraph 4. Revise as follows: “Under the proposed ~~amended~~ ACFP, the expansions of existing dairies and bovine facilities ~~or new dairies~~ which fully comply with the requirements of the ACFP and with mitigation measures adopted following certification of this EIR may be eligible for a ~~site plan review process~~ conformance checklist review procedure for permitting approval; such approval would be preceded by the submittal of technical reports and environmental evaluation followed by written findings that the expansion ~~or new facility~~ is within the scope of the Program EIR. All other expansions, as well as the establishment of new dairies and other bovine facilities (calf ranches and feedlots), would be approved through a special use permit process with additional CEQA evaluation.

Page ES-3, paragraph 1. Add a new paragraph under paragraph 1 which states: “The proposed Program also includes County adoption of two implementation measures: a zoning ordinance amendment, and a criteria and standards resolution, to implement the ACFP.”

Page ES-12, last row. Change “Impact” to: “Disturbance of Historical, Tribal, or Archeological Resources.” Change line 8 of “Mitigation Measures” to: “likelihood of significant historical, tribal, or archeological resources...”

Page ES-15, Impact 3.7.3 row. Change “Impact” to: “Inconsistent with the State’s Ability to Achieve AB 32, SB 32, SB 1383, and Executive Orders ~~B 30-15 and S 3-05~~ Emissions Reduction Targets”

Page ES-17, Impact 3.9.2 row. Add “3.9.2” under the “Mitigation #” column

3.3 Modifications to Chapters One and Two

Page 1-1, paragraph 1. Revise as follows: “This document is a Draft Program Environmental Impact Report (EIR) evaluating the potential environmental effects of the adoption and

implementation of ~~an amended~~ a proposed Animal Confinement Facilities Plan (ACFP) and Dairy Climate Action Plan (CAP) (“proposed Program”).”

Page 1-5, second to last bullet. Revise as follows: ~~“Amendment of the county zoning ordinance to be consistent with the amended ACFP.”~~

Page 2-2, first bullet. Revise as follows: ~~“Development of an ACFP list that documents each existing bovine facility, specifying a County-permitted herd size based on the maximum allowable number of mature animals under the RWQCB WDRs and the maximum herd under the SJVAPCD Permit to Operate for each facility consistent with the permitted herd sizes under existing valid County, Central Valley Regional Water Quality Control Board (CVRWQCB) and San Joaquin Valley Air Pollution Control District (SJVAPCD) approvals; and”~~

Page 2-3. Immediately prior to the “Dairy CAP” heading, add the following section:

“Zoning Ordinance and Resolution to Implement the ACFP.

“The County will adopt a zoning ordinance amendment to implement the ACFP. The zoning ordinance amendment reaffirms allowable zoning districts for bovine facilities allowed by the existing ACFP, and implements the proposed ACFP by allowing administrative special use permits to be issued for complaint bovine facilities. (A “compliant bovine facility” is an existing bovine facility that is in compliance with applicable RWQCB, SJVAPCD, and current County regulations.)

“The County will also adopt a resolution that establishes criteria and standards for streamlined approval of compliant bovine facilities, via an administrative special use permit process. The resolution will implement the proposed ACFP’s streamlined approval processes for such compliant bovine facilities.”

Page 2-4. Add two new last bullets, as follows:

- “Consistent with funding availability, the County will encourage and promote the availability of state incentive funding, to support and incentivize the voluntary construction of manure digesters and other methane emissions reduction projects by existing dairies. (Site-specific CEQA review will be performed for individual digester and other methane reduction projects for existing dairies when these projects are proposed for permitting; the number, type and location of such projects is too speculative to allow meaningful environmental review in this EIR.) The Dairy CAP includes an initial GHG reduction benchmark target for voluntary emission reductions from existing dairies of 176,000 metric tons/year with \$50 million of state funding or 1.05 million metric tons/year by 2023 with 6 years of state funding at \$50 million/year, which is not a certainty.
- “A monitoring program to track mitigation performance. Also, post-2023 examination of the Dairy CAP to determine whether the CAP has been superseded by state regulations that accomplish equal or greater reduction in emissions, and to assess whether modifications are needed in order to reduce the possibility of duplication of or conflicts with state level actions.”

Page 2-4, paragraph 2, line 7. Revise as follows:

“... either incorporates all Category A reduction strategies or substitutes an equal number of Category B reduction strategies for any excluded Category A reduction measures or establishes that excluded Category A reduction measures are infeasible to the extent that any of such Category A strategies would be infeasible or impracticable based on the specifics of the expansion, substitutes a Category B strategy for each such strategy. All expansion...”

Page 2-4, add new third and fourth bulleted paragraphs as follows:

- “The establishment of voluntary GHG reduction measures (targets) and monitoring of emissions reductions by existing dairies in recognition of new funding opportunities to achieve GHG emissions reductions using digesters or other animal-related strategies.
- “Proposed County actions to implement the Dairy CAP that reflect recent state legislation. These include a post-2023 examination of the Dairy CAP.

Page 2-4, Table 2-1. Revise as follows:

First category B strategy: “Use a digester, designed and operated per applicable standards, and the captured methane for energy use to displace fossil fuel use. Approaches include participation in centralized co-digestion facilities for processing dairy manure and landfill waste or in a digester project utilizing biomethane as a transportation fuel or for injection into natural gas pipelines or for electrical energy use on-site or off-site.”

Second Category B strategy: “Use of scrape systems to divert manure from lagoon to another part of the storage system, including composting for on-site or off-site use.”

Third Category B strategy: “Increase solids separation to reduce loading.”

Add two new Category B strategies after “increase solids separation: “Pasture-based management practices” and “Establish onsite renewable or carbon-neutral energy systems--generic.”

Add a new last Category B strategy: “Implement within the existing portion of a facility a Category A strategy or a Category B strategy to the same or greater extent as would have been done for the expanded portion.”

“Source: Tulare County. ~~2015.~~ 2017. ~~Draft~~ Dairy Feedlot and Climate Action Plan.”

Page 2-5, line 4. Revise as follows: “...proposed ACFP deletes the existing....”

3.4 Modifications to Chapter Three

Page 3.1-3, paragraph 5, line 1. Revise as follows: “It should be noted that the proposed ~~amended~~ ACFP....”

Page 3.1-5, paragraph 2, line 4. Revise as follows: "...and mountains of the Sierra Nevadas. The ~~amended~~ proposed ACFP...."

Page 3.2-4, paragraph 5. Revise as follows:

"At various times in the past, dairies and other bovine facilities have been permitted in the following County zoning classifications, subject to the granting of a special use permit:

- *AE (Exclusive Agricultural, 5 acre minimum parcel size [dairies only]);*
- *AE-5 (Exclusive Agricultural, 5 acre minimum parcel size);*
- *AE-10 (Exclusive Agricultural, 10 acre minimum parcel size);*
- *AE-20 (Exclusive Agricultural, 20 acre minimum parcel size);*
- *AE-40 (Exclusive Agricultural, 40 acre minimum parcel size);*
- *AE-80 (Exclusive Agricultural, 80 acre minimum parcel size);*
- *AF (Foothill Agricultural); and*
- *A-1 (Agricultural, 5 acre minimum parcel size) (~~Note that the updated ACFP does not permit confined animal facilities in this zone.~~)*"

Page 3.2-4. Add a new paragraph 6 as follows:

"Currently, under the 2000 ACFP, new dairies and feedlots may only be permitted in the AE-40 zone on the valley floor (although cropland may be located in the AE-20 and AE-80 zones), and this restriction as to new dairies and feedlots will continue under the proposed ACFP update unless subsequently amended after further CEQA review. Grandfathered dairies and feedlots in other zones may continue to exist and expand as allowed by County regulation."

Page 3.2-5, paragraph 1, line 5. Revise as follows:" (The proposed Program (the ~~amended~~ proposed ACFP)...."

Page 3.3-3, paragraph 5. Revise as follows:

"Federal and state air quality laws require identification of areas not meeting the AAQS. These areas must develop regional air quality plans to attain the standards. Under both the federal and state Clean Air Acts, an air basin is considered non-attainment if AAQS have not been attained. ~~the San Joaquin Valley Air Basin is a non-attainment area (standards have not been attained) for ozone, and PM_{2.5}~~ For the federal AAQS, the San Joaquin Valley Air Basin (SJVAB) is currently designated an extreme nonattainment area for the ozone standard, non-attainment for the PM_{2.5} standard, and attainment for the PM₁₀ standard. For the state AAQS, the SVVAPCD is currently designated as a non-attainment area for the 8-hour ozone, PM₁₀, and PM_{2.5} standards. The SJVAB Air Basin is designated either attainment or unclassified for the other AAQS ambient standards."

Page 3.3-8, paragraph 7. Revise as follows:

"Under state law (SB 700 of 2003), new and modified dairies with the potential to emit half of any applicable major source emission threshold (5.0 tons of NOx or VOC or more annually) ~~the major source threshold (12.5 tons of criteria pollutants)~~ are required to obtain authorities to construct and permits to operate from an APCD. New and modified stationary sources are required by SJVAPCD Rule 2201 to mitigate their emissions using BACT, and with the exception of non-

major stationary sources, to offset emissions when above the applicable thresholds. The SJVAPCD has established dairy VOC emissions factors to help determine which operations require permitting, and help establish BACT for new and expanding dairies.”

Page 3.3-10, para 1, line 1. Revise as follows: “The existing ACFP and the proposed ~~amended~~ ACFP....”

Page 3.3-14, paragraph 4, line 3. Revise as follows: “...The District ~~is now in the process of developing~~ has adopted the 2016 Ozone Plan ~~to address EPA’s updated for the 2008~~ 8-hour ozone standard (75 ppb).”

Page 3.3-14, paragraph 6, line 4. Revise as follows:

“attainment much sooner. ~~The SJVAPCD continues to work with EPA on issues surrounding these plans, including EPA implementation updates. EPA lowered the PM_{2.5} standard again in 2012 and is in the process of completing attainment designations. The SJVAPCD has adopted a 2015 Plan for the 1997 PM_{2.5} standard, and a 2016 Moderate Area Plan for the 2012 PM_{2.5} standard. At the time of Final EIR preparation, it was in the process of developing a single comprehensive attainment plan to address the multiple PM_{2.5} standards (1997, 2006, and 2012).~~”

Page 3.3-26, paragraph 4, line 1. Revise as follows: “Applicable air quality plans are the SJVAPCD ozone and PM_{2.5} plans ~~and 2008 PM_{2.5} Plan~~.”

Page 3.3-30, Table 3.3-8. Change NO_x total emissions from 1,188 to -1,188.

Page 3.3-33, first bullet. Revise as follows: “Carcinogens: maximally exposed individual risk equals or exceeds ~~10-20~~ 10-20 in one million; and....”

Page 3.5-1, paragraph 3, item b. Revise as follows: “Cause a substantial adverse change in the significance of an archeological resources pursuant to Section 15064.5, or in the significance of a tribal cultural resource defined in Public Resources Code Section 21074?”

Page 3.5-11, second heading. Revise as follows: “Impact #3.5-1 – Disturbance of Historical, Tribal, or Archeological Resources.”

Page 3.5-11, paragraph 1, last sentence. Revise as follows: “Project construction could also adversely affect tribal cultural resources and historical buildings.”

Page 3.5-11, paragraph 4, last sentence. Revise as follows: “Because the proposed Program could cause a substantial adverse change in the significance of CEQA Guidelines-defined historical, tribal, and archeological resources, this impact is significant.

Page 3.5-11, paragraph 5, line 5. Revise as follows: “the likelihood of significant historical, tribal, or archeological resources...”

Page 3.7-1, paragraph 1, line 2: Revise second sentence as follows: The County has prepared the ~~draft~~ County of Tulare Dairy and Feedlot Climate Action Plan (~~Draft~~ Dairy CAP)....”

Page 3.7-1, paragraph 3. Revise item (c) as follows: “c) Be inconsistent with the state’s ability to achieve GHG reduction targets under AB 32, SB 32, SB 1383, and Executive Orders ~~B-30-15~~ and S-3-05?”

Page 3.7-1, paragraph 4. Revise as follows: “The following environmental and regulatory settings were, in part, summarized from information contained in the ~~Draft~~ Dairy CAP....”

Page 3.7-3, paragraph 1, sentence 5. Revise as follows: “In response, the County will monitor these advances and make adjustments to the ~~Draft~~ Dairy CAP, where feasible.

Page 3.7-8, paragraph 2. Add the following additional paragraphs:

“SB 32

“Senate Bill 32. SB 32 of 2016 (Chapter 249, Statutes of 2016) requires CARB to ensure that statewide GHG emissions are reduced to a least 40 percent below 1990 levels by 2030.

“AB 197

“AB 197 of 2016 (Chapter 250, Statutes of 2016) expands CARB membership to include two non-voting members from the Legislature; creates a Joint Legislative Committee on Climate Change Policies to make recommendations to the Legislature concerning climate change policies; provides for annual reporting of GHG emissions from sectors covered by the AB 32 Scoping Plan as well as evaluations of regulatory requirements and other programs that may affect GHG emissions trends; and specifies that the adoption of GHG emissions reduction rules and regulations shall consider the social costs. In addition, Scoping Plan updates are required to identify the range of potential GHG emissions reductions and the cost-effectiveness for each emissions reduction measure, compliance mechanism and incentive. Consistent with SB 32 and AB 197, in January 2017, CARB issued for public review a draft of the proposed 2030 Scoping Plan which includes CARB’s proposed plan to reduce GHG emissions to at least forty percent below 1990 levels by 2030.

“SB 1383

“SB 1383 of 2016 (Chapter 395, Statutes of 2016) sets forth specific legislative direction for control of short-lived climate pollutants. SB 1383 updates the initiatives of SB 605, which required CARB to develop a comprehensive strategy (the SLCP Strategy) to reduce emissions of short-lived climate pollutants (SLCPs), including methane. CARB adopted the final SLCP Strategy on March 23, 2017, which addresses animal-related methane emissions from the dairy sector. SB 1383 and the SLCP Strategy provide for reduction targets that include a forty percent reduction in statewide methane emissions below 2013 levels by 2030. This target is incorporated into the state’s overall strategy to achieve the SB 32 2030 GHG emissions reduction target, as reflected in CARB’s proposed 2030 Scoping Plan.

“Under SB 1383, methane emissions from the dairy sector are singled out for specialized treatment. CARB is directed to coordinate with the Department of Food and Agriculture (DFA), the Public Utilities Commission (PUC) and the State Energy Resources Conservation and Development Corporation (Energy Commission) in adopting regulations to reduce methane

emissions from dairy manure management operations by up to forty percent below the dairy sector's 2013 levels by 2030. Prior to adopting such regulations, CARB must complete a number of steps, including working with stakeholders to identify and address technical, market, regulatory and other challenges to development of dairy methane emissions reductions projects; conducting or considering dairy operation research on dairy emissions reduction projects; and considering the development of methane emissions reduction protocols. Such regulations are to be implemented and go into effect no sooner than January 1, 2024, and then only in the event that CARB, in consultation with DFA, determines the regulations to be technologically feasible, economically feasible and cost-effective, and are additionally found to include provisions to minimize potential leakage to other jurisdictions and to evaluate the achievements made by incentive-based programs.

"By January 1, 2018, other actions required to be performed by CARB include establishment of energy infrastructure policies to encourage dairy manure digester projects; development of a pilot financial mechanism to reduce the economic uncertainty associated with the value of credits for dairy manure digester projects producing low-carbon transportation fuels; issuance of directives to gas corporations to implement at least five dairy manure digester pilot projects to demonstrate interconnection to the common carrier pipeline system; provision of guidance on credits generated pursuant to market-based compliance mechanisms developed from methane reduction protocols under the SLCP Strategy; and provision for at least a ten-year credit for projects pre-dating regulations, as well as eligibility for available extensions of credits.

"By July 1, 2020, CARB and DFA are to evaluate the dairy sector's progress towards meeting the SLCP 2030 reduction goal on a voluntary basis, and, if sufficient progress has not been attained due to insufficient funding or market or technical barriers, CARB may reduce the SLCP Strategy's methane emissions reduction goal for dairies. SB 1383 specifies that enteric emissions reductions are to be voluntary, through incentive-based programs, until such time that CARB determines that a cost-effective and scientifically proven method of reducing such emissions is available that would not damage animal health, public health or consumer acceptance. No methane emissions reduction regulations for the dairy sector are to be adopted to meet AB 32 or SB 32 goals other than pursuant to SB 1383's requirements and standards. The proposed SB 32 2030 Scoping Plan issued by CARB in January 2017 is consistent with SB 1383 and its timetable relative to addressing GHG emissions from the dairy sector.

"Budget Act of 2016

In recognition of the need for public funding sources to subsidize voluntary dairy methane emissions reduction projects, an amendment to the Budget Act of 2016, AB 1613 (Chapter 370, Statutes of 2016) allocates \$50 million from the Greenhouse Gas Reduction Fund to be administered by DFA to support such projects."

Page 3.7-9, paragraph 5, last sentence. Revise as follows: "The ~~Draft~~ Dairy CAP serves that purpose."

Page 3.7-12, paragraph 3, first sentence. Revise as follows: "The ~~Draft~~ Dairy CAP calculated emissions...."

Page 3.7-12, paragraph 4, first sentence. Revise as follows: “Table 3.7-2, utilizing data from the ~~Draft~~ Dairy CAP....”

Page 3.7-13, Table 3.7-2. Change “Draft Dairy CAP” to “Dairy CAP” in footnotes 4 and 5.

Page 3.7-13, paragraph 3. Revise as follows:

- “GHG reduction measures in the ~~Draft~~ Dairy CAP would reduce this projected increase in GHG emissions. However, the ~~Draft~~ Dairy CAP does not due to the variations in operations at individual facilities and the consequent difficulty in providing reliable quantification of potential aggregate reductions. The Dairy CAP includes an initial GHG reduction benchmark target for voluntary emission reductions from existing dairies of 176,000 metric tons/year with \$50 million of state funding or 1.05 million metric tons/year by 2023 with 6 years of state funding at \$50 million/year, which is not a certainty. To the extent these reductions can be achieved, the projected increase in GHG emissions would be reduced.”

Page 3.7-14, first paragraph. Revise as follows:

“The ~~Draft~~ Dairy CAP identifies all potentially feasible GHG reduction strategies for dairies and other bovine facilities. Because of the site-specific variations in individual facilities, some emissions reductions measures are likely to be feasible at most facilities (Category A), but some are not (Category B). Feasible project-specific GHG reduction measures will either be adopted as CEQA mitigation measures for projects undergoing project-specific GHG analysis, or as conditions of project approval for projects using this Program EIR for streamlined CEQA compliance under CEQA Guidelines Section 15068, when the County approves expanded or new facilities under the ACFP; project-specific GHG reductions achieved by project-specific ~~mitigation~~ GHG reduction measures will be quantified at that time. The County will require, as a component of the ACFP Annual Compliance Report, owners to submit evidence that adopted GHG ~~mitigation-reduction~~ measures are being implemented. If there is evidence of non-compliance, the County will require the owner to submit a Corrective Action Plan.”

Page 3.7-15, paragraph 2, last sentence. Revise as follows: “(Digesters are however, included in the Dairy CAP’s list of potential GHG reduction strategies under Category B, and eligible for state incentive funding to offset capital costs under the 2016 Budget Act (AB 1613).”

Page 3.7-16, last paragraph, starting with second sentence. Revise as follows:

“Accordingly, the ~~Draft~~ Dairy CAP is intended to present up-to-date information and analysis concerning dairy and feedlot GHG emissions and approaches for reducing those emissions in response to the County’s directive in the 2030 General Plan Update. The preliminary references to dairy and feedlot emissions in the County General Plan CAP were intended to be superseded and replaced by the in-depth analysis of the ~~Draft~~ Dairy CAP. The ~~Draft~~ Dairy CAP is inconsistent with various procedural aspects of the General Plan CAP, in particular the proposed identification of a GHG reduction target for dairies and other bovine facilities. However, the ~~Draft~~ Dairy CAP was intended to supersede any such inconsistencies as to dairies and feedlots.”

Page 3.7-17, second paragraph, first sentence. Revise as follows: “The proposed Program, specifically the ~~Draft~~ Dairy CAP, conflicts with certain procedural aspects....”

Page 3.7-17, Impact #3.7.3. Revise as follows: **“Impact #3.7.3 – “Inconsistent with the State’s Ability to Achieve AB 32, SB 32, SB 1383, and Executive Orders ~~B-30-15~~ and S-3-05 Emissions Reduction Targets”**

Page 3.7-17, last paragraph, revise as follows:

“AB 32 sets a statewide target of reducing GHG emissions to 1990 levels by 2020, ~~SB 32 EO B-30-15~~ sets a statewide target of reducing emissions to 40% below 1990 levels by 2030, SB 1383 sets targets of reducing reduce methane emissions statewide and from dairy manure management to 40% below 2013 levels by 2030, and EO S-3-05 sets a statewide target of reducing GHG emissions to 80% below 1990 levels by 2050. There is no requirement that the proposed Program’s emissions be reduced by the same percentage as the statewide percentage in order for the state to achieve these targets. While the Scoping Plan does not currently require emissions reductions from the dairy sector to meet 2020 targets, the First Update, as previously referenced, recommends consideration by the interagency working group of agriculture sector emissions reduction planning targets for the post-2020 time frame and 2050. The ~~Draft~~ Dairy CAP anticipates the possibility of changes in approach in meeting 2030 ~~and 2050~~ statewide emissions reduction targets and provides for future ~~updates to~~ examination of the Dairy CAP in response to such changes. In addition, Section 8 of the ~~Draft~~ Dairy CAP includes specific County initiatives to promote and incentivize the utilization of voluntary programs and subsidies for dairy manure digesters. The proposed Program’s GHG emissions impacts are nevertheless considered significant because at this time CARB’s approaches in meeting statewide targets beyond 2020 as it relates to animal-related emissions are not known and such GHG emissions would increase through the year 2023 under the proposed Program, rather than decrease on trajectories similar to those anticipated in AB 32, SB 32, SB 1383, and EO S-3-05~~and specified in the Executive Orders.~~”

Page 3.7-18, paragraph 1. Revise as follows: “GHG reduction measures in the ~~Draft~~ Dairy CAP would reduce the proposed Program’s net increase in GHG emissions. However, the ~~Draft~~ Dairy CAP does not quantify the extent....”

Page 3.7-18, paragraph 5, first sentence. Revise as follows: “One of the purposes of the ~~Draft~~ Dairy CAP is to identify and formulate....”

Page 3.7-18, last paragraph, first sentence. Revise as follows: “The ~~Draft~~ Dairy CAP incorporates strategies to promote the use of renewable energy sources....”

Page 3.9-9, paragraph 3. Add new last sentence as follows:

“In April 2017, the Governor signed Executive Order B-40-17, which rescinded two drought emergency proclamations issued in 2014 and four drought-related executive orders signed in 2014 and 2015. Although EO-B-40-17 lifted the drought emergency in most of California, it did not do so in Tulare, Fresno, Kings, and Tuolumne Counties.”

Page 3.9-37, paragraph 3. Add a new paragraph 4 as follows:

Also, regarding existing dairies and other bovine facilities not in compliance with CVRWQCB requirements, the proposed Program includes a process for bringing such facilities into compliance. Existing facilities would be required to comply with CVRWQCB General Order for

Existing Milk Cow Dairies, Order No. R5-2013-0122, or Waste Discharge Requirements consistent with this General Order. This process would result in reduced water quality impacts from existing facilities coming into compliance, as compared to baseline conditions.

3.5 Modifications to Chapters Four through Seven

Page 5-6, Impact 3.5.1: Page ES-12, last row. Change to: “Disturbance of Historical, Tribal, or Archeological Resources.”

Page 5-7, Impact 3.7.3. Change to: “Inconsistent with the State’s Ability to Achieve AB 32, SB 32, SB 1383, and Executive Orders ~~B-30-15~~ and S-3-05 Emissions Reduction Targets”

3.6 Modifications to EIR Appendices

Draft EIR Appendices A and B (proposed Final ACFP and Dairy CAP) are replaced in their entirety revised Appendices A and B attached to this Final EIR. Changes to the draft documents are shown in underline and strike-out format.

The following appendices are added:

- Appendix C: Draft Zoning Ordinance Amendment to Implement ACFP
- Appendix D: Draft Resolution Adopting Criteria and Standards for Certain Compliant Bovine Facilities and Bovine Facility Expansions
- Appendix E: Draft Mitigation Monitoring and Reporting Program

SECTION FOUR

COPIES OF COMMENT LETTERS

SECTION FOUR – COPIES OF COMMENT LETTERS



Central Valley Regional Water Quality Control Board

22 March 2016

Tulare County Resource Management Agency (project proponent)
c/o Michael C. Spata, County Project Manager
5961 South Mooney Boulevard
Visalia, CA 93277-9394

DRAFT ENVIRONMENTAL IMPACT REPORT REVIEW, ANIMAL CONFINEMENT FACILITIES PLAN, AND DAIRY AND FEEDLOT CLIMATE ACTION PLAN

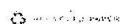
On 5 February 2016, the Draft Environmental Impact Report (DEIR) for proposed changes to the Tulare County Animal Confinement Facilities Plan (ACFP) adopted in 2000 and Dairy and Feedlot Climate Action Plan (CAP) was submitted to Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff for review. The DEIR project (Project) proposes to amend the permitting process utilized by the Tulare County Resource Management Agency (TCRMA) for existing, expanding, and new dairies that are subject to permitting requirements implemented by the TCRMA. The proposed changes include an amendment to the Environmental Resources Management Element of the Tulare County General Plan to replace the 2000 ACFP with the proposed ACFP. The Project also includes provisions for a draft Dairy Corrective Action Plan (CAP) intended to reduce greenhouse gas emissions from confined animal facilities, including dairies. Central Valley Water Board staff conducted a review of the DEIR to evaluate whether the Project may contribute to groundwater or surface water impairment. The project review was made considering the conditions and requirements of applicable portions of California Code of Regulations (CCR), Title 27, Confined Animal Facilities (Title 27) and the Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies R5-2013-0122 (Reissued Dairy General Order).

The DEIR recognizes the potential for dairy operations, including construction activities associated with expanded or new dairies and other bovine facilities, to cause adverse water quality impacts. The DEIR assumes a continued growth rate of 1.5% for dairy herds in the County in the next ten years. The DEIR concludes that although existing Central Valley Water Board and Tulare County regulations would prevent significant water quality degradation at the vast majority of new or expanded dairy and other bovine facilities, it cannot be guaranteed that all future project-level water quality impacts would be mitigated to a less than significant level.

The DEIR proposes to incorporate mitigation measures within a revised Tulare County ACFP to address the potential for groundwater pollution posed by continued growth of permitted dairy herds within the County. The DEIR concluded that, as an alternative to the revision of the ACFP, a reduction in the projected growth of total dairy herds from 1.5% to one percent (33% reduction of anticipated dairy herd growth) over the next ten years would reduce adverse impacts from dairy operations.

KARL E. LONGBLEY, SCD, P.E., CHAIR | PAMELA C. CREEDON, P.E., BCCE, EXECUTIVE OFFICER

1845 L Street, Fresno, CA 93702 | www.waterboards.ca.gov/centralvalley



However, the impacts would not be reduced to "less than significant", and would not achieve the desired goals of the proposed ACFP changes.

Revisions to the Tulare County ACFP for existing dairy facilities include the development of a list of confined animal facilities specifying county-permitted herd sizes that are consistent with Central Valley Water Board and San Joaquin Valley Unified Air Pollution Control District (APCD) permitted herd sizes as well as the development of a process requiring existing out of compliance facilities to achieve compliance. Dairy owners will be required to submit evidence of full compliance with all pertinent Waste Discharge Requirements and regulations enforced by the Central Valley Water Board with annual compliance reports. The proposed mitigation measure would also require the dairy owner to submit a Corrective Action Plan (CAP) with the annual compliance report to address any evidence of non-compliance.

Revisions to the Tulare County ACFP for expansions of existing dairy facilities currently in compliance with APCD and Central Valley Water Board requirements include the development and use of a Conformance Checklist Review, allowing approvals for all expansions in compliance with APCD and Central Valley Water Board requirements. Allowable herd sizes for expansions will be based on APCD and Central Valley Water Board permit limitations. An EIR would not be required for expansion of facilities already in compliance with APCD and Central Valley Water Board requirements, as the review process for the application would be covered under the California Environmental Quality Act (CEQA) for the ACFP.

Primary design and operational standards specified in the 2000 ACFP, including separation between facilities, would be maintained. Expansions for all other facilities that are not in conformance with APCD and Central Valley Water Board requirements would require a Special Use Permit and CEQA review. The Tulare County ACFP will require CEQA review and approval of a special use permit for any new dairies, conditioned on compliance with APCD and Central Valley Water Board requirements.

The DEIR presents inconsistent sources and values for animal units (AU). The DEIR defines animal units as a common animal denominator, based on feed consumption, where one mature cow (1,400 pounds) represents one animal unit, referencing Central Valley Water Board as the source. Currently, Central Valley Water Board has no statutory definition for animal units. The Tulare County definition of "Animal Unit," as provided in Appendix A of the DEIR, defines animal units the same; the source of the information is derived from the Tulare County conversion tables issued by the Resource Management Agency Director. Finally, the existing Tulare County Animal Confinement Facilities Plan (2000), in Appendix K of the DEIR, acknowledges that Tulare County views one mature cow (1,400 pounds) representing one animal unit, but realizes that other agencies/jurisdictions use an animal unit equivalent of 1,000 pounds. The reference cited for the conversion table is Appendix B in 40 CFR 122 of the National Pollutant Discharge Elimination System (NPDES) statutes administered by the U.S. Environmental Protection Agency (USEPA). However, the USEPA has recently placed this statute in "reserved" status.

The DEIR should provide the following information describing the practical implementation of the revised ACFP.

- A description of how dairy herd permit numbers will be adjusted for consistency between the APCD, Central Valley Water Board, the County of Tulare, and other appropriate agencies.

- A discussion of the type of documentation that will be acceptable in the dairy annual reports to verify that the individual dairies are operating in compliance with applicable regulations.
- A discussion of the specific details or requirements that will be required in the Corrective Action Plans (CAP) to address evidence of non-compliance.
- A clear definition and source of animal units.

In order for the Central Valley Water Board to tier off of the County's CEQA evaluation, any new or expanded dairy that undergoes a site plan review process should be provided with written findings that the dairy is within the scope of the Program EIR.

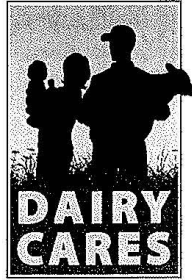
Efforts to characterize first encountered groundwater conditions at dairy facilities in the San Joaquin Valley are being implemented through participation in the Central Valley Dairy Representative monitoring Program (CVDRMP) Coalition. Monitoring data obtained by the CVDRMP will be used to identify specific management practices that are protective of water quality and appropriate for the range of conditions encountered at participant dairies. Best management practices for the protection of surface water and groundwater quality presently referenced by the Reissued Dairy General Order are likely to be amended based on the findings of the monitoring data evaluation by the CVDRMP. Tulare County ACFP requirements will need to reference most current regulatory requirements.

If you have any questions regarding this review, please contact Lorin Sutton by telephone at (559) 445-6086 or by email at lorin.sutton@waterboards.ca.gov.



DALE E. ESSARY, P.E.
RCE No. 53216
Senior Engineer
Confined Animals Unit

cc: State Clearinghouse, P. O. Box 3044, Sacramento, CA 95812-3044



VIA EMAIL TO:
Hguerra@co.tulare.ca.us

March 21, 2016

Attn: Hector Guerra
Chief Environmental Planner
Tulare County Resource Management Agency
Permit Center
5961 South Mooney Boulevard
Visalia, CA 93277-9394

Re: Comments on Draft Environmental Impact Report for the Animal Confinement Facilities
Plan, and Dairy and Feedlot Climate Action Plan

Dear Mr. Guerra:

On behalf of Dairy Cares, thank you for the opportunity to submit the following comments regarding the above-referenced Draft Environmental Impact Report and its component documents (hereafter "DEIR").

Dairy Cares is a coalition of California's dairy producer and processor organizations, including the state's largest producer trade associations (Western United Dairymen, California Dairy Campaign, Milk Producers Council and California Farm Bureau Federation) and the largest milk processing companies and cooperatives (including California Dairies, Inc., Dairy Farmers of America-Western Area Council, Hilmar Cheese Company, and Land O'Lakes, Inc.). Formed in 2001, Dairy Cares is dedicated to promoting the long-term sustainability of California dairies.

Dairy Cares supports this effort by Tulare County to develop clear permitting regulations and procedures and comprehensive planning policies for the county's dairies. As the largest milk-producing county in the United States, Tulare County enjoys an immense, positive economic and cultural bounty from its world-leading dairy industry. This means more than 20,000 jobs in Tulare County alone when the direct and induced employment effects of the county's dairy farms and its dairy processing facilities are considered. Dairy-related economic activity drives the creation of jobs in butter, cheese, yogurt and ice cream manufacturing facilities, creates demand for farm labor to care for and milk cows, to grow feed for cows, and supports truck drivers, tractor equipment sales, veterinary professionals and more. This in turn drives the hiring of many

Family Farms ~ Environmental Sustainability ~ Animal Well-Being

915 L Street, #C-438, Sacramento, CA 95814 ~ PHONE (916) 441-3318 ~ FAX (916) 441-4132

www.DairyCares.com

more people to serve the needs for services created by these jobs, for health care, retail services, education and more. It is a well-established fact that a significant portion of teachers, grocery clerks, restaurant and hotel workers, and many others are supported by the underlying economic activity created by the county's dairy farms. Because of the leadership of its dairy industry, Tulare County also is home to some of the most economically and environmentally efficient dairy farms in the world, as well as new and modern dairy products manufacturing facilities that are at the forefront in developing innovative products and environmentally friendly production methods.

Raising cattle and crops can have environmental impacts and create potential for land use conflicts, so there is a clear need for appropriate mitigation and comprehensive, cohesive land use policies that protect farmers and their neighbors, and allow the county to continue its world-leading position in dairy production now and in the future. We believe the DEIR is an excellent, good faith effort to address this important responsibility, and in fact, is the most comprehensive land use policy document for dairies ever created by a California county. Given its position as a world leader in dairy, it is appropriate that Tulare County is on the forefront of addressing and understanding the many aspects of dairy operations and has assumed this leadership role as evidenced in the development of the DEIR and its components, the Animal Confinement Facilities Plan and the Dairy and Feedlot Climate Action Plan.

We offer the following additional comments:

1. The DEIR proposes a cohesive set of standards and procedures consistent with regulatory changes and overlapping jurisdictions.

We note in particular that the county has taken great care to comprehensively address relevant issues under the California Environmental Quality Act ("CEQA"), including but not limited to water availability, water quality, air quality and factors related to greenhouse gases ("GHGs"), energy efficiency and climate change. It is clear that the county has gone to great lengths to ensure its policies are consistent and work hand-in-hand with those of critical regional and state regulatory agencies such as the Central Valley Regional Water Quality Control Board ("Water Board"), California Air Resources Board ("ARB"), and San Joaquin Valley Air Pollution Control District ("Air District"). Especially noteworthy:

- The county relies on the innovative strategies and approaches for regulating dairies that were developed over the past decade by the Air District and Water Board. Both agencies have been recognized for developing the nation's strictest regulations for dairies. Air district regulations have been credited with reducing ozone-forming emissions from dairies by more than 30 percent, while the Water Board has set standards mandating nutrient management plans that require up to 85 percent reductions in the amount of nitrogen losses from fertilizer to groundwater compared to historical practices.
- The county's Dairy and Feedlot Climate Action Plan ("DCAP") is consistent with ARB's evolving policies for reducing GHGs, including the landmark 2006 Global Warming Solutions Act ("AB 32"), and the ongoing process to implement SB 605 (2014, Lara),

which calls for strategic planning and research to reduce emissions of a subset of GHGs known as “short-lived climate pollutants,” including methane.

It is critical to the future economic vitality of Tulare County that dairy regulation, permitting and planning be both environmentally and economically sustainable. The county’s approach in building its policies on work already done by other agencies helps assure that dairies can continue to operate and modernize as needed within the county in an environmentally sound manner, rather than being forced to relocate to other regions.

2. Tulare County’s proposed approach is consistent with statewide policy for GHG reduction from dairies.

The DEIR, in particular the DCAP, acknowledges the central importance of realizing improvements in electricity and fuel use efficiency to reduce impact on climate change. As such, the DCAP incorporates emissions reductions strategies for achieving these goals on dairies.

Of course, dairies and other cattle facilities also contribute to the state’s inventory of GHGs through non-fossil fuel related emissions such as methane, and thus it is important that the policies and procedures expressed in the DEIR and DCAP be consistent with state goals and policies. And Tulare County’s proposals are in fact consistent with state policies.

State strategy implementing the goals of AB 32 is expressed in the AB 32 Scoping Plan. A central concept in the Scoping Plan is preventing “leakage,” that is, preventing loss of businesses to other states or countries where GHG emissions would be unregulated, while also losing the economic benefits of those businesses in California. As such, ARB’s goal is to assure that it achieves GHG reductions in an economically practical way, one that doesn’t cause unacceptable leakage. Leakage is a serious threat to Tulare County’s economy and California’s dairy industry: Since 2006, when AB 32 was adopted, more than 550 dairies statewide have closed, and the state’s dairy industry has shrunk by more than 30,000 cows. Additional regulatory costs will only accelerate this decline.

For dairies and other agricultural operations, state policy (as reflected in ARB’s Scoping Plan) is to encourage reductions of GHG through voluntary, incentive-based mechanisms (rather than regulations). Dairy Cares concurs with this approach and has supported it for more than a decade at the state level, including active, years-long proactive efforts to assure that appropriate incentives are available to those dairy farms that adopt GHG-reducing technology. Similarly, ARB is developing draft recommendations for implementation of SB 605, which specifically calls for reduction of short-lived GHGs such as methane. While not yet formally adopted, drafts to date indicate that ARB is advocating continued reliance on incentives rather than regulations for at least the next several years, particularly for reducing methane emitted by existing dairies.

This approach makes sense at both the county and state level for the simple reason that a regulatory approach would almost certainly increase leakage, while a voluntary, incentive-based approach will achieve reductions without causing leakage. Technologies to capture emissions from dairies – such as anaerobic digesters, which convert manure biogas into renewable

electricity or fuel – are capital-intensive. Environmentally sound digesters are expensive to build, generally costing between \$1 million and \$10 million per dairy. For such projects to be carried out economically, grant funding, subsidized electricity sales rates coupled with long-term contracts, low-interest financing, and sale of carbon credits are needed. Some of these revenue streams, such as carbon credits, disappear in a mandatory regulation scenario, and it is exceedingly unlikely that enough funding could be made available to finance all the projects needed under a mandate. In fact, the viability of digesters can vary based on site-specific factors, such as where the dairy is located relative to transmission substations and gas pipelines, age and design of the dairy facility.

Tulare County is well-positioned to benefit from the voluntary, incentive-based approach reflected in the DEIR. With subsidized electricity rates and long-term electricity contracts for digesters now being offered, and increased incentive grants being proposed in this year's state budget (approximately \$35 million in funding is currently proposed, more than triple in any previous year, and additional funding is expected to be available through the state's Greenhouse Gas Reduction Fund), the county is in a position to develop multiple digester projects over the next decade and become a leader both in reducing dairy GHGs and providing clean renewable electricity and fuels.

In summary, the DEIR is completely consistent with the state's goal of keeping dairies within the state while reducing their emissions and increasing renewable energy.

Conclusion

Once again, we appreciate the opportunity to provide preliminary comments on this vital planning effort in the nation's most important dairy county. We look forward to continuing to work with the county during the public comment and public hearing process. We will offer additional comments for the county's consideration as appropriate, based on information received during the comment process and the proceedings of public workshops or hearings on the DEIR.

Sincerely,



J.P. Cativiela
Regulatory Affairs Consultant

C: Charles "Chuck" Ahlem, Dairy Cares Chairman
Michael Boccadoro, Dairy Cares Executive Director
Kevin Abernathy, Environmental Services Director, Milk Producers Council
Paul Sousa, Environmental Services Director, Western United Dairymen
Lynne McBride, Executive Director, California Dairy Campaign

Justin Oldfield, California Cattlemen's Association

Tom Frantz
President
Association of Irrigated Residents (AIR)
29389 Fresno Ave
Shafter, CA 93263

March 21, 2016

Tulare County Resource Management Agency
Attention: Hector Guerra
Chief Environmental Planner
5961 South Mooney Boulevard
Visalia, California 93277-9394

Submitted by email hguerra@co.tulare.ca.us

Re: Draft Environmental Impact Report for the Animal Confinement Facilities Plan, and
Dairy and Feedlot Climate Action Plan

SCH # 2011111078

Please accept the following comments from the Association of Irrigated Residents. AIR is a non-profit in California with members residing in Fresno, Tulare, Kings, and Kern Counties. AIR has advocated for environmental justice and environmental health in the San Joaquin Valley for the past 16 years.

This DEIR is faulty in not requiring actual mitigation for the green house gas emissions from large industrial dairies. This cannot be a voluntary program as suggested in the document.

There are real ways for dairies to begin to reduce their impact on climate change. The business as usual approach taken in this DEIR, with just a few voluntary measures thrown in, is not adequate given the state mandates for reductions in GHG emissions. The state has to find ways to reduce emissions 40% below 1990 levels by 2030 and 80% below 1990 levels by 2050. There is no way for dairies and livestock operations to continue to emit 55% of the methane emissions in CA for even a few more years. There has to be a steady reduction in these methane emissions on the order of 5% per year for at least the next fifteen years for these facilities to do their part.

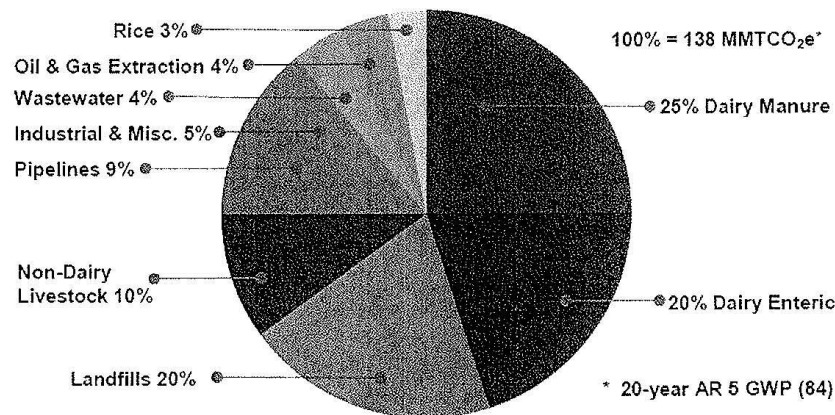
Dairies and livestock operations in Tulare County are major industrial sources of GHG emissions in California according to the California Air Resources Board (CARB) definitions. Any facility over 25,000 tons of CO₂e per year is considered a major source and generally regulated under Cap and Trade. CARB has made no secret that mandated controls on dairies are coming because it is clear that the voluntary approach already in place for several years is not getting the needed results. We know large factory dairies are already regulated for their volatile organic emissions which are considered criteria air

pollutants. GHG emissions are no different and require direct regulation, not voluntary approaches.

In the document below is a chart from the CARB showing the share of methane emissions by California dairies and livestock operations.

http://www.arb.ca.gov/research/aliso_canyon/draft_aliso_canyon_mitigation_program_03142016.pdf

Figure 1: California 2013 Methane Emission Sources



Besides methane emissions there must be an accounting of other GHG emissions from dairy and livestock operations. It is not just a manure and methane problem.

Sources of GHG emissions include diesel or gasoline powered pumps, generators, cooling systems, tractors, trucks, and fertilizer applications (N₂O emissions from synthetic urea or UN32 applications for example). There needs to be an accounting and estimates of all these types of emissions on top of the estimates for methane from both manure handling and enteric emissions.

This DEIR seems to ignore these other sources of GHG emission which must at least be quantified and then considered for viable mitigation measures. Solar panels at dairies may be one excellent way for a dairy to mitigate some of these other sources of GHG emissions.

EPA estimates for methane emissions from dairies are not large enough.

The recent study by Miller et al. (1) provides a comprehensive, quantitative analysis of anthropogenic methane sources in the United States using atmospheric methane observations, spatial datasets, and a high-resolution atmospheric transport model. The

authors conclude that “...emissions due to ruminants and manure are up to twice the magnitude of existing [i.e., US Environmental Protection Agency (US EPA); www.epa.gov/climatechange/ghgemissions/usinventoryreport.html] inventories” (1).

<http://www.pnas.org/content/111/14/E1320.full.pdf>

There are many valid ways to reduce methane emissions which are practical and cost effective. This DEIR should include these pathways and require that some of them be implemented to begin a phased in mandatory methane reduction program. Here are a few examples:

Changes in diet supplements can greatly reduce methane emissions. Below is the title to a recent study.

“An inhibitor persistently decreased enteric methane emission from dairy cows with no negative effect on milk production”

<http://www.pnas.org/content/112/34/10663.full>

CalCan has submitted comments to CARB to show how dairies may reduce methane emissions. These suggestions include more grazing on pastures for dairy cows and more dry manure scraping and handling.

Their paper is called “Diversified Strategies for Reducing Methane Emissions from Dairy Operations”

Develop dry manure management incentives that result in economical methane reductions, job creation, and provide other co-benefits, like compost production. 5. Develop demonstration projects for pasture-based dairy practices, bringing together interested dairy operators, technical providers and university researchers to create opportunities for ‘mixed’ dairy systems that incorporate aspects of pasture grazing into their operations. 6. Support research and demonstration on strategies that reduce emissions from enteric fermentation. Include strategies that are relevant for organic and pasture-based systems because they maximize environmental co-benefits.

<http://calclimateag.org/wp-content/uploads/2015/11/Diversified-Strategies-for-Methane-in-Dairies-Oct.-2015.pdf>

CARB also lays out viable reduction strategies that should be considered and likely adopted by Tulare County in this DEIR. These are on top of CARB’s suggestions for biodigestors on manure lagoons.

Dairy manure can also be mixed with other organic materials – diverted from landfills or at wastewater treatment facilities, for example – and “co-digested,” which may improve the performance or economics of anaerobic digestion projects in certain cases. Switching

to scrape systems could potentially deliver significant water savings, along with improvements in water quality and soil health.

http://www.arb.ca.gov/cc/shortlived/concept_paper.pdf

In general, Tulare County, and other San Joaquin Valley counties have these massive industrial dairies which can not continue to emit GHG emissions at the current rate. In a true sense this practice is not sustainable. But, the DEIR really fails to take this recognition seriously by failing to require mandated reductions along the lines of the state goals.

It is so ironic that farms in Tulare County continue to import synthetic nitrogen fertilizers to grow food for cows and food for people, while industrial dairies have a waste disposal problem with manure which is full of carbon and nitrogen. The very plant nutrients that dairies are throwing away in the form of methane and ammonia are being imported from far away because it is the cheapest way to do business based on cheap fossil fuel. This has to change.

Tulare County has failed in this DEIR to look at the big picture. There is a way for win-win solutions to this GHG problem being created by industrial sized dairies. Most manure and waste at a dairy should be returned as directly as possible to the soil. Manure is a perfect material to be mixed with wood chips from almond orchards to make an excellent organic fertilizer or compost for almost all crops grown in Tulare County. Greater use of this type of local fertilizer will decrease greatly ammonia and methane emissions in Tulare County plus decrease importation of synthetic fertilizers and the N₂O GHG emissions from the use of these fertilizers. The other benefits are decreased local air pollution from the ammonia decreases plus increased soil fertility including water holding ability of local soils which makes for more efficient use of water in times of drought most likely caused by climate change.

Please look at the big picture and redo parts of this DEIR with logical and viable solutions to reducing GHG emissions from dairy and livestock operations. Given the disastrous effects of climate change coming to Tulare County in particular and the world as a whole, mandatory GHG reductions from these sectors is essential and must be included in this DEIR. Voluntary actions are not sufficient any longer.



Monday, March 21, 2016

Hector Guerra
Tulare County Resource Management Agency
5961 South Mooney Boulevard
Visalia, California 93277

Via email to: HGuerra@co.tulare.ca.us

Re: Draft Environmental Impact Report—Animal Confinement Facilities and Dairy and Feedlot Climate Action Plan

Dear Mr. Guerra,

The Kern-Kaweah chapter of the Sierra Club (Kern-Kaweah) submits these comments on the Draft Programmatic Environmental Impact Report (EIR) for the Animal Confinement Facilities Plan (ACFP) and Dairy and Feedlot Climate Action Plan (CAP). The comments demonstrate that the EIR violates the California Environmental Quality Act (CEQA) Pub. Res. Code Section 21000 et seq.

The Sierra Club is the oldest and largest grassroots environmental organization in the United States. The mission of our 1.2 million members and supporters is to explore, enjoy, and protect the wild places of the earth; practice and promote the responsible use of the earth's ecosystems and resources; and educate and enlist humanity to protect and restore the quality of the natural and human environment. Our members who live in Kern County engage in a range of conservation activities including protection of communities from air and water pollution, protection of wildlife species and habitat, preservation of open space and farmland, and partnership with those within our communities historically disadvantaged and frequently bearing the greatest burden of negative health and environmental impacts.

The California Legislature enacted CEQA to protect the environment of California, Cal. Pub. Res. Code Section 21000(a), to protect the environmental health of Californians, Cal. Pub. Res. Code Sections 21000 (b), (d), and (g), to prevent the elimination of plant and animal species due to man's activities, Cal. Pub. Res. Code Section 21001(b), to create and maintain ecological and economic sustainability, Cal. Pub. Res. Code Section 21001(e), and to "take all action necessary to protect, rehabilitate, and enhance the environmental quality of the State." Cal. Pub. Res. Code Section 21001(a). Bearing this in mind, the County's ACFP, CAP, and thus the EIR fail on many levels

A Preliminary Question

The EIR, at page 3.3-29 states “First, regarding existing dairies and other bovine facilities not in compliance with *SJVAPCD* requirements, the proposed Program includes a process for bringing such facilities into compliance.” It is unclear from the ACFP and the EIR what standards will be required of existing dairy and feedlot operations. Please explain.

Project Objectives.

According to the Executive Summary, the following are the Project objectives:

1. To continue the regulation of the County’s dairy industry to protect and enhance the County’s resources, assure public health and safety, and minimize environmental impacts;
2. To identify and document those existing bovine facilities which are operating under valid *RWQCB* and *SJVAPCD* approvals, and to specify procedures to achieve compliance by those existing bovine facilities that are not yet in compliance;
3. To modify, as feasible, the scope of County regulatory responsibilities to avoid overlap and duplication with the water quality and air quality oversight provided by the *RWQCB* and the *SJVAPCD*;
4. To update and simplify the permitting processes for bovine facility expansions and the establishment of new bovine facilities consistent with the *ACFP*; and
5. To develop a Dairy and Feedlot Climate Action Plan that analyzes cumulative greenhouse gas (*GHG*) impacts.

Alternatives

CEQA Guideline Section 15091(a)(3) states that a no Lead Agency may approve a project where mitigation or an alternative could substantially reduce environmental impacts unless it makes findings stating “3) Specific economic, legal, social, technological or other considerations, including provisions of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.. That finding must be based on substantial evidence in the record. The “finding” made by the EIR in rejecting the Thirty-three Percent Reduced Herd Size Alternative fails this requirement and thus is legally inadequate.

The EIR identifies the Thirty-Three Percent Alternative as the environmentally superior alternative because it would reduce criteria emissions, greenhouse gas emissions and water quality pollutants by approximately one-third. The EIR admits

this reductions would result in a significant reduction in environmental impacts: "Thus the Thirty-three Percent Reduced Herd Size Alternative would reduce adverse impacts within resource categories evaluated in this EIR....Based on a review of the alternatives evaluated in this chapter, the Thirty-three Percent Reduced Herd Size Alternative would result in the least impact on the environment." (EIR, page 5-4.) While the EIR claims the impacts on several resource categories would not be completely eliminated, this does not make the alternative infeasible under CEQA or explain why it was rejected by the DEIR.

The EIR rejected the Environmentally Superior Alternative because, purportedly

"...it would not fully achieve the basic proposed Program objective of enhancing the County's resources, including economic resources. It would also be inconsistent with a number of General Plan policies, including those that promote economic development in general and the continued productivity of agricultural resources in particular."

This is patently false. Nowhere in the Project Objectives or the General Plan policies does it say that economic resources are to be "maximized." While the Thirty-three Percent Reduction Alternative might not increase economic resources to the level of the proposed Project, it would nonetheless enhance the County's economic resources, and thus it does fulfill the stated Project Objectives of the EIR.

In fact, the Project Objectives, while not calling for economic values to be maximized, does call for environmental impacts to be "minimize[d]." EIR, page 5-2. Thus, the Thirty-three Percent Reduction Alternative arguably fulfills the Project Objectives to a greater extent than the proposed Project. In any event, there is no substantial evidence supporting the conclusion that the Environmentally Superior Alternative is infeasible or that it would not achieve the Project's core objectives. Given this, the County is legally obligated to choose the Thirty-three Percent Reduction Alternative. The "EIR must explain why each suggested alternative either does not satisfy the goals of the proposed project, does not offer substantial environmental advantages, or cannot be accomplished." (Save Round Valley Alliance v. County of Inyo (2007) 157 Cal.App.4th 1437, 1458.) The agency's infeasibility determination must be supported by substantial evidence in the record. PRC §21081.5 ; CEQA Guideline 15091(b).

.

The EIR does not analyze an adequately broad range of project alternatives.

The EIR should consider a Pasture-based Alternative that would require new dairies to be located only where the herd size could be accommodated by pasture feeding with only occasional supplemental feeding might as required. Expansion of existing dairies would be permitted only where the additional cows could be pasture-based. This approach would significantly reduce the project's myriad

environmental impacts without foreclosing new or expanded dairies. See, Save Round Valley Alliance v. County of Inyo (2007) 157 Cal.App.4th 1437, 1458 (“EIR must explain why each suggested alternative either does not satisfy the goals of the proposed project, does not offer substantial environmental advantages, or cannot be accomplished.”) See, also, Rural Landowners Assn. v. City Council (1983) 143 Cal.App.3d 1013, 1022. (“[T]he [agency] must describe the disposition of each of the significant environmental issues raised and must particularly set forth in detail the reasons why the particular comments and objections were rejected and why the [City] considered the development of the project to be of overriding importance.”)

Pasture-based dairies have been in use in both California and other parts of the Nation for many years. In fact, only in recent decades have large-scale animal confinement facilities come to dominate the dairy landscape, and nowhere more so than California. San Joaquin Valley dairies have an average of more than 1000 mature cows, whereas the national average is 133. (Food and Water Watch Report, pages 5-6)

Thus, the basic concept of pasture-based dairies is certainly technically feasible. There are many areas of the County either with existing pasture or that could accommodate conversion to pasture, and thus requiring pasture-based dairies would not be infeasible due to lack of the needed land base.

Pursuant to Senate Bill 605, the Air Resources Board has released the Short Lived Climate Pollutant Reduction Strategy Concept Paper (hereafter “Concept Paper”) to discuss potential strategies that the Board would evaluate for inclusion in the Short Lived Climate Pollutant Reduction Strategy.

In a June 10, 2015 letter from a coalition of environmental groups to the California Air Resources Board (hereafter June 10 Letter, attached) commenting on the Concept Paper, the authors note that the legislature specifically directed the California Air Resources Board (CARB) to “[p]rioritize the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities.” Health & Safety Code § 39730(a)(4). (June 10 Letter, page 3)

The June 10 Letter discusses many of the co-benefits of pasture-based dairies,

“Pasture-based dairy systems provide multiple benefits, including avoiding methane production from anaerobic decomposition, carbon sequestration, lower cow density per acre (causing less enteric emissions), reduced water consumption, and improved animal welfare conditions for dairy cattle.” (ibid, page 2)

The primary advantages of pasture-based dairy systems come from:

- 1) Avoidance of anaerobic decomposition at waste lagoons and at other facility locations;

2) Avoidance of nitrous oxide emissions from liquid manure applications for on-farm nitrogen disposal;

3) Reduced need to grow and transport feed from distant locations;

4) Promoting natural limitations on the size of animal confinement facilities, reducing the concentration of pollutant sources experienced under the current system.

5) Cows maintained on pasture have less need for antibiotics and other drugs that are routinely applied in a confinement operations. (June 10 Letter, page 6)

"Pasture-based systems most directly reduce methane emissions because methane emissions from manure – thirty percent of total California emissions – come from anaerobic manure decomposition in waste lagoons." (June 10 Letter, page 4, citing Steinfeld, Henning, Pierre Gerber, Tom Wassenaar, Vincent Castel, Mauricio Rosales, Cees de Haan. (2006). *Livestock's Long Shadow: environmental issues and options*)

"Emissions from dairy cow manure management in the U.S. increased by 115 percent from 1990 to 2012 because of the increased usage of waste lagoon systems." (June 10 Letter, citing Gerber, P.J., Steinfeld, H., Henderson, B., Mottet, A., Opio, C., Dijkman, J., Falcucci, A. & Tempio, G. 2013. *Tackling climate change through livestock – A global assessment of emissions and mitigation opportunities*.)

In pasture-based and dry-stack systems, manure emits far less methane. In a pasture-based system, emissions from the production, processing, and transportation of feed are significantly reduced. While studies in the field of carbon sequestration have produced differing results, it does appear that pasture-based systems provide some benefit in terms of carbon sequestration.

There may be economic benefits to pasture-based dairies as well. These would include:

1) Reduction in the costs of transporting feed;

2) Reduced need for capital costs in facilities and equipment;

3) Reduced manure management costs;

4) Reduced need for antibiotics and other drugs;

5) There is an opportunity for pasture-based dairies to demand a higher price for their products, as markets are growing for grass-fed and more humane cattle products.

In order to analyze a reasonable range of alternatives, the EIR must consider an alternative that is founded upon pasture-based facilities. Tulare County can and should join a growing movement away from large-scale confinement facilities towards a more holistic approach to dairy and feedlot production.

See

<http://extension.psu.edu/animals/dairy/nutrition/forages/pasture/articles-on-pasture-and-grazing/pasture-based-systems-for-dairy-cows-in-the-united-states>. See also *Grazing Can Reduce the Environmental Impact of Dairy Production Systems, Forage and Grazinglands*, 16 December 2009 <http://www.caes.uga.edu/commodities/fieldcrops/forages/events/PBDSummit/rotz%202009%20Grazing%20Can%20Reduce%20the%20Environment%20Impact%20of%20dairy%20production%20systems.pdf>

Permits Incorporating Improvements Over Time

As the Concept Paper in the above section indicates, in order to achieve the State's stated GHG reduction targets, the State continues to develop and assess strategies to reduce greenhouse gas emissions from a variety of sectors in the State. The EIR also notes that the Regional Water Quality Control Board (RWQCB) and the San Joaquin Valley Air Pollution Control District are working on additional approaches to air and water quality protection relevant to animal confinement facilities. Pursuant to the State mandates to reduce GHG emissions at ever greater rates over time, the County must make it clear that the ACFP and CAP for new and expanded animal confinement facilities will be subject to change over time as additional control measures become technically and economically feasible. To this end, the County should schedule periodic review of the ACFP and CAP and impose additional requirements as more aggressive GHG reduction measures become feasible. The ACFP must clearly create the expectation that dairies must strive to achieve greater GHG reduction strategies and best management practices (BMPs) over time.

Climate Change and Greenhouse Gas Emissions

The EIR must adequately analyze the expected emissions from existing and new and expanded dairies, and analyze the extent to which greenhouse gas emission would be reduced under a pasture-based dairy program or other effective mitigation plans.

California Dairies account for sixty percent of California's methane emissions. Concept Paper at 21. In the San Joaquin Valley, *at least* eighty-seven percent of methane emissions are from dairy (and other cattle) operations. D.R. Genter, et al., *Emissions of organic carbon and methane from petroleum and dairy operations in California's San Joaquin Valley*, *Atmos. Chem. Phys.*, 14, 4955–4978 (2014). As a result, the County should ensure that dairies do their fair share to reduce methane emissions and should not avoid regulation, which would unfairly place a greater reduction burden on other sources of greenhouse gases. Given the dire need to stabilize our climate, California has taken the lead by adopting Assembly Bill 32, the California Global Warming Solutions Act, to reduce greenhouse gases by twenty percent below 1990 levels. On April 29, 2015, Governor Brown adopted Executive Order B-30-15 calling for even greater reductions – forty percent by 2030.

In addressing the problems of methane and other climate pollutants, the County should develop a multi-pronged strategy:

- (1) Use monitoring and reporting to best complete an inventory of the sources of climate change pollutants;
- (2) Identify research needs to address data gaps and potential programs, policies, and technologies to reduce climate pollutants;
- (3) Identify existing and potential new control measures to reduce emissions;
- (4) Prioritize those control methodologies that provide co-benefits in terms of reduction of air and water quality improvements as well as other benefits to the welfare of Tulare County residents, such as reduced odors;
- (5) Coordinate with state agencies and other local jurisdictions facing similar issues to develop measures identified as part of the comprehensive strategy.

The County should, as the County General Plan dictates, adopt a goal for greenhouse gas emissions from animal confinement facilities as part of the CAP. That goal could be narrative, such as “maximum feasible reduction,” or numeric. As a starting point, adapting the goal of no net increase in emissions from the 2013 baseline to the 2023 time horizon would be adequate. The EIR must also consider whether the implementation of the project would violate Executive Order No. S-3-05, which established several “reduction targets” for greenhouse gas emissions for the State of California: by 2010, to 2000 levels; by 2020, to 1990 levels; and by 2050, to 80 percent below 1990 levels.” Rialto Citizens for Responsible Growth v. City of Rialto (2012) 208 Cal. App. 4th 899, 938. AR 7:1814. The Executive Order also directed CalEPA, in cooperation with other state agencies and Boards, to coordinate statewide efforts to monitor and reduce GHG emissions. Thus, the Executive Order is binding on the County.

In order to effectively mitigate GHG emissions from the dairies, the County should consider a system similar to cap and trade. New and expanded dairies could pay into a system based on CO₂e metric tons. The County would work with the SJVAPCD to establish a price on CO₂e, such as the BACT number of \$17,500 per metric ton. (EIR, page 3.7-16)

The funds collected could be used either by the County or the APCD. The County could use the funds to incentivize pasture-based dairies or other measures to reduce GHG emissions from older animal confinement facilities. Alternately, the APCD would use the funds to augment ongoing programs in reducing GHGs throughout the San Joaquin Valley.

As an alternative to this cap and trade mechanism, the County should analyze the feasibility of requiring new and expanding dairies to enter into Voluntary Emission

Reductions Agreements (VERAs) with the APCD. The APCD is well familiar with VERAs, although most of them have been with land development companies:

“In addition to reducing a portion of the development project’s impact on air quality through compliance with District Rule 9510, a developer can further reduce the project’s impact on air quality by entering into VERA with the District to address the mitigation requirements under California Environmental Quality Act (CEQA). Under a VERA, the developer may fully mitigate project emission impacts by providing funds to the District, which funds are then used by the District to administer emission reduction projects on behalf of the project proponent. The District has entered into over twenty VERAs since 2005.” (San Joaquin Valley Air Pollution Control District 2014 Annual Report, Indirect Source Review Program, page 1)

As mentioned in the above paragraph, VERAs can be used for air quality emissions as well as greenhouse gas emissions. The EIR should analyze the potential for VERAs in both categories.

CAP Checklist

The checklist provided as part of the CAP is legally flawed, in that it does not, in the end, specify which mitigation measures will, in fact, be implemented. Instead, the Category A list assumes that the implementation/mitigation measures are feasible, but leaves open the possibility that they will not be applied in some circumstances,

“Category A reduction strategies, which new or expanding dairies or feedlots must (1) incorporate into their facility or (2) provide justification as to why the given strategy is not feasible for the facility. (EIR, Appendix B, Table 5, page 30)

As a result of the ability of the project proponent to “justify” not implementing this mitigation measure, the public has no real assurance that the reduction strategy will actually be applied.

The Category B list of reduction strategies is even more problematic.

Category B reduction strategies, which new or expanding dairies or feedlots must consider for implementation at the facility. It is anticipated that a facility may choose to replace a reduction strategy in Table 5 with a strategy in Table 6 to provide operational flexibility in reducing GHG emissions. In addition, if expanding facilities are not able to implement Category A reduction strategies, or substitute Category B strategies, in the expansion, the facility may choose to implement an equal number of Category A or B strategies within the **existing** portion of the facility to the same or greater

extent as would have been done for the expanded portion. (EIR, Appendix B, Table 6, pages 30-31)

Thus, a project applicant must simply “consider” Category B reduction strategies. In addition, the Category B strategies undermine the weakly required Category A strategies, in that one or more of the later can be substituted for one or more of the former. As a result, none of these reduction strategies are, in fact, required. Rather, there is a menu of options for a project applicant to consider applying, or substituting for another, or explaining why they cannot be applied to their project. In other words, not one of these reduction strategies is actually required of a new or expanding dairy or feedlot facility. This is a classic example of deferred mitigation, and under these circumstances violates the standards of CEQA.

If this method is to be used, the EIR and CAP should state explicitly that each permit for a new or expanded dairy or feedlot will undertake either a Mitigated Negative Declaration or a full Environmental Impact Report. The public has the right to review and comment upon which of this large menu of reduction strategies (i.e. mitigation measures) will be applied to a given project, and the CAP as currently written simply does not allow that.

The CAP and EIR should, instead, describe the circumstances under which a given reduction strategy will apply. It should be assumed that all Category A standards will be required of every proposed project, unless a MND or EIR adequately explains why that reduction strategy is infeasible in light of the surrounding circumstances. As for Category B, the CAP or EIR should provide standards that clearly state when those reduction strategies will apply and when they will not. For example, the reduction strategy of installing solar energy should be required where adequate space exists on the project applicant’s property to the maximum extent feasible, up to the amount of energy consumed by the proposed facility. Such specific parameters should be provided for each of the Category B reduction strategies.

Without an adequate analysis of the extent to which Category A or B mitigation strategies would be employed, the EIR would fail as an informational document in that the overall dairy GHG emissions would not be known. To adequately describe the project, the EIR must be able to forecast the overall GHG emissions that can be expected as a result of the implementation of the project.

Water Quality

The EIR should analyze the extent to which groundwater pollutants could be reduced in a pasture-based dairy system.

While the EIR readily admits that Tulare County dairies are routinely polluting groundwater in a manner that impacts upon human health, the ACFP and EIR largely throw up their hands in accepting that this pollution will continue to worsen

over time. Instead, we should be looking for a system of monitoring, mitigation, and enforcement that holds out hope to reverse the trend of pollution that is now decades old and only threatens to get worse, especially for some of the most vulnerable in our population (those utilizing untreated groundwater sources).

Pollutants

There are two categories of pollutants that the EIR entirely ignores: antibiotics and hormones. These potentially significant health threats must be analyzed in the Final EIR.

Recent studies have found antibiotics and their metabolites in groundwater samples beneath dairies. (Food and Water Watch, *What's in the Water—Industrial Dairies, Groundwater Pollution and Regulatory Failure in California's Central Valley*, page 10, attached, hereafter FWW Report) Antibiotics are used in dairies for both therapeutic and nontherapeutic purposes: to promote growth and as a preventative. Dairies use human antibiotics, such as penicillin and tetracycline, as well as animal specific antibiotics.

The concern with antibiotics is a growing public health threat due to antibiotic-resistant bacteria. Repeated exposure to antibiotics can lead some bacteria to survive while others die off. Those resistant bacteria can then get into soil and groundwater.

The Nation Academy of Sciences, the World Health Organization, and the Institute of Medicine have all determined that the use of antibiotics in livestock contributes to the development of antibiotic resistant human pathogens. (FWW Report, page 10) The Center for Disease Control and Prevention has identified antibiotic resistant bacteria as a growing public health threat in the United States. (ibid)

Hormones are injected into cattle in feedlots and dairies in order to increase production. As a result, animal manure has been shown to contain estrogens, progesterone, testosterone and synthetic hormones, which then enter into waste lagoons and are applied to farm fields. Several studies have found elevated levels of hormones in groundwater near dairy operations. (FWW Report, page 9)

Human exposure to hormones is of increasing concern to the public health community. Endocrine-disrupting hormones can interfere with normal hormone function and affect fetal and child development. (Ibid) Hormones have also been found to affect the development of aquatic life. (Ibid)

The EIR should examine the potentially significant health impacts of both antibiotics and hormones. These impacts can be easily mitigated by minimizing the use of these two pollutants or, in some situations, simply banning their use.

Monitoring

The current system of monitoring is so weak that it cannot come close to identifying the source and magnitude of pollutants into groundwater from animal confinement facilities. As a substitute for effective monitoring, the EIR rests mostly on management regimes and reporting that suffer from poor enforcement (see below). The system can and should get better. From a legal point of view, the suggestions below should be seen as mitigations measures proposed to reduce human health impacts from dairies and feedlots. From a human health perspective, better monitoring will help inform the County regarding siting and management of animal confinement facilities in the future.

As a preliminary question, it is confusing why the figures mapping nitrate contamination (EIR Figures 3.9-5 and 3.9-6) look at an MCL of 45 MG/L when the federal MCL is 10 MG/L. Please explain this discrepancy.

First, the current system only monitors the dairy and feedlot facilities themselves, rather than the far greater location of groundwater pollutants—the fields in which waste manure are applied—and the properties most likely impacted—surrounding private wells. The EIR acknowledges that the fields on which manure is spread result in the greatest potential for groundwater contamination:

“Information from the University of California and the *CVDRMP* both suggests that dairy ponds play a relatively small role in overall loading of nitrogen compounds to groundwater in a dairy setting. This is partly because ponds are designed to be relatively less permeable than cropland and are much smaller than the footprint of the surrounding cropland. Nutrients stored in the ponds have a much greater chance of entering groundwater after they leave the pond and are applied to crops than they do while stored in the pond itself.

The 2012 report to the California Legislature, “Addressing Nitrate in California’s Drinking Water “ noted that throughout the Salinas Valley and the entire four-county Tulare Lake Basin, the total area-wide contribution of nitrates from manure storage lagoons was about 220 tons annually, about 1,000 times less than the nitrogen loading from fertilized cropland in the same area. “ (EIR, pages 3.9-33-34)

Applicants for new or expanded dairy permits should be required to erect monitoring wells both upgradient and downgradient of the fields upon which their wastewater and manure are spread. This will help better define to what extent those fields are contributing to groundwater contamination. Of course, the monitoring wells on-site of the facilities should also be measuring upgradient and downgradient. A 2002 study came to the conclusion that wells downgradient of dairies had much higher levels of nitrates than those upgradient of dairies. (FWW Report, page 12)

Second, the monitoring that is done seems to be primarily into the deep aquifer beneath the facilities. (EIR, Page 3.9-21) The EIR notes that groundwater

contamination in the deep aquifer may be decades old, “Most nitrates in drinking water wells today were applied to the surface decades ago.” (EIR, page 3.9-29, citing to Harter Report) This makes it difficult to determine how much new or expanding dairies are contributing to groundwater contamination. Are there monitoring techniques available that would better allow the County and the Regional Water Quality Control Board (RWQCB) to pinpoint the origin of contaminants? If the answer to that question is “yes,” then those improved monitoring measures should be required as part of the ACFP.

Ultimately, the goal is to protect drinking water from groundwater contamination originating from confined animal facilities. Since, according to the RWQCB, 85% of dairies in the Central Valley are within 300 feet of an offsite domestic water well, the EIR should analyze a requirement that new or expanding confinement facilities should be required to offer to test private or public wells adjacent to, or within a certain distance of, their facilities as well as adjacent to or near the fields upon which their waste manure is spread, on an annual basis. The information gathered as a result of such a requirement would increase the ability of the County and other governmental entities to gauge the extent of groundwater contamination and perhaps, as a result, develop an approach that better protects human health.

The situation is serious, as noted in a 2010 report by the state’s Groundwater Ambient Monitoring and Assessment Domestic Well Project finding that 40% of private wells in Tulare County did not meet drinking water quality standards for nitrates. That same study showed that in Tulare County 33% of private wells tested positive for total coliform bacteria.

The EIR should stipulate that, when a new dairy or feedlot is proposed, monitoring wells should be placed on the facility property prior to installation of the facility, in order to establish a baseline measurement of pollutants.

Annual Compliance Reports should be filed electronically, and the results should be posted online for public access, with an annual summary of the reports in plain English. Monitoring results should also be placed online. These measures would allow the public to better understand the nature and breadth of groundwater contamination in the region.

Next, the County should require that monitoring wells test for antibiotics and endocrine disrupting hormones in addition to nitrates, salts, and total coliform. As is explained above, these potential pollutants are both increasing health concerns.

Other Mitigations

Based on the information referred to above, the EIR should require as a mitigation measure that antibiotics be used only for therapeutic reasons, not as a preventative measure of for increasing milk or beef production. The use of hormone growth promoters should be banned.

According to the Harter Report cited in the EIR, "Nitrate loading reductions are possible, some at modest cost." (EIR, page 3.9-30) The EIR goes on to state only a couple of these measures, " 'pump-and-fertilize' and improved groundwater recharge management are less costly long-term alternatives. " (ibid) Has the EIR incorporated all the "modest cost" mitigation measures included in the Harter Report?

In what the EIR refers to as the Expert Panel Report, the report endorses a program for minimizing nitrate loads to groundwater via improved irrigation efficiency and other practices with the goal of recording and reporting a ratio of "applied (to crops) nitrogen" divided by "removed" nitrogen (via harvest and nitrogen sequestered in wood of trees). The EIR should impose a mitigation measure stating that dairies may not apply manure or wastewater to farmlands until those farmlands have established a program to reach the goal stated above by establishing a proper ratio and monitoring to see that it is achieved as part of a dairy's Nutrient Management Plan (NMP).

All wastewater lagoons for new and expanded dairies should adopt the Tier 1 Standards set by the Regional Water Quality Control Board. EIR page 3.9-33. This may mean retrofitting the existing dairies if they apply to expand their herds.

Enforcement

The proposed mitigation measures for water quality will mean little unless the County adopts a stringent monitoring and enforcement plan to monitor and enforce those provisions. CEQA contains crucial guidance for monitoring and enforcement of mitigation measures.

Section 21081.6 of the Public Resources Code gives important guidance, saying in relevant part:

"(a) When making the findings required [to approve an EIR and the associated project] or when adopting a mitigated negative declaration...the following requirements shall apply:

(1) The public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of approval, adopted in order to mitigate or avoid significant effects on the environment. **The reporting or monitoring program shall be designed to ensure compliance during project implementation.** For those changes which have been required or incorporated into the project at the request of a responsible agency or a public agency having jurisdiction by law over natural resources affected by the project, that agency shall, if so requested by the lead agency or a responsible agency, prepare and submit a proposed reporting or monitoring program." [Emphasis added]

The CEQA Guidelines clarify this further by stating:

“A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, **until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures** occurs in accordance with the program.” CEQA Guidelines, Section 15097 (a)[emphasis added]

Thus, even where a mitigation measure may fall under the purview of another governmental body—such as the Air Pollution Control District or the Regional Water Quality Control Board—there remains an independent requirement that the Lead Agency ensure that mitigation measures are, in fact, completed.

Section 21081.6 goes on to state that the adopted mitigation measures must be enforceable:

“(b) A public agency shall provide that measures to mitigate or avoid significant effects on the environment are fully enforceable through permit conditions, agreements, or other measures. Conditions of project approval may be set forth in referenced documents which address required mitigation measures or, in the case of the adoption of a plan, policy, regulation, or other public project, by incorporating the mitigation measures into the plan, policy, regulation, or project design.”

Finally, the CEQA Guidelines again emphasize the need for solid enforcement of mitigation measures by stating:

“Reporting and monitoring are suited to all but the most simple projects. Monitoring ensures that project compliance is checked on a regular basis during and, if necessary after, implementation. Reporting ensures that the approving agency is informed of compliance with mitigation requirements.”
(Guidelines, Section 15097 (c)(3))

In short, Public Resources Code Section 21081 requires a mitigation monitoring or reporting plan and “periodic reports” in order to “ensure” that mitigations required of a given development project are in fact implemented successfully. Clearly, the existence of an adequate system to monitor and enforce the required mitigation measures is necessary to ensure the public that those mitigation measures imposed on a development are completed.

Pursuant to PRC 21081.6, the County may not approve the project without concurrently adopting a mitigation monitoring and enforcement plan that has been fully vetted through the EIR process. The County may not abrogate this responsibility simply by promising that it will draft a Mitigation Monitoring and Reporting Plan (MMRP) in the future. Even if this approach was lawful under CEQA (which it is not) MMRPs do not lend themselves to public comment (i.e. they are not

part of the EIR itself) and are typically released to the public only shortly before a final decision on a project or program. Thus the public does not typically get answers to questions about monitoring, reporting, and enforcement.

- Please describe the County's current method of mitigation monitoring for dairies and feedlots.
- Does the County have a funding mechanism in place to ensure that lack of staff resources will not be an excuse for poor follow-through in mitigation monitoring? Please describe the County staff's ability to review all Annual Compliance Reports, Nutrient Management Plans, Corrective Action Plans, and other documents required to be submitted by the dairies and feedlots.
- Will the County agree to monitor and enforce mitigation measures utilizing a cost recovery system, thus requiring the project applicants to pay for adequate oversight?
- What legal mechanisms does the County have in place to address problems with mitigation implementation or permit compliance? For example, can the County fine the developer, call the permit up for modification or revocation, or issue a stop-work order? Please list the possible enforcement mechanisms.
- If an Annual Compliance Report or other required document is not submitted, what will the County do to ensure the information is obtained in a timely manner?
- If a mitigation measure is not performed, or is not performed adequately, what will the County do to ensure that the problem is corrected?
- If a project requires subsequent approvals from the County (e.g. a grading permit), what will the County do to ensure that the mitigation measures contained in the CEQA documentation and/or MMRP are incorporated into future project approvals?
- Has the County ever issued a fine to a dairy or feedlot for noncompliance with permit conditions or for air or water quality violations?
- How will the County make available the compliance information submitted by dairies and feedlots? The EIR should specify that these reports be submitted electronically and are posted to the RMA's website in a manner easily accessible to the public.

The County, as Lead Agency, may not exclusively rely on the RWQCB to monitor and enforce water quality issues. As the County is undoubtedly aware, overwhelming evidence shows the RWQCB has an extremely poor track record of monitoring and enforcing the applicable its own permits, as well as law and regulations.

As the FWW report details, on many occasions the agency sent out multiple notices of violation but did not levy fines or take further corrective actions to bring the violators into compliance.

In regards to the General Order applying to dairies, the FWW Report notes, at pages 17-18, that while the General Order allows the RWQCB to require dairies with high nitrate levels or other factors such as proximity to private or municipal well to install a network of monitoring wells, and promises that

100-200 dairies a year would be enrolled in this program, as of 2011, only 75 dairies had received an order to comply with this provision of the General Order, and of 36 dairies in the Fresno region, none had in fact done so. This evidence shows the RWQCB does not have the ability or will (or both) to ensure dairies do not diminish the quality of water in Tulare.

Moreover, according to Food and Water Watch, the Regional Board could only provide data for nitrates, although wells are required to test for salts as well. (FWW Report, page 17). Also according to FWW's research, as of 2010, the Regional Board has **never** issued a clean up and abatement order to a violating dairy.

Food and Water Watch noted that after inspections, where a violation is found, more than two years can pass before any remedial action is taken. Some of the examples of lax enforcement uncovered by Food and Water Watch are alarming, such as a dairy that was discharging wastewater to surface waters and was then reported by a neighbor. 27 years later, no corrective action had been taken.

Reporting from 1,412 dairies in 2007 showed that 60% of dairies had wells in excess of drinking water standards nitrates and 40% of dairies had at least twice the 10 mg/l standard, yet none of the dairies were fined for their exceedances or required to take remedial actions.

The Food and Water Watch report concludes, "As of this writing [2011], we have no sense of the effectiveness of the General Order since no monitoring has been conducted, apart from that done by dairies on their existing wells."

In short, reliance on the Regional Water Quality Control Board to monitor and enforce the laws regarding water quality at dairy and feedlots facilities does not meet the CEQA standard of having a program to "ensure" that all adopted mitigation measures are properly implemented. The County is required, as Lead Agency, to make such assurances to the public for the ACFP and CAP. The County should establish such a program on a cost-recovery basis, so as to ensure that adequate resources are available to meet the County's commitments. The County should then make clear what the consequences will be for noncompliance with permitted standards or for missing documentation (e.g. first a notice of violation, then escalating fines).

The EIR should analyze whether paving the areas of their facilities where cattle congregate (e.g. the freestall) would allow for better manure management and thus reduced water quality impacts. Would doing so also reduce PM10 and PM2 emissions?

In Table 3.3-8, the numbers for NOx emissions do not add up correctly.

Facilities Location

The siting of dairies should take into effect the few remaining wetlands in the County. In particular, the Pixley National Wildlife Refuge gets much of its water from groundwater wells. Dairies should not be located in areas where they can pollute the Refuge or other wetland or other biologically sensitive areas in the County.

Air Quality

The EIR notes that the Valley floor of Tulare County has only one air quality monitoring site, that being in the city of Visalia. This is inadequate to gauge air pollutants, especially PM10 and PM 2.5, in the areas where dairies are concentrated. The County should work with the APCD to establish one or more air monitors in close proximity to areas of the County where dairies are common. Those monitors should also test for non-criteria pollutants ammonia and methane.

To reduce fugitive dust, the EIR should analyze a requirement that dairies and feedlots pave their roads, up to the point where a public paved road exists.

Conclusion

As discussed above, there are numerous ways in which the DEIR and CAP should be changed, both to satisfy the requirements of the law and, more importantly, to better address the serious environmental impacts this industry brings to the County.

If you have any questions, please direct them to Craig Breon at (530) 488-0661.

Sincerely,



Craig K. Breon, Esq

On behalf of the Kern-Kaweah Chapter of the Sierra Club

Asian Pacific Environmental Network – Association of Irrigated Residents
California Environmental Justice Alliance (CEJA) – Center for Community Action
and Environmental Justice – Center on Race, Poverty & the Environment
Central Valley Air Quality Coalition – Central California Environmental Justice
Network – Clean Water and Air Matter – Committee for a Better Shafter
Communities for a Better Environment – Food & Water Watch
Global Community Monitor – Institute for Agricultural and Trade Policy
Iowa Citizens for Community Improvement – Merced Bicycle Coalition
Dr. David Pepper – Physicians for Social Responsibility Los Angeles
Sierra Club California – Socially Responsible Agriculture Project

June 10, 2015

Via Electronic Mail

Ryan McCarthy
Craig Segall
California Air Resources Board
1001 I Street
Sacramento, CA 95814
ryan.mccarthy@arb.ca.gov
craig.segall@arb.ca.gov

**Re: Comments on Short Lived Climate Pollutant Reduction Strategy Concept
Paper**

Pursuant to Senate Bill 605 (Lara), the Air Resources Board has released the Short Lived Climate Pollutant Reduction Strategy Concept Paper (hereafter “Concept Paper”) to discuss potential strategies which the Board would evaluate for inclusion in the Short Lived Climate Pollutant Reduction Strategy. These comments on the Concept Paper are submitted on behalf of the Asian Pacific Environmental Network, Association of Irrigated Residents, California Environmental Justice Alliance (CEJA), Center for Community Action and Environmental Justice, Center on Race, Poverty & the Environment, Central Valley Air Quality Coalition, Central California Environmental Justice Network, Clean Water and Air Matter, Committee for a Better Shafter, Communities for a Better Environment, Food & Water Watch, Global Community Monitor, Institute for Agricultural and Trade Policy, Iowa Citizens for Community Improvement, Merced Bicycle Coalition, Dr. David Pepper, Physicians for Social Responsibility – Los Angeles, Sierra Club California, and the Socially Responsible Agriculture Project.

California Dairies account for sixty percent of California's methane emissions.¹ In the San Joaquin Valley, *at least* eighty-seven percent of methane emissions are from dairy (and other cattle) operations.² As a result, the Board should ensure that dairies do their fair share to reduce methane emissions and should not avoid regulation, which would unfairly place a greater reduction burden on other sources of greenhouse gases. Given the dire need to stabilize our climate, California has taken the lead by adopting Assembly Bill 32, the California Global Warming Solutions Act, to reduce greenhouse gases by twenty percent below 1990 levels. On April 29, 2015, Governor Brown adopted Executive Order B-30-15 calling for even greater reductions – forty percent by 2030 – and leaders in the California Senate have proposed even more aggressive policy to decarbonize our energy and transportation systems.³

The Concept Paper discussed covered lagoons and manure scraping as strategies for reducing manure-based methane emissions, which represents roughly thirty percent of California's total methane emissions.⁴ The Paper also briefly addressed breeding and dietary strategies for controlling enteric methane emissions, which also account for roughly thirty percent of total emissions.⁵

We urge the Air Resources Board to investigate and include additional control options in the Strategy. First, there is no reason why the Board should not evaluate and consider a decarbonized dairy industry, especially when other carbon-intensive sectors of the California economy must transition if California is to achieve proposed targets above and beyond AB 32. Pasture-based dairy systems provide multiple benefits, including avoiding methane production from anaerobic decomposition, carbon sequestration, lower cow density per acre (causing less enteric emissions), reduced water consumption, and improved animal welfare conditions for dairy cattle. Second, the Board should investigate and consider the use of biofilters/bioreactors combined with enclosed freestall barns to capture and treat methane and volatile organic compound (VOC) emissions. Biofiltration has been achieved in practice to treat methane and VOC emissions. Given the very large methane and VOC emissions reduction potential from freestall barns, the Board should thoroughly investigate and determine cost-effectiveness in the context of current and proposed climate stabilization goals.

In developing the strategy, the state board shall do all of the following:

- (1) Complete an inventory of sources and emissions of short-lived climate pollutants in the state based on available data;
- (2) Identify research needs to address any data gaps;
- (3) Identify existing and potential new control measures to reduce emissions;

¹ Short Lived Climate Pollutant Reduction Strategy, Concept Paper at 21 (hereafter "Concept Paper").

² D.R. Genter, et al., Emissions of organic carbon and methane from petroleum and dairy operations in California's San Joaquin Valley, *Atmos. Chem. Phys.*, 14, 4955–4978 (2014).

³ See, e.g., Senate Bill 350 (De León); Senate Bill 32 (Pavley) (setting targets of 80% below 1990 levels by 2050).

⁴ Concept Paper at 21.

⁵ Concept Paper at 21-22.

- (4) Prioritize the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities, as identified pursuant to Section 39711; and
- (5) Coordinate with other state agencies and districts to develop measures identified as part of the comprehensive strategy.

Health & Safety Code § 39730(a). Given this legislative direction, the Board should investigate the environmental, economic, and co-benefits of pasture-based and enclosed barn control measures.

I. Pasture-Based Dairy Operations Provide Significant Environmental and Economic Benefits.

The Concept Paper declined to discuss pasture-based dairying as an option, even though dairies in California have successfully operated pasture-based systems for years. Only in the last several decades has a highly intensive, confinement system evolved to mostly displace pasture-based dairy farming. The Board should evaluate pasture-based dairy systems and include them in the strategy because they present multiple co-benefits in addition to substantially reducing methane emissions.

At the Public Workshop on May 27, 2015, dairy industry representatives sought public subsidies, including funding from the Greenhouse Gas Reduction Fund, for anaerobic digesters. To the extent the Board relies on incentive funding, such incentives should be instead directed towards dairy producers who operate pasture-based systems and confinement operators who transition to pasture-based systems because of the multiple co-benefits discussed below. For the reasons stated in Section II, *infra*, anaerobic digesters do not provide co-benefits, but instead contribute criteria pollutant emissions in nonattainment air basins like the San Joaquin Valley, and should thus not receive incentive funding. The Legislature specifically directed the Board to “[p]rioritize the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities.” Health & Safety Code § 39730(a)(4). Prioritizing incentives for pasture-based systems meets this legislative directive.

Also at the public workshop, ARB staff stated that ARB has not determined how to consider control measures’ cost effectiveness when measures have multiple benefits, and asked the public to provide methodology. The Center on Race, Poverty & the Environment stands ready to work with staff during the development of the Strategy to ensure that the multiple benefits documented below and in Section II appropriately weigh such co-benefits.

A. Environmental Benefits of Pasture-Based Systems.

While beef and dairy production are the most energy intensive of all animal products, contributing 65 percent of livestock sector GHG emissions,⁶ some reports now suggest that grass-fed ruminant livestock may be a less carbon-intensive, carbon-neutral, or even a carbon sequestering management system for ruminant livestock. This is because grasslands can, when properly managed, sequester carbon dioxide from the atmosphere. It is also because the manure management on pasture avoids anaerobic methane emissions created in lagoon-based confinement systems and nitrous oxide emissions from liquid manure applications for on-farm nitrogen disposal and feed production. This means pasture-based systems drastically reduce greenhouse gas emission and have the potential to actually offset emissions, creating a carbon sink.

First, when assessing the environmental benefits of pasture-based systems viewed in light of existing science and identifying data gaps, the Board must account for the fact that all analyses draw a box around what activities studies include in emission assessments and what activities are not included. For example, in 2012 the EPA estimated that all agriculture in the U.S. accounted for 8.1 percent of total U.S. GHG emissions. However, this estimate did not include emissions from land-use change (growing and transporting feed crops) because those are allocated to a different sector.⁷ On the opposite end of the spectrum, the World Watch Institute's 2009 global assessment of livestock production's impact on GHG emissions ranges up to 51 percent, and includes carbon dioxide emitted in respiration from animals and loss of photosynthetic absorption of carbon dioxide from plant destruction.⁸ A life cycle analysis examines the environmental impacts associated with the entire production of a particular product. An effective Strategy should address as many emissions points and opportunities for mitigation during the full lifecycle of California dairy production.

Pasture-based systems most directly reduce methane emissions because methane emissions from manure – thirty percent of total California emissions – come from anaerobic manure decomposition in waste lagoons.⁹ Methane is emitted when manure is stored in water, because the anaerobic environment lacks oxygen. The most common liquid condition is the waste lagoon, found on most California confinement (non-pasture) systems. For instance, emissions from dairy cow manure management in the U.S. increased by 115 percent from 1990 to 2012 because of the increased usage of waste lagoon systems.¹⁰ Mostly due to this increase (the other large increase in emissions was from swine, which increased by 53 percent), overall

⁶ Gerber, P.J., Steinfeld, H., Henderson, B., Mottet, A., Opio, C., Dijkman, J., Falcucci, A. & Tempio, G. 2013. *Tackling climate change through livestock – A global assessment of emissions and mitigation opportunities*. Rome: Food and Agriculture Organization of the United Nations (FAO), xii.

⁷ US EPA. (5 August 2014). Life Cycle Assessment (LCA). Retrieved from <http://www.epa.gov/nrmrl/std/lca/lca.html>.

⁸ Gerber et al. (2013), 15.

⁹ Steinfeld, Henning, Pierre Gerber, Tom Wassenaar, Vincent Castel, Mauricio Rosales, Cees de Haan. (2006). *Livestock's Long Shadow: environmental issues and options*. Rome: FAO, 97.

¹⁰ Gerber et al. (2013), 27.

methane emissions from manure in the U.S. grew by 68 percent, and account for about half of all dairy methane emissions.¹¹ When stored in dry conditions, as is more common on extensive and alternative production systems, including pasture-based and dry-stack systems, manure emits little methane.

Pasture-based systems not only remove the need for liquid waste storage, but they also provide two additional environmental benefits: reduction in greenhouse gas emissions from feed production, and creating a net sink through carbon sequestration. Globally, the production, processing, and transport of feed accounts for 45 percent of the industrial animal emissions. Half of these emissions are from synthetic fertilizer use, one quarter are from land-use change, and one quarter are from manure used as fertilizer.¹² The shift to pasture-based systems reduces the need for on-site feed production (for nitrogen disposal) and off-site feed production and therefore substantially reduces GHGs.

Estimates for the potential of carbon sequestration in grasslands vary widely (especially at the global scale). This is primarily because farmers and land managers use a wide range of management practices. One 2010 report estimated that properly managed grasslands could sequester as much as 0.7 Gt CO₂ from the atmosphere.¹³ Another study reported potential sequestration of up to 88 to 210 Gt CO₂ in grasslands over a 25 to 30 year period.¹⁴ The UN FAO reports on grassland management assert grasslands could sequester .81-1.51 Gt CO₂.^{15,16} A recent study finds that converting to pastures managed using intensive grazing principles can capture up to 8 metric tons of carbon per hectare, or 3.6 tons per acre per year in the soil.¹⁷ Grasslands can also act as a methane sink when managed properly. The average methane uptake of grasslands is not well documented, though a recent study measured uptake at a range between 0.05 to .12 tons CO₂ equivalent per hectare per year.¹⁸

Pasture-based systems stock fewer cows per acre than confinement systems, which reduces enteric emissions. “The amount of methane emitted by animals is directly related to the number of animals, so that a more intensive farm will have higher emissions, though the

¹¹ US EPA (2014), *U.S. Inventory of Greenhouse Gas Emissions and Sinks: 1990-2012*, 6-9.

¹² Gerber et al. (2013), 17.

¹³ Conant, R.T., 2010. *Challenges and Opportunities for Carbon Sequestration in Grassland Systems: A Technical Report on Grassland Management and Climate Change Mitigation*. FAO. Vol. 9: 3, 14.

¹⁴ S. Itzkan, *The Potential of Restorative Grazing to Mitigate Global Warming by Increasing Carbon Capture on Grasslands* (2014), 7.

¹⁵ Milne, Elinor, Aspinall, R., Veldkamp, T. (2014). *Landscape Ecology* v.24:9, Integrated modelling of natural and social systems in land change science, 1145-1147.

¹⁶ Gerber et al. (2013), 53.

¹⁷ Machmuller, Megan B., et al., Emerging land use practices rapidly increase soil organic matter, *Nat Commun*, Vol. 6 (2015).

¹⁸ DeLonge, Marcia, Justine J. Owen, and Whendee Silver (2014). *Greenhouse Gas Mitigation Opportunities in California Agriculture: Review of California Rangeland Emissions and Mitigation Potential*. NI GGMCA R 4. Durham, NC: Duke University, 12.

emissions per unit of product (e.g. meat, milk) might be lower.”¹⁹ Further, enteric emissions may decrease based on departing from silage and grain-based Total Mixed Rations and feeding more grass to dairy cows. For instance, EPA studies have shown that corn- and soybean-fed ruminants raised in confinement systems produce more methane than grazing livestock.²⁰

Excess nitrogen from confined dairy systems is also a significant environmental concern, leading to nitrate contamination in groundwater.²¹ The Board should seek input from the State Water Board on pasture-based systems’ co-benefits to groundwater quality as nitrate mitigation.

B. Economic Benefits of Pasture-Based Systems.

Given the directive in Health & Safety Code § 39730(a), the Board should thoroughly investigate the economic benefits of pasture-based systems. Incentivizing a shift to pasture-based dairy production brings with it an exciting opportunity for new economic benefits to be realized by producers as well as by California taxpayers. For producers making the move from confinement systems to pasture, there is a significant potential for lower overall costs of production. This begins with the cost of producing and transporting feed. Grazing on forage in well-managed pasture reduces the need to purchase feed. Unlike annual crops, perennial forage crops provide a long-term source of feed whose expense can be spread out over time. Nor is there as much need for capital investment in facilities and equipment, and far less handling and management of manure is required.²² And in many instances, pasture can be maintained without herbicides or commercial fertilizers.²³ Similarly, producers can avoid drug costs. Cows maintained on pasture have less need for antibiotics and other drugs that are routinely applied in a large-scale confinement operation (and that are contributing to the growing crisis of antibiotic

¹⁹ Greenpeace, Cool Farming: Climate impacts of agriculture and mitigation options, available at <http://eprints.lancs.ac.uk/68831/1/1111.pdf>

²⁰ U.S. Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–1996. Washington; U.S. Environmental Protection Agency, 1998, referenced in Koneswaran, Gowri, and Danielle Nierenberg. “Global Farm Animal Production and Global Warming: Impacting and Mitigating Climate Change.” *Environmental Health Perspectives* 116.5 (2008): 578-82.

²¹ California Water Boards, Recommendations Addressing Nitrate Contamination in Groundwater, 2013, available at http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/docs/nitrate_rpt.pdf.

²² See generally USDA NRCS, *Profitable Grazing-Based Dairy Systems*, Technical Note 1 (May 2007), at http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044245.pdf. See also <http://www.mofga.org/Publications/MaineOrganicFarmerGardener/Fall2003/Pasture/tabid/1454/Default.aspx>

²³ See, e.g., Animal Welfare Approved, *A Breath Fresh Air: The truth about pasture-based livestock production and environmental sustainability* 14.

resistance in people²⁴). Herds raised on pasture tend to be healthier than their intensively confined counterparts, which can translate to lower veterinary bills.²⁵ In other words, pasture is profitable.²⁶

The economic benefits to producers are not limited to avoided costs. High quality pasture-raised dairy can command a premium in the marketplace, rewarding more sustainable, animal- and environmentally friendly production practices. Consumers are also increasingly choosing pasture based or grass-fed options for their higher nutrient profiles and animal welfare practices. These trends are evidenced by significant growth in sales and market share of products displaying these claims. According to SPINS market data, leading brands with certified organic and grass-fed product labels grew by 80% between 2012-2014.²⁷ Animal products with claims of “pasture-raised,” better animal welfare practices and grass-fed grew by 24%, 23% and 55% respectively from 2012-2013. Even California’s own Annies has developed a grass-fed mac and cheese brand.²⁸

Given the many economic benefits, why would dairy farmers opt for confinement systems over grazing on pasture? According to USDA NRCS:

... [C]onfinement dairying is the only system many producers know. In spite of high debts and low profit margins resulting from increased mechanization and facilities costs and low milk prices, farmers are reluctant to try a grazing system and learn how to operate it. A mistake farmers sometimes make is to prolong the decision to switch to a grazing-based system until their debt margin is too great to be easily overcome, even with improved profitability.²⁹

²⁴ E.g., U.S. Centers for Disease Control and Prevention, *Antibiotic Resistance Threats in the United States* 36 (2013) (noting strong scientific evidence that antibiotic use in food-producing animals can harm public health).

²⁵ <http://extension.psu.edu/animals/dairy/nutrition/forages/pasture/articles-on-pasture-and-grazing/pasture-based-systems-for-dairy-cows-in-the-united-states>

²⁶ USDA NRCS, *Profitable Grazing-Based Dairy Systems*, Technical Note 1, at 8 (May 2007) (citing studies).

²⁷ SPINS Trend Watch, <http://www.spins.com/trends/protein-infographic.pdf>

²⁸ <http://consumergoods.edgl.com/news/Annie-s-Debuts-Grass-Fed-Mac---Cheese97937>

²⁹ USDA NRCS, *Profitable Grazing-Based Dairy Systems*, Technical Note 1, at 4 (May 2007). “Lower milk production associated with grazing-based herds is the most frequently cited reason that some dairy producers do not adopt this system. The rationale does not necessarily consider both costs and return, however. Milk production levels at less than maximum can produce greater economic returns if costs are reduced significantly, as has been observed by some dairy farmers and economists. It really is more realistic to consider the optimum milk production level that will return the best economic results over input costs.” *Id.* at 5.

Moving to pasture to capture the economic benefits is not novel: for years, dairy farmers have embraced (or re-embraced) grazing to avoid the rising costs of inputs.³⁰

Additionally, each of the *environmental and natural resource benefits* from pasture-based dairy production also represents a further *economic benefit* to California and its taxpayers. Pollution of surface water, extensive nitrate groundwater contamination in the Central Valley, significant methane emissions, and high levels of water consumption are all components of the “true” cost of dairy production under the predominant confinement model. But because these impacts are externalized, they are not included in the price of dairy products; instead, they are left to be absorbed later by the taxpayer in the form of unwelcome social and environmental consequences, or cleanup costs. By contrast, a well-managed pasture system imposes no such involuntary costs on the public.

Benefits to public health are also available. A 2013 study published in PLoS ONE found that grass-fed organic dairy has far higher levels of Omega-3 fats than grain-fed dairy.³¹ Researchers at Washington State University recently found that organic cow’s milk contains 62% more omega-3 fatty acids and 25% less omega-6 fatty acids than conventional cow’s milk.³²

Economic challenges, solutions, and benefits associated with decarbonizing California dairy production should be thoroughly investigated and considered by the Board during the development of this Strategy.

C. Water Consumption Benefits of Pasture-Based Systems.

An additional co-benefit of pasture-based systems is the potential to produce milk in California with less water demand, a critical co-benefit which the current drought aptly underscores. Given this historic drought and likely future climate disruption-related drought, water usage should be considered when evaluating various methane control strategies, including the benefits of pasture-based systems. It is true that pasture-based dairy farms in California rely on irrigated pasture during dry months, and the Board should consider the amount of water used for irrigated pasture. However, the Board should also weigh the water-intensive practices at confinement systems which, in addition to using water for feed and manure management, have higher per acre stocking rates than pasture systems, which equates to greater water consumption by dairy cattle. We provide the following to document water consumption and urge the Board to perform a full analysis when considering the feasibility of pasture-based systems as a methane control strategy.

³⁰ <http://extension.psu.edu/animals/dairy/nutrition/forages/pasture/articles-on-pasture-and-grazing/pasture-based-systems-for-dairy-cows-in-the-united-states>

³¹ Benbrook CM, Butler G, Latif MA, Leifert C, Davis DR. (2013). Organic Production Enhances Milk Nutritional Quality by Shifting Fatty Acid Composition: A United States-Wide, 18-Month Study. *PLoS One*.

³² Benbrook, C. (2014).

The total water consumed by confinement dairies varies significantly based on multiple factors. However, feeding confinement dairy cattle Total Mixed Rations (which includes feed grains and corn silage) involves more stages in the supply chain than pasture-raised cattle, with each stage consuming large amounts of water: irrigating feed crops, processing feed at mills, direct water consumption by cattle, and managing manure.^{33,34} Dairy cows raised on well-managed pasture, in contrast, require fewer inputs of feed grains, and manure is incorporated into the pasture system, rather than necessitating feed cropland as a nitrogen disposal system.³⁵

Researchers at the University of Twente in the Netherlands estimated that industrial milk production in the United States consumes 61,000 liters of surface and groundwater per ton of milk produced, roughly 30.5 gallons per pound.³⁶ The Water Education Foundation estimates that whole milk requires 90 gallons of water to produce one pound of milk.³⁷ The amount of water an individual confinement dairy cow consumes varies depending on temperature, conditions, age, and lactating status. Canadian estimates place dairy cattle consumption at an average of 1.3-3.5 gallons per day as calves, 3.8-9.7 gallons per day for heifers, and 34.9-40.9 gallons per day for milking cows at high production.³⁸ Penn State College of Agricultural Sciences estimates dry cows consume 9-13 gallons per day and a 1,350-pound Holstein cow producing 60 pounds of milk per day would have a total water intake of 30.6 gallons per day.³⁹

Additionally, raising dairy cattle in confinement systems involves large amounts of feed inputs such as grain and soy, which consume water during production and processing. Recommended daily rations for dairy cows often include corn, oats, barley, alfalfa hay, and soybean.⁴⁰ In California, producing corn silage requires 18.5 gallons of water per pound, corn grain requires 119 gallons of water per pound, oats 196.62 gallons, alfalfa hay 129 gallons,

³³ Australian Lot Feeders' Association. *Water*. Accessed on May 19, 2015. Available at: http://feedlots.com.au/index.php?option=com_content&view=article&id=93&Itemid=120.

³⁴ S. Gadberry. *Water for Beef Cattle*, Agriculture and Natural Resources FSA3021, University of Arkansas Division of Agriculture.

³⁵ 15 Cal. Code Regs. § 22563(a) ("Application of manure and wastewater to disposal fields or crop lands shall be at rates which are reasonable for the crop, soil, climate, special local situations, management system, and type of manure.")

³⁶ M.M Mekonnen & A.Y. Hoekstra. A Global Assessment of the Water Footprint of Farm Animal Products. *15 Ecosystems*, 401. (2012). The figure was provided as 61 cubic metres per ton. 61 cubic metres = 61,000 litres.

³⁷ M. Keith. *Water inputs in California food production*. Sacramento, CA: Water Education Foundation. (1991).

³⁸ Ontario Ministry of Agriculture, Food and Rural Affairs. *Water Requirements of Livestock Factsheet*. (May 2007). Available at: <http://www.omafra.gov.on.ca/english/engineer/facts/07-023.htm>.

³⁹ Penn State, *Water intake and quality for dairy cattle*, available at <http://extension.psu.edu/animals/dairy/nutrition/nutrition-and-feeding/water-and-water-quality/water-intake-and-quality-for-dairy-cattle>

⁴⁰ L.I. Chiba. *Animal Nutrition Handbook Section 15: Dairy Cattle Nutrition and Feeding*. Auburn University. (2014).

soybeans 480.05 gallons, and barley 216.1 gallons of water.⁴¹ Estimates of the pounds of feed required per day for milking cows range from 55 to 66 pounds per day.^{42,43} Given the average water consumption of 193.23 gallons per pound for common feed inputs, the daily diet of a single milking cow at high production likely required over 10,000 gallons of water to produce. Estimates of water use during the milling stage are small—0.024 gallons per pound for corn, for example⁴⁴—but this amount adds up quickly in intensive systems.

Most models estimating total water consumption at dairies do not incorporate water usage associated with manure management in feedlot systems. Dairies employ different manure storage and management strategies and related water usage varies significantly, but the dominant confinement systems widely used in the San Joaquin Valley rely exclusively on liquefied manure management in lagoons. Lagoon systems are associated with the highest water consumption, used to flush manure from the freestall barns and milking parlors into the lagoon system. Lagoons have low cost, and the flushing systems (pipes, pumps, etc.) minimize the labor involved in transporting the manure.⁴⁵ Estimates of the amount of water used for flushing in lagoon systems can be easily determined by the Board. However, manure flushing and storage systems in pasture-based systems are either not necessary or drastically reduced in size, and thus the associated water consumption is avoided or substantially lessened.

II. The Board should Evaluate Biofilter Controls for Enteric Emissions at Freestall Barns in Confinement Systems.

Assuming that the entire California dairy industry does not convert to pasture-based systems, the Board should require enclosed barns vented to biofilter treatment systems to significantly reduce enteric methane emissions from milk cows. The Concept Paper recognizes that enteric emissions account for roughly half of total dairy methane emissions – 30% of total statewide methane emissions – but does not evaluate the technological feasibility or cost-effectiveness of freestall barn enclosures with methane captured and vented to biofilters.⁴⁶ Given the legislative mandate in Senate Bill 605, as well as the massive statewide emissions of enteric methane, the Board should evaluate and include this mitigation in the Strategy.

⁴¹ M. Keith. Water inputs in California food production. Sacramento, CA: Water Education Foundation. (1991).

⁴² C. Benbrook. *Shades of Green: Quantifying the Benefits of Organic Dairy Production*. Ireland: The Organic Centre. (March 2009). 66.36 pounds of feed are required per day to sustain one milking cow in production for 365 days

⁴³ D. Fischer & M. Hutjens. How many pounds of feed does a cow eat in a day? University of Illinois Extension. (April 2007). Available at: <http://www.extension.org/pages/37808/how-many-pounds-of-feed-does-a-cow-eat-in-a-day#.VVz4oEbsdQo>. A typical diet for a dairy cow will include 26-30 pounds of hay (dry matter) and 22 pounds of grain mix (corn, soybeans).

⁴⁴ K.D. Casey, Ph.D. & L.A. McDonald. Final Report: Peak Water Demand in Texas Beef Cattle Feedlots. Amarillo, TX: Texas A&M. (2008).

⁴⁵ D. Pfost & C. Fulhage. Beef Manure Management Systems in Missouri. University of Missouri Department of Agricultural Engineering. (October 2000). Available at: <http://extension.missouri.edu/p/EQ377>.

⁴⁶ Concept Paper at 21.

In modern, confinement-style dairies, milk cows are housed in freestall barns without access to pasture. The majority of dairies in California employ this model. Freestall barns are open-sided roofed structures with concrete floors that facilitate milk cow feeding and manure handling, with manure typically flushed and liquefied periodically into liquid manure storage lagoons and eventually disposed of in adjacent crop land. Enclosed freestall barns vented to biofilters allow for the capture and treatment of enteric methane and volatile organic compound emissions.

Biofiltration of methane provides 80% methane reductions without the harmful co-pollutant emissions associated with methane combustion.⁴⁷ In a biofilter or bioreactor, methane is vented through a medium containing methanotrophs (methane consuming microorganisms) which oxidize the methane to carbon dioxide.⁴⁸ Biofilters can also treat emissions from covered liquid manure storage lagoons (anaerobic digesters).⁴⁹ The San Joaquin Valley Unified Air Pollution Control District has verified “that biofilters have been used to control odors and/or emissions from wastewater treatment plants, composting operations, and enclosed barns at some poultry and swine confined animal facilities.”⁵⁰ According to the EPA, biofilters offer a significant cost advantage and operational efficiency over other treatment systems.⁵¹ There can be no question that biofilters are technologically feasible for methane treatment, and the Board should further investigate the use of biofilter systems as part of the Short Lived Climate Pollutant Strategy.

Enclosing freestall barns would allow for the capture and treatment of methane and at the same time offer the co-benefit of increasing milk production. The San Joaquin Valley Air District has recognized the operational flexibility of enclosed barns and that the decrease in heat stress would increase milk production by 1.8 to 2.7 kg/day/cow.⁵² The energy required to operate the biofilter and maintain cow comfort in the enclosed barns may come from on-site distributed generation solar systems.

Enclosed barns vented to biofilters also offer the co-benefit of reducing VOC emissions from fresh waste, enteric emissions, and corn silage. Corn silage emits massive amounts of VOC in the San Joaquin Valley, with dairy corn silage VOC emissions forming more ozone than the VOC emitted by passenger vehicles.⁵³ Enteric emissions and fresh waste also emit VOC.⁵⁴

⁴⁷ Quiang Huang, Journal of Arid Land, Vol. 3, No. 1, 61-70 (2011); VOC reduction citation.

⁴⁸ Huang (2011).

⁴⁹ Huang, (2011).

⁵⁰ San Joaquin Valley Unified Air Pollution Control District, Van Der Kooi Dairy Supplemental Environmental Impact Report at 9-10, 2008.

⁵¹ U.S. EPA, Using Bioreactors to Control Air Pollution, EPA-456/R-03-003, September 2003.

⁵² San Joaquin Unified APCD, Final Draft Staff Report with Appendices for Proposed Rule 4570: Confined Animal Facilities at 30, May 18, 2006, attached as Exhibit 1.

⁵³ Cody J. Howard, et al., Reactive Organic Gas Emissions from Livestock Feed Contribute Significantly to Ozone production in Central California, Environ. Sci. Technol. (2010), 44, 2309–2314, attached as Exhibit 2; San Joaquin Valley Unified Air Pollution Control District Air

Because biofilters achieve a VOC reduction of at least 80%,⁵⁵ the use of enclosed barns not only reduces enteric methane significantly, but also controls VOC, which acts as an ozone and fine particulate matter (PM2.5) precursor. The San Joaquin Valley, home to the majority of California's dairy industry, is nonattainment for both ozone and PM2.5. Reducing VOC emissions to help attain ozone and PM2.5 standards also provides an economic benefit. Two economists at Cal State Fullerton, Jane Hall and Victor Brajer, estimate that if the San Joaquin Valley met the current health-based federal air quality standards for PM2.5 and ozone, Valley residents would save approximately \$6 billion *each year* – or \$1,600 per Valley resident – in measurable health costs.⁵⁶

Because of the multiple co-benefits, the Air Resources Board should thoroughly evaluate the cost-effectiveness of enclosed barns vented to biofilters. The evaluation should include the benefits of both methane and VOC controls, as well as the economic benefits of increased milk production. Furthermore, the Board should compare and evaluate enclosed barn and biofilter cost-effectiveness pursuant to the AB 32 emissions standard of “maximum technologically feasible and cost-effective reductions”⁵⁷ in order to achieve both a 40% reduction from 1990 levels by 2030 as called for in Executive Order B-30-15 and the 80% reduction from 1990 levels by 2050 as proposed in Senate Bill 32 (Pavley).

III. Anaerobic Digesters Present Nutrient Loading and Air Pollution Negative Consequences.

The Concept Paper identifies anaerobic digesters as a potential mitigation option with the co-benefit of electricity production by combusting methane. While anaerobic digesters have been promoted as a solution to methane emissions associated with liquefied manure storage, research has demonstrated that anaerobic digesters are not the ‘silver bullet’ for manure management. The nutrient loads (nitrogen and phosphorus) loads are not reduced during the digestion process. The resulting effluent must still be managed appropriately and thus, digesters do not effectively alleviate the environmental challenges associated with storing large quantities of manure-based nitrogen, or applying it to crop fields in a manner that does not exacerbate Central Valley groundwater contamination.⁵⁸ In California, nitrate contamination of groundwater has been identified as a significant problem, so the Board should work closely with

Pollution Control Officer's Revision of the Dairy VOC Emission Factors at 34-35 (2012), attached as Exhibit 3.

⁵⁴ San Joaquin Valley Unified Air Pollution Control District Air Pollution Control Officer's Revision of the Dairy VOC Emission Factors at 16-22 (2012).

⁵⁵ San Joaquin Unified APCD, Final Draft Staff Report with Proposed Rule 4566: Organic Material Composting Operations at 14, August 18, 2011, attached as Exhibit 4; Final Draft Staff Report for Proposed Rule 4570 (2006) at 30.

⁵⁶ <http://business.fullerton.edu/centers/iees/reports/Benefits%20of%20Meeting%20Clean%20Air%20Standards.pdf>

⁵⁷ Health & Safety Code § 38562(a).

⁵⁸ Lazarus WF. 2009; Humenik, F. et al. *Anaerobic Digestion of Animal Manure: The History and Current Needs*. North Carolina State University, Waste Management Programs, College of Agriculture and Life Sciences.

the State Water Board and Central Valley Regional Water Board on limiting the amount of nitrogen produced in confinement systems to prevent nitrogen discharges to groundwater or into the air (as volatilized ammonia gas).

Utilization of biogas in digesters still carries air quality implications due to emissions from the combustion process. Of particular concern are nitrogen oxides (NOx) created during combustion of digester biogas, especially in nonattainment areas like the San Joaquin Valley where ozone and fine particulate matter (PM2.5) pollution levels are already above acceptable levels (and where the Board and the Valley Air District have not even come close to attaining the 1997 PM2.5 National Ambient Air Quality Standards).⁵⁹ As described above and in combination with enclosed barns, anaerobic digesters can vent to a biofilter without the negative co-pollutants associated with combustion.

IV. The Board should not Include Dairies in the Cap and Trade Regulation.

The Concept Paper states that the Board is evaluating a petition to regulate dairies under the Cap and Trade Regulation.⁶⁰ The Board should not pursue such a strategy because Cap and Trade implicates environmental justice and civil rights concerns when communities living near industrial cap and trade facilities are overwhelmingly people of color.⁶¹ Use of allowances generated by dairies at industrial facilities would deny on-site reductions for communities of color living near industrial facilities like refineries and power plants.

V. Conclusion.

The Air Resources Board has made an important first step towards reducing methane emissions from dairies under the Strategy required by Senate Bill 605. Given the significance of those emissions, and the multiple co-benefits associated with pasture-based systems and enclosed barns vented to biofilter treatment systems, Board staff should thoroughly investigate these options and include them in the final Strategy for adoption by the Board. Thank you for your work to date and we look forward to working with you and other Board staff to ensure significant methane reductions from California dairies.

Sincerely,



Brent Newell
Center on Race, Poverty & the Environment

⁵⁹ Lazarus WF. 2009.

⁶⁰ Concept Paper at 21.

⁶¹ Manuel Pastor, et al, Minding the Climate Gap, available at http://dornsife.usc.edu/assets/sites/242/docs/mindingthegap_executive_summary.pdf

Miya Yoshitani
Asian Pacific Environmental Network

Tom Frantz
Association of Irrigated Residents

Amy Vanderwarker
California Environmental Justice Alliance (CEJA)

Penny Nelson
Center for Community Action and Environmental Justice

Dolores Weller
Central Valley Air Quality Coalition

Cesar Campos
Central California Environmental Justice Network

Renee Wilson
Clean Water and Air Matter

Rodrigo Romo
Committee for a Better Shafter

Bahram Fazeli
Communities for a Better Environment

Patty Lovera, Director
Food & Water Watch

Denny Larson
Global Community Monitor

Ben Lilliston
Institute for Agricultural and Trade Policy

Adam Mason
Iowa Citizens for Community Improvement

Justin Hicks
Merced Bicycle Coalition

Dr. David Pepper

**Comments on the Air Quality and Greenhouse Gas Emissions Analysis Provided in the
Draft Environmental Impact Report (DEIR)**

for the

**Animal Confinement Facilities Plan (ACFP), and Dairy and Feedlot Climate Action Plan
(CAP)**

January 2016

by

**Dr. Ranajit (Ron) Sahu
Consultant**

Documents Reviewed

In preparing these comments I have reviewed the following documents provided in the record for the above DEIR:

- Chapters 1, Chapter 2, Section 3.3, Section 3.7, and Chapter 5 for the DEIR;
- Appendix A, Appendix B, Appendix C, Appendix E, Appendix P, and Appendix Q

In addition, as I note in the comments, I have consulted additional documents and papers as needed.

Comments

1. This programmatic DEIR only considers one alternative in addition to the no project alternative.¹ This is far too limiting to be consistent with or to meet the objectives of the underlying ACFP² or the CAP. As others have commented, additional alternatives not solely reliant on the use of digesters as the means to practically control methane emissions from just new facilities (or significantly expanded existing facilities) need to be considered. This is a fatal flaw that renders this DEIR a meaningless document.

2. Not including the analysis of options to control and reduce greenhouse gas emissions from existing facilities makes the DEIR a meaningless analytical document to support the CAP. This is a fatal flaw and renders the CAP moot.

3. Comment 1 notwithstanding, the Draft EIR finds that there are at least three significant, unavoidable air quality impacts³ and three additional significant, unavoidable greenhouse gas impacts.⁴ All three identified impacts are major. Yet, the DEIR provides no assurances as to how any of these significant impacts will be mitigated. Instead, the DEIR simply passes the

¹ See, for example, Executive Summary, p. ES-3 and ES-4.

² These objectives are listed, for example in Chapter 1, Section 1.3 or Appendix A, Section 1.3.

³ See Impacts #3.3.1, 3.3.2, and 3.3.3, Section 6.2.

⁴ See Impacts #3.7.1, 3.7.2 and 3.7.3, Section 6.2.

buck to the San Joaquin Valley Air Pollution Control District, the air quality regulator, to deal with the problem.⁵ It is unclear how a program that will result in significant impacts by the actions of Tulare County can simply be mitigated by another agency. It should be the primary responsibility of the proposing Agency (i.e., Tulare County) to identify the appropriate mitigations or to choose alternatives that do not cause the significant, unmitigated impacts to begin with. Without this, the programmatic DEIR is merely a disjointed, check-the-box exercise, with no meaning – other than to provide thin cover to allow massive increases in numerous air pollutants without any means of dealing with them.

To see how ludicrous this is, one can imagine the reaction if a private facility were to propose a new facility or a major expansion of an existing facility, who would then prepare a Draft EIR or similar analysis showing significant impacts, and simply note that air quality issues and GHG increases will be dealt with by the air quality regulator – with no additional details. This would not pass muster to say the least because it violates a fundamental equity – namely that it is the responsibility of the project proponent to (a) conduct the proper analysis; and (b) propose appropriate mitigations to offset the impacts resulting from that analysis. By not following this, Tulare County is simply abdicating its own responsibilities.

Based on this, the DEIR is fatally compromised and should simply be set aside.

4. The program objectives, as stated in Sections 2.1.1 and 2.1.2 are confusing. For the CAP, the program objectives seem to simply: (a) update the CAP so as to “improve the way dairies and other bovine confinement facilities are regulated”; and (b) to address the growth in dairies and bovine confinement facilities. For existing facilities, the goal of the program seems to simply be the identification and automatic grandfathering of such facilities, regardless of current non-compliance. For expanded facilities the goal appears to be a grandfathering, via this EIR of unspecified smaller expansions via a checklist⁶ and possibly additional CEQA review of larger

⁵ As the mitigation measure for Impact #3.3.1 notes, “...the County will notify the SJVAPCD...” p. 3.3-26. Similarly, the mitigation measures for Impacts #3.3.2 and #3.3.3 simply also note that “...the County will notify the SJVAPCD...” p. 3.3-32. The requirement, in all three cases, that the owner will be required to “submit a Corrective Action Plan” is utterly meaningless since it contains no details whatsoever – such as the need to mitigate the respective impacts to below significance.

expansions. For new facilities the program goal seems to be additional and new CEQA review. See Section 2.1.3. Thus, the current “programmatic” analysis would appear to apply to existing facilities that might undertake smaller expansions, which would then not need to conduct any additional CEQA analysis, including air quality or GHG analysis. Since existing facilities that want to undertake larger expansions and all new facilities would need their own project-specific CEQA analysis, per Section 2.1.3, this programmatic EIR is of no use.

Yet, in spite of these stated program goals, the air quality and GHG analysis does not limit its analysis to existing facilities that are undertaking or planning small expansions. Rather, contrary to the program goals in Section 2.1.3, these analyses appear to provide programmatic cover to new facilities.

The EIR should address this confusion by clearly stating the goals of the program for which this EIR is being prepared. It would help if the goals include clearly the scope that is not intended to be covered by the program. Following from this clear set of scope/goals for the program, the requisite air quality and greenhouse gas analysis can then be conducted.

5. GHG reduction measures considered in the analysis are incomplete, too limiting, and meaningless. Appendix B of the DEIR contains the CAP in the form of a report by consultant Ramboll Environ. At the outset, this report states “[N]otably, at both the state and federal regulatory levels, GHG emissions reduction targets are not imposed on livestock emissions. (internal citation omitted) This is due, in large part, to the unavailability of feasible means to substantially reduce livestock emissions. Consequently, livestock emissions reduction strategies are exclusively limited to voluntary and incentive-based programs. (internal citation omitted)”⁷ Based on this assumption, the analysis makes no effort to evaluate potential candidate approaches for lowering methane emissions from livestock. Instead, it simply assumes that the only viable approach is a combination of measures in Table 4, with a specific emphasis on the use of digesters, as discussed in Section 8 of Appendix B.

⁶ I note that the checklist would apply to expansions when each such expansion can emit up to 25,000 metric tons of greenhouse gases, for example – which is not a small quantity. See Appendix A to ACFP, p. A-1, (pdf p. 22 of the Appendices). Considering the number of existing dairies and bovine confinement facilities in Tulare County, the County with the largest number of such facilities in CA, and the resulting possibilities of expansion, the cumulative allowable GHG emissions that are grandfathered and covered by this checklist approach is mind boggling.

⁷ Appendix B, p. 2 and p. 19.

6. Appendix B, Table 3 shows the sources and quantities of GHG in the baseline and future years. The three largest sources are manure decomposition, enteric digestion, and emissions from farm agricultural soils. Table 4 discusses the GHG reduction strategies considered in the analysis. An examination of the strategies in Table 4 applicable to dairy operations shows that the analysis only considered feed additives and Total Mixed Ration (TMR) feeding strategies along with the use of digesters to use methane for energy production. None of the measures considered led to any quantitative reductions of the projected massive GHG emissions increases. I note also that while the analysis mentions diet changes, footnote 48 effectively discourages any feed changes. Not surprisingly, the analysis does not attempt any quantitative reduction from introducing these strategies at expanding or new facilities. As noted previously, the analysis did not include any strategies for reduction of GHG (or any pollutants) from existing facilities. Thus, even though Table 3 shows that the “project” will increase GHG emissions by well over 1.5 million tons per year by 2023 as compared to the baseline of 2013, there are no viable options to mitigate any of these reductions. Instead, expanding and new facilities are simply asked to accomplish unspecified voluntary reductions and possibly the use of digesters. The numerous other reduction measures in Table 4 applicable to non-dairy operations are likely to result, even if implemented, relatively small emissions reductions, based on the inventories provided in Table 3.

Even considering the subset of measures that expanding or new facilities “must” implement, as shown in Table 5, it is obvious that the measures D1 through D4 for dairy operations are so generic and non-quantitative, as to be meaningless. And, measures D5 through D7, which expanding or new facilities must consider are equally meaningless since it relies mainly on pushing digesters at facilities.

The analysis does not provide any discussion or context for whether measures D1 through D7, individually or collectively can make a meaningful dent in the massive increase in projected emissions of GHGs in the 2013-2023 timeframe.

7. The analysis states that “...the most promising technology for addressing animal-related GHG emissions is the implementation of digesters.”⁸ However, the report does not provide any basis

for this optimism. The track record for success using digesters to reduce methane emissions at existing facilities is not promising.

As a recent Wall Street Journal article notes, digesters, due to their high maintenance costs and general complexity, are being shut down by farmers across the US given lower energy costs from other sources.⁹

A more detailed discussion of digesters in California is even more damning.¹⁰ As this report states:

“[A]lthough 29 digesters have been installed in the state since 1989, recent reports indicate that there may now be only 13 California dairies with an operational anaerobic digester. Eleven of these are located at large dairy farms in the Inland Valleys, and two are located at smaller dairies in Marin County. Despite the availability of both federal and state funding for digester construction, numerous policy initiatives to promote these solutions, and the creation of a CARB compliance offset protocol for livestock projects, only a tiny fraction of California’s roughly 1,400 dairies currently have working digesters. Of the larger California dairies with 500 or more cows—a herd size that U.S. EPA considers conducive to digester installation—less than two percent currently use an anaerobic digester to handle their methane emissions.”¹¹

While digesters might be promising in specific cases, their widespread and successful implementation, as assumed by the Environ analysis, is simply unlikely to materialize.

Instead, the CAP should consider a far more diversified mix of strategies for reducing GHG emissions. Tulare County, with its large number of dairies and feedlots might be in the best position to implement just such a diverse mix of strategies.

To that end, the six recommendations in the recent CalCAN report are worth considering and a revised analysis should consider these recommendations:

⁸ Appendix B, p. 38.

⁹ WSJ, February 18, 2016.

¹⁰ See report titled Diversified Strategies for Reducing Methane Emissions from Dairy Operations, CalCAN, October 2015. Available at <http://calclimateag.org/wp-content/uploads/2015/11/Diversified-Strategies-for-Methane-in-Dairies-Oct.-2015.pdf>

¹¹ *Ibid.*, p.3.

(i) Diversify beyond a focus on funding anaerobic digestion systems and reconsider digester strategies to ensure long-term benefits of public investment;

(ii) To maximize the benefits of public investment, focus on digester strategies that support long-term operation of at least 20 years. Pursue projects and funding structures that shift digester operation and maintenance away from individual dairy producers to third-party operators that can provide performance guarantees on state-subsidized digesters. Ensure that California dairies benefit from a non-regulatory approach, which addresses GHG emissions and reduces financial risk, while providing compensation for the use of their manure waste;

(iii) Provide adequate incentives for co-digestion projects that offer the dual benefits of reduced methane emissions from dairy manure and landfills;

(iv) Develop dry manure management incentives that result in economical methane reductions, job creation, and provide other co-benefits such as compost production. To the extent the current analysis includes dry manure systems as mitigation measure D6, for example, more detail should be provided;

(v) Develop demonstration projects for pasture-based dairy practices, bringing together interested dairy operators, technical providers (e.g., USDA NRCS, RCDs, etc.) and university researchers (e.g., UC Davis and Chico State dairy programs, etc.) to create opportunities for ‘mixed’ dairy systems that incorporate aspects of pasture grazing into their operations; and

(vi) Support research and demonstration on strategies that reduce emissions from enteric fermentation. Include strategies that are relevant for organic and pasture-based systems because they maximize environmental co-benefits. As a recent “Cow of the Future” draft report from the Innovation Center for US Dairy¹² states, a combination of advances in management practices, herd structure, genetic selection, rumen function, and feed efficiency, is expected to result in 25% reduction of enteric methane emissions on a per pound of milk production basis by 2020. Tulare County would seem like the perfect place to incorporate these research and demonstration

¹² Available at http://www.usdairy.com/~media/usd/public/cowofthefuturewhitepaper_7-25-11.pdf.ashx.

projects to effect reductions in enteric methane emission, which Table 3 of Environ's analysis shows, is the second largest source of GHG emissions.

8. In addition to the comments above, I ask that the revised analysis justify or support numerous assumptions made in the air quality and GHG emissions analysis:

(a) Provide support for the assumption that Tulare County has the same distribution of waste management systems as the state of CA. See FN [c] to Table A-7 in the Ramboll Environ report;

(b) Provide support for the applicability of CARB values for VS, B0, and MCF to the herds in Tulare County – see FN [d], [e], and [f] to Table A-7 in the Ramboll Environ report;

(c) Support for the manure production rates (lb/day/head) obtained from the SJVAPCD (personal communication with Ramon Norman), as used in Table 4, on pdf page 334 of the Appendices to the DEIR. Please provide the basis for Mr. Norman's numbers.

(d) Support for the surface area factors used in Table 9 on pdf page 337 (and also Table 9 on pdf page 384) of the Appendices to the DEIR. Please provide the basis for Mr. Norman's data.

(e) Support for the ammonia emission factors used in Tables 11 and 12, on pdf pages 338 and 339, respectively. Similar to the above, please provide the basis for Mr. Norman's data.

(f) Complete details of the personal communications (with Mr. Sheraz Gill of the SJVAPCD) supporting the calculations provided in Table 22 on pdf page 349 of the Appendices to the DEIR.



March 23, 2016

County of Tulare
Resource Management Agency
5961 South Mooney Boulevard
Visalia, California 93277

**Project: Draft Environmental Impact Report for the Animal Confinement Facilities
and Dairy and Feedlot Climate Action Plan (SCH #2011111078)**

District CEQA Reference No: 20160082

To Whom It May Concern:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the Draft Environmental Impact Report which evaluates the environmental effects of the proposed adoption and implementation of the Tulare County Animal Confinement Facilities Plan (ACFP) and the Dairy and Feedlot Climate Action Plan (DFCAP). The objectives of the ACFP and DFCAP are to: 1) continue the regulation of the County's dairy industry to protect and enhance the County's resources, assure public health and safety, and minimize environmental impacts; 2) identify and document those existing bovine facilities which are operating under valid Regional Water Quality Control Board (RWQCB) and District approvals, and to specify procedures to achieve compliance by those existing bovine facilities that are not yet in compliance; 3) modify, as feasible, the scope of County regulatory responsibilities to avoid overlap and duplication with the water quality and air quality oversight provided by the RWQCB and the District; 4) update and simplify the permitting processes for bovine oversight provided by the RWQCB and the District; 4) update and simplify the permitting process for bovine facility expansions and the establishment of new bovine facilities consistent with the ACFP; 5) develop a DFCAP that analyzes cumulative greenhouse gas (GHG) impacts for dairy and other bovine facilities, and streamlines project-specific GHG impact analysis.

Sayed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4901 Enterprise Way
Mendota, CA 95354-8716
Tel: (209) 657-6600 FAX: (209) 657-6431

Central Region (Main Office)
1950 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 236-6000 FAX: (559) 236-6061
www.tahoeagency.com www.healthyliving.com

Southern Region
74648 Pioneer Court
Bakersfield, CA 93308-9735
Tel: (805) 382-5500 FAX: (805) 382-5505

The District appreciates the opportunity to comment on the Draft EIR and offers the following comments:

1) District Attainment Status

The Draft EIR should be clarified to indicate the San Joaquin Valley Air Basin is designated a non-attainment area for state ambient air quality standards for PM10.

The Draft EIR (page 3.3-3) states "under both the federal and state Clean Air Acts, the San Joaquin Valley Air Basin is a non-attainment area (standards have not been attained) for ozone, and PM2.5." The District would like to clarify the District is currently designated as extreme nonattainment for the 8-hour ozone standard, attainment for PM10 and CO, and non-attainment for PM2.5 for the federal air quality standards. At the state level, the District is designated as non-attainment for the 8-hour ozone, PM10, and PM2.5 standards. The District suggests the County of Tulare clarify the discussion on page 3.3-3. Further information on the District's attainment status can be found at: <http://www.valleyair.org/aginfo/attainment.htm>.

2) District Permitting Requirements

The Draft EIR should be clarified to indicate the appropriate offset requirements for dairy operations.

The District suggests the below paragraph on page 3.3-8 in the Draft EIR be clarified. The District's suggested language is in ~~strikeout~~/underline as follows:

"Under state law (SB700 of 2003), new and modified dairies with the potential to emit half of the major source threshold (42.5.0 tons of Oxides of Nitrogen (NOx) or Volatile Organic Compounds (VOC) emissions criteria-pollutants) or more annually are required to obtain authorities to construct and permits to operate from an APCD. New and modified stationary sources are required by SJVAPCD Rule 2201 to mitigate their emissions using BACT, and with the exception of non-major stationary sources, to offset emissions when above the applicable thresholds. The SJVAPCD has established dairy VOC emissions factors to help determine which operations require permitting, and help establish BACT for new and expanding dairies."

3) Districts CEQA Significance Threshold for Assessing Health Impacts

The Draft EIR should be clarified to indicate the District's established cancer risk significance threshold of 20 in a million.

The District suggests the County of Tulare clarify the discussion on page 3.3-33 to include the District's current cancer risk significance threshold. The District recommends the below statement be revised as follows:

"Carcinogens: maximally exposed individual risk equals or exceeds 40 20 in one million; and"

The District appreciates the opportunity to comment on the Draft EIR for the proposed County of Tulare Programs. If you have any questions or require further information, please call Mark Montelongo at (559) 230-5905.

Sincerely,

Arnaud Marjollet
Director of Permit Services



Brian Clements
Program Manager

AM: mm

>>> Hector Guerra 2/16/2016 4:56 PM >>>

From Caltrans... "no comment"

>>> "Deel, David@DOT" <david.deel@dot.ca.gov> 02/16/2016 4:45 PM >>>
Hector

Caltrans has a NO COMMENT on GPA 10-002: Animal Confinement Facilities Plan - SCH # 2011111078 to update the current animal confinement plan in the Environmental Resources Element of the County's General Plan.

Thank you for your assistance in this matter.
If you have further questions, please contact me.

Respectfully,

DAVID DEEL | CALTRANS District 6
Associate Transportation Planner
Office of Planning & Local Assistance North Section
IGR & Transit Representative Tulare County
Training Coordinator Planning Unit
Desk: 559.488.7396
1352 W. Olive Avenue
P.O. Box 12616
Fresno, CA 93778-2616

Caltrans Mission:
Provide a safe, sustainable, integrated, and efficient transportation system to enhance California's economy and livability.

Caltrans Vision:
A performance-driven, transparent, and accountable organization that values its people, resources and partners, and meets new challenges through leadership, innovation, and teamwork.

(((((((@)"(@) {###} (@)

APPENDICES

Appendix A

Proposed Animal Confinement Facilities Plan

~~DRAFT~~

Tulare County

Animal Confinement Facilities Plan

~~Tulare County Animal Confinement Facilities Plan Update~~ ~~November~~
~~2015~~

Proposed Final Draft, August 2017

SECTION 1. BACKGROUND

~~1.1~~ 1.1 *Regulatory History*

In 1974, an Animal Waste Management Element (AWME) was prepared as part of the Environmental Resources Management Element (ERME) of the Tulare County General Plan. Included within the AWME were proposed policies for the establishment and operation of dairies and cattle feedlots. The Board of Supervisors did not adopt the AWME for incorporation into the General Plan. The policies set forth were, however, adopted by the Tulare County Planning Commission and were used after 1974 as guidelines in considering ~~Special Use Permits~~special use permit applications for the establishment of confined animal facilities, in particular dairies and cattle feedlots.

The policies and guidelines utilized for the establishment and operation of confined animal facilities were from time to time reviewed and modified to provide consistency with other regulatory agencies, e.g., the California Regional Water Quality Control Board (RWQCB) and the San Joaquin Valley Air Pollution Control District (SJVAPCD). Those reviews resulted in the modification of the guidelines, particularly in regards to intensity of operations and animal density.

In 1998, the Tulare County Agricultural Advisory Committee (AAC) recommended “Dairy/Animal Confinement Facility Policies” which included locational and animal density criteria for the establishment of new dairies and animal confinement facilities. The Tulare County Planning Commission (by Resolution No. 7693), and subsequently the Board of Supervisors (by Resolution No. 98-0582), adopted the AAC’s policies on an interim basis until an Animal Confinement Facilities Plan could be adopted ~~and incorporated into the ERME of the Tulare County General Plan.~~

The Phase I Animal Confinement Facilities Plan for Dairies and Bovine Animal Confinement Facilities was adopted as General Plan Amendment No. GPA 99-05 by the County Board of Supervisors in April 2000 (2000 ACFP). Policies and standards that addressed dairies and other bovine confinement facilities and associated environmental issues were included in the 2000 ACFP. Those policies and standards were premised on then-current scientific data and technology. They were, additionally, reflective of and consistent with adopted and proposed State and federal regulations.

It was intended that the policies and standards established in the 2000 ACFP provide for the development of dairies and other bovine confinement facilities on the Valley floor of the County in a manner that: protects the quality of the environment, safeguards the health, safety and general welfare of the County’s residents, and provides for the continuation and growth of bovine-related industries.

~~1.2~~ ACFP Update

When the County Board of Supervisors adopted the Tulare County General Plan 2030 Update in August of 2012, the 2000 ACFP was retained without amendment as a voluntary Element of the

Tulare County Animal Confinement Facilities Plan Update

County General Plan. It is currently Chapter (or Element) 12 of Component C – Environment of Part I Goals and Policies Report of the Tulare County General Plan 2013 Update.

1.2 ACFP Update

Since the adoption of the 2000 ACFP, stringent statewide regulatory requirements and procedures have been expanded and updated to address the air quality and water quality aspects of dairy and bovine facilities, as administered by the RWQCB and the SJVAPCD. This Animal Confinement Facilities Plan Update ~~is an amendment to the ERME to update and replace~~updates and replaces the 2000 ACFP with this Animal Confinement Facilities Plan (ACFP). An objective of this ACFP is to update the way in which dairies and other bovine facilities are regulated by the County of Tulare to assure coordination and alignment with the procedures of those agencies.

Another development since the adoption of the 2000 ACFP has been the enactment of statewide climate change regulations to establish a concerted approach to addressing greenhouse gas emissions. In its adoption of the Climate Action Plan for Tulare County in 2012, the Board of Supervisors directed the preparation of a separate Climate Action Plan to address dairies and other bovine facilities. In compliance with that mandate, the Dairy CAP is to be adopted concurrent with this ACFP.

A further objective of the ACFP is to enable the County to establish a program that documents the existing dairies and bovine facilities within the County, that defines the permitted herd sizes for such facilities so as to be consistent with RWQCB and SJVAPCD approvals and that requires continuing compliance of dairies and bovine facilities with this ACFP and other County regulations.

This updated ACFP also establishes a Conformance Checklist Review procedure consistent with the California Environmental Quality Act that ~~would~~will apply to bovine facility expansions~~–of existing bovine facilities~~. To be eligible for this process, the existing bovine facility must be operating under valid RWQCB and SJVAPCD approvals, the bovine facility expansion must meet certain specified criteria and the applicant must submit any supplemental technical studies required under this ACFP to determine whether the bovine facility expansion is in compliance with the ACFP and the ACFP EIR. All new bovine facilities and those bovine facility expansions which do not meet the requirements of the Conformance Checklist Review must conduct an individualized environmental review under CEQA and be approved through the ~~Special Use Permit~~special use permit process.

~~1.3~~ 1.3 Purpose of the ACFP

It is the intent of this ACFP to serve as the guiding document to regulate the County's bovine facilities and projected growth ~~over the next decade~~ through 2023 as follows:

1. To continue the regulation of the County's dairy industry to protect and enhance the County's resources, assure public health and safety, and minimize environmental impacts.
2. To identify and document those existing bovine facilities which are operating under valid RWQCB and SJVAPCD approvals, and to specify procedures to achieve compliance by those existing bovine facilities that are not yet in compliance.
3. To modify, as feasible, the scope of County regulatory responsibilities to avoid overlap and duplication with the water quality and air quality oversight provided by the RWQCB and the SJVAPC.
4. To update and simplify the permitting processes for bovine facility expansions and the establishment of new bovine facilities consistent with this ACFP.

1.4 County Bovine Facilities

~~Tulare County's economy is dependent on agricultural production, accounting for a total gross value in 2013 of \$7,809,626,000. Milk is the County's leading commodity with a total gross value of \$2,083,354,000, representing 27% of the 2013 crop and livestock value (Tulare County Annual Crop and Livestock Report). Tulare County has consistently ranked first in total milk production in California's counties. California is the top milk producing state in the U.S. (CDFA Dairy Statistics 2003–2013).~~

**Table 1-1
Tulare County Dairy Production**

Year	Value
2013	\$2,083,354,000
2012	\$1,813,816,000
2011	\$2,056,691,000
2010	\$1,604,172,006
2009	\$1,228,975,000
2008	\$1,757,575,000
2007	\$1,851,648,000
2006	\$1,150,842,000
2005	\$1,331,239,000
2004	\$1,345,719,000
2003	\$1,064,665,000

~~Source: Tulare County Animal Crop and Livestock Report 2000-2009~~

For informational purposes only, as of December 31, 2013, there were approximately 330 existing bovine facilities in Tulare County, consisting of approximately 302 dairies and 28 cattle feedlots, with a reported total Countywide herd size of approximately 1,000,000 bovine. Growth in bovine facilities over the next decade is expected to increase at the rate of approximately 1.5 percent annually.

The location of existing bovine facilities in the County as of 2013 and the approximate areas that are occupied by existing bovine facilities, including both the primary facilities and the agricultural areas associated with feed crop production and manure utilization, are depicted on Figure 1-1.

~~1.5~~ 1.5 *Relationship to General Plan Documents*

~~The Environmental Resources Management Element of the Tulare County General Plan has been developed to establish goals and policies that would protect and enhance the County's resources (Tulare County 2001). Under the ERME, the following objectives are addressed:~~

- ~~■ Development of policies and programs which will avoid degradation of the natural environment and offset or reverse degradation which has already occurred;~~
- ~~■ Recognition of the complexity and interrelation of the environmental and planning processes;~~
- ~~■ Attendance to environmental issues that, due to their importance, should be given priority attention for policy and action in order to provide for future development; and~~
- ~~■ Acknowledgement of those resource systems that require long periods to restore or require ongoing conservation practices in order to avoid continued decline or degradation.~~

This Animal Confinement Facilities Plan has been prepared to be consistent with the objectives ~~of the ERME and with the other elements~~ of the Tulare County General Plan. The policies of this ACFP reinforce, and are reinforced by, the General Plan.

SECTION 2. GOALS, POLICIES AND STANDARDS

Introduction

This section of the ACFP identifies the goals, policies, and standards established by the County for the location, design, and operation of dairies and cattle feedlots. This section also describes the County's permitting process for the construction and operation of both new dairies and cattle feedlots and for ~~the expansion of~~ existing bovine facilities and bovine facility expansions.

The following definitions are applicable:

ACFP List: For each bovine facility within the County, a list that includes the ~~Special-Use Permit~~special use permit or other entitlement issued by the County for such bovine facility; the location and the land associated with such bovine facility; the date and reference information for each of the following: the Waste Discharge Requirements (WDRs) issued by the State of California Regional Water Quality Control Board, Central Valley Region (RWQCB), the Permit to Operate issued by the San Joaquin Valley Air Pollution Control District (SJVAPCD) and the permits issued by the County; the permitted herd ~~sizes~~sizes; and the reported herd size in the most current Annual Compliance Reports. The ACFP List shall be approved by the Resource Management Agency Director or designee.

Bovine or Bovine Animal: Dairy (including mature cows and support stock) and beef cattle and/or other similar ox-like animals.

Bovine Facility: A dairy, cattle feedlot or other confined animal facility for bovines.

Bovine Facility Expansion: Any expansion of either an existing bovine facility or a new bovine facility authorized by the County under ~~the~~Section 2.5 or any other applicable regulations.

Cattle Feedlot: An agricultural enterprise for the confined housing and feeding of milk cow support stock or other cattle including related facilities for feed storage and for manure handling and disposal.

Compliant Bovine Facility: Each existing bovine facility which has obtained WDRs from the RWQCB via General Order R5-2007-0035 or via an individual order, and which has obtained a Permit to Operate from the SJVAPCD (unless expressly exempt from such permit), and which is in compliance with the permitted herd size as provided in the ACFP List.

Confined Animal Facility: A facility where domestic animals are corralled, penned, tethered or otherwise caused to remain in restricted areas for commercial purposes and primarily fed by means other than grazing. When measuring setbacks and distances between a confined animal facility and other facilities, uses or boundaries, measurements shall be taken from or between the most proximate confined animal improvement.

Confined Animal Improvement: A physical improvement component of a confined animal facility, such as animal barns, corrals, or pens, feed storage (excluding hay barns), manure storage

and handling areas and wastewater lagoons/sumps, expressly excluding areas constituting crop acreage or not otherwise utilized in milk production or the confinement of bovines.

Crop Acreage: Irrigable portion of lands serving and essential to a bovine facility, including wastewater conveyance ditches, areas used for wastewater discharge and for facility feed crops, excluding buildings, corrals and/or pens, feed and/or manure storage areas, lagoons/sumps, canals, waterways, and public road rights-of-way.

Dairy: An agricultural enterprise for the housing and support of mature cows and support stock essential to the enterprise. The dairy includes not only the facilities and structures required to house mature cows and support stock, but also feed barns and storage areas, manure storage and treatment facilities, milking barns, and crop acreage.

Existing Bovine Facility: Each of the bovine facilities existing in Tulare County as of December 31, 2013, and as same may be subsequently expanded by a bovine facility expansion.

Mature Cow: A dairy cow that has produced milk at any time during its life.

New Bovine Facility: A bovine facility in Tulare County that did not exist prior to December 31, 2013, as originally approved by the County and as same may be subsequently expanded by a bovine facility expansion.

Permitted Herd ~~Size~~ Sizes: For an existing bovine facility (as of December 31, 2013), the ~~lesser of the~~ maximum allowable number of mature cows under the RWQCB WDRs and the maximum ~~allowable number of mature cows~~ herd under the SJVAPCD Permit to Operate ~~and the maximum allowable number of support stock under the SJVAPCD Permit to Operate as of December 31, 2013~~; or for a new bovine facility or a bovine facility expansion, the ~~lesser of the~~ maximum allowable number of mature cows under the RWQCB WDRs and the maximum ~~allowable number of mature cows under the SJVAPCD Permit to Operate and the maximum allowable number of support stock~~ herd under the SJVAPCD Permit to Operate, as shown on the ACFP List (as same may be amended).

Support Stock: Dairy bovines other than mature cows.

~~2.1~~ 2.1 *Existing Bovine Facilities and Compliant Bovine Facilities*

Goal 2.1 Document the location and permitted herd sizes of the existing bovine facilities. Confirm, and validate legality of, the compliant bovine facilities.

Policy 2.1-1 The locations and permitted herd sizes of all existing bovine facilities shall be ~~defined~~ described and mapped based on the ACFP List on or before the first anniversary of the adoption of this ACFP.

Policy 2.1-2 All existing bovine facilities that are compliant bovine facilities shall be deemed for all purposes by the County as legally established bovine facilities in the locations and subject to the permitted herd sizes as provided

Tulare County Animal Confinement Facilities Plan Update

in the ACFP List. The Resource Management Agency Director or designee shall issue an administrative special use permit or other applicable land use entitlement to make any herd sizes described in applicable County land use entitlements reflect the permitted herd sizes shown on the ACFP List.

Policy 2.1-3

Any existing bovine facility that does not qualify as a compliant bovine facility shall be deemed for all purposes by the County ~~asto be~~ a legally established and compliant bovine facility upon having demonstrated compliance with the permitted herd sizes under both a validly issued ~~WDRs~~ WDR from the RWQCB and a valid Permit to Operate from the SJVAPCD and upon having obtained or modified the ~~Special-Use Permit~~ special use permit or other entitlement issued by the County for such existing bovine facility so as to be consistent with the ACFP List ~~under the procedures set forth in Policy 2.5-4~~ on or before the first anniversary of the effective date of the adoption of this ACFP, with two six-month extensions if needed. Until such time that such compliance has been timely demonstrated, an existing bovine facility that does not qualify as a compliant bovine facility shall be permitted to continue its operations. Upon expiration of the original one-year period and the two six-month extensions provided in this policy, any existing bovine facility that has not qualified as a compliant bovine facility will be subject to enforcement by the County.

2.2-2.2 Bovine Facilities Location and Siting

The location of bovine facilities within Tulare County is governed by policies designed to ensure a compatible relationship among such bovine facilities and with surrounding land uses. Such policies are designed to permit the establishment of new bovine facilities and bovine facility expansions while protecting neighboring properties from potential animal confinement nuisances or similar adverse impacts. The County has established the following agricultural zoning districts as areas appropriate for the ~~construction and~~ operation of bovine facilities, ~~which are within the following Agricultural zoning districts: A-1, AF, AE, AE-10, AE-20, AE-40 and AE-80.~~ A new bovine facility when more than 25 bovine animals are on the property at any time may be located in the AE-40 and AF zones. An existing bovine facility or existing bovine facility expansion when more than 25 bovine animals are on the property at any time may be located in the A-E, AE-20, AE-40, AE-80, A-1, and AF zones. Lands allocated to nutrient waste disposal for a new bovine facility may be located in the AE-20, AE-40, AE-80, and AF zones. Lands allocated to nutrient waste disposal for an existing bovine facility or an existing bovine facility expansion may be located in the A-E, AE-20, AE-40, AE-80, A-1, and AF zones. From a regulatory perspective, bovine facilities are beneficial uses in the Agricultural zoning districts and are recognized as providing significant contributions to the economic vitality of the County as well as contributing to the health and welfare of society as a whole.

Goal 2.2

Site new bovine facilities and bovine facility expansions within designated Agricultural zoned areas where they have been determined to be compatible with surrounding land uses. Use specific zoning and

separation standards to avoid potential land use conflicts when approving the siting of new bovine facilities and bovine facility expansions. Protect agricultural uses within Agricultural zoned areas from incompatible non-agricultural uses.

Policy 2.2-1 **Confined Animal Improvement Separation:** Confined animal improvements within a new bovine facility or bovine facility expansion shall be located at least one-half mile (2,640 feet) from the nearest confined animal improvement within the nearest bovine facility.

Policy 2.2-2 **Proximity to Urban Areas.** Confined animal improvements within a new bovine facility or bovine facility expansion shall not be located as follows:

Within one mile of (a) ~~an incorporated or unincorporated community's a~~ County Adopted City Urban Area Boundary (~~or urban-type residential zoning boundary line~~) (~~however, for those communities that have an~~ CACUAB), ~~an unincorporated Community~~ Urban Development Boundary ~~but do not have an Urban Area Boundary, the Urban Development Boundary line shall be used~~), (UDB) or a Hamlet Development Boundary (HDB) but excluding any portion of a ~~community's Urban Area Boundary~~ CACUAB, UDB or HDB which has been expanded to include municipal uses such as sewage treatment facilities, airports, and waste disposal sites that are located beyond ~~the Urban Development~~ such Boundary (in which case, the decision-maker shall determine the location of the one-mile setback area, provided that in no event shall a setback of less than one mile from a community's Urban Development Boundary or Hamlet Development Boundary be authorized), or (b) any other area zoned solely for residential use containing a concentration of at least thirty (30) legally established dwelling units measured from the outermost residential zoning boundary; or

- Within 1,000 feet of the boundary of a public park; or
- Within one-half mile (2,640 feet) of school grounds of an existing public or private school; or
- Within one-half mile (2,640 feet) of the nearest point of a primary dwelling structure in a concentration of ten (10) or more legally established, privately-owned single-family residences.

For purposes of this Policy 2.2-2, to qualify as a "concentration," such dwelling units or residences must be legally established, occupied, located within ~~a~~ contiguous ~~area~~ parcels, and exceed a density of one dwelling unit per acre, and "legally established" dwelling units or residences are defined as dwelling units or residences, excluding travel trailers, "established in accordance with all applicable building and zoning regulations."

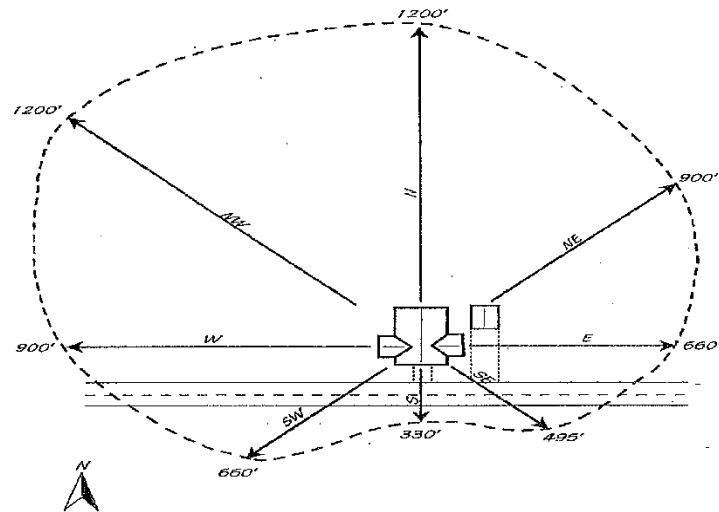
Policy 2.2-3

Proximity to Residential and Agricultural Land Uses. Confined animal improvements within a new bovine facility or bovine facility expansion shall not be located closer than the distances shown on Micro-Windshed Diagram “A” (Residential) to an occupied, legally established (as defined in Policy 2.2-2) dwelling unit owned by a private property owner other than the bovine facility owner/operator or employee.

Confined animal improvements within a new bovine facility or bovine facility expansion shall not be located closer than the distances shown on Micro-Windshed Diagram “B” (Agricultural) to an established, legally operating citrus grove, vineyard, deciduous fruit/nut orchard, or vegetable agricultural enterprise.

No deviations from the Micro-Windshed distances set forth in this Policy 2.2-3 may be approved unless the owner of the dwelling unit or the agricultural operation, ~~as applicable,~~ in question agrees in writing to such deviation, and records such agreement with the Tulare County Clerk-Recorder, provided that such approval shall not be unreasonably withheld and, if it is, a finding shall be made to that effect: through the process set out in Policy 2.5-4 or any other applicable regulations. For purposes of this policy, confined animal improvements within a bovine facility expansion that do not encroach any closer than the existing facilities will not be considered to be a deviation.

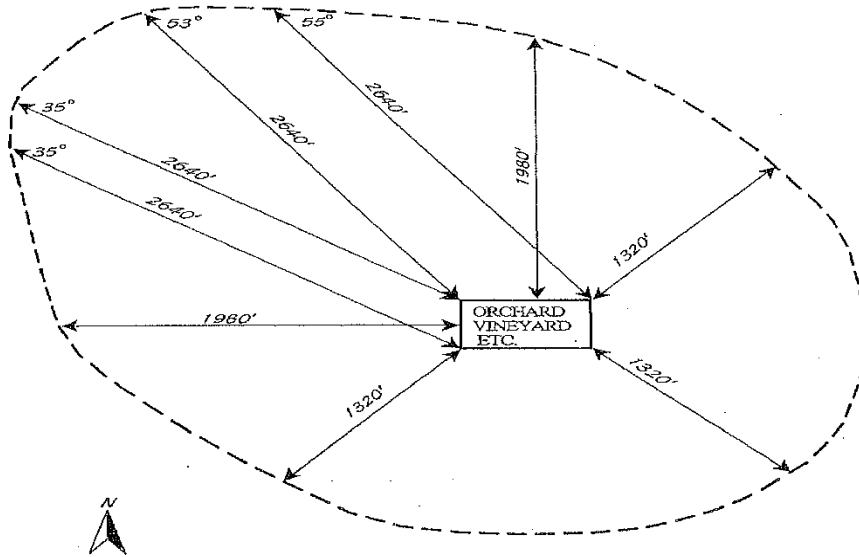
Micro-Windshed Diagram 'A'



Note: Road is shown as an example -- could be in any location.

Measurements are to be made from the geometric center of the primary dwelling structure to the most proximate part of the subject confined animal improvement.

Micro-Windshed Diagram 'B'



Measurements are to be made to the nearest edge of the affected orchard/vineyard/etc. from the most proximate part of the subject confined animal improvement.

Policy 2.2-4

Exclusion. The policies of this Section 2.2 shall not apply to the repair, maintenance, replacement or upgrading of a bovine facility, provided that such work does not increase the bovine capacity beyond the permitted herd ~~sizes~~ sizes for such bovine facility or result in repaired, replaced or upgraded confined animal facilities encroaching any closer than the prior confined animal facilities.

Policy 2.2-5

Applicability of Section 2.2 Policies. A new bovine facility ~~or that does not conform to a defined separation or buffer standard under Section 2.2~~ may be allowed upon approval of a special use permit subject to the adoption of findings that special circumstances warrant the approval of such exception to the applicable defined separation or buffer standard. A bovine facility expansion that does not conform to a defined separation or buffer standard under Section 2.2 may be ~~permitted,~~ allowed under any applicable regulations provided that any expanded facilities will not encroach any closer than the existing facilities, or ~~upon approval of a Special Use Permit subject to the adoption of findings that special circumstances warrant the approval of such exception to the applicable defined~~ by approval of a special use permit upon the adoption of findings that special circumstances warrant the approval of such exception to the applicable defined separation or buffer standard. “Special circumstances” means that strict enforcement of the separation or buffer standard ~~;~~ would create undue hardship for the facility owner/operator due to unique characteristics of the facility site or its surrounding land uses, and that any project-specific significant environmental impacts caused by the exception are mitigated through conditions of approval.

~~**Policy 2.2-6**~~

~~**Protection of Agricultural Zoned Areas.** The Agricultural zoned areas of the County have been established to promote and protect agricultural uses and activities, including bovine facilities. The County shall protect Agricultural zoned areas from conflicting uses due to the encroachment of incompatible non-agricultural uses.~~

~~2.3~~ **2.3 Environmental Constraints**

The placement of confined animal improvements within new bovine facilities and within bovine facility expansions shall be consistent with environmental constraints.

Goal 2.3

To restrict the siting of confined animal improvements within new bovine facilities and within bovine facility expansions so as to avoid existing areas of environmental constraints within the County.

Policy 2.3-1

Flood Zone Areas. Confined animal improvements within a new bovine facility or within a bovine facility expansion shall not be located in the following primary flood zone areas: any territory designated on the latest adopted National Flood Insurance Program, Flood Insurance Rate Maps

(FIRM) as Special Flood Hazard Areas Inundated by 100-Year Flood, Zones A, AI, AO and AH, Floodway Areas in Zone AE or Other Flood Areas in Zone X, except that such improvements may be so located upon submittal to the County of a ~~recommendation~~[certification](#) by a licensed civil engineer, based upon a field survey, ~~of required~~[that the](#) improvements ~~elevation~~[have been elevated](#) above 100 year flood elevations [and upon showing, if required, compliance with the County Flood Damage Prevention Ordinance \(Tulare County Ordinance Code, Part VII, Chapter 27\)](#). However, manure held as fertilizer and dairy process water used to irrigate crop acreage may be transported to and used in such flood zones in compliance with applicable RWQCB regulations.

Policy 2.3-2

High Groundwater Areas. Confined animal improvements within a new bovine facility or within a bovine facility expansion shall be prohibited in shallow or perched groundwater areas where the minimum vertical distance between proposed lagoon bottoms/corral surfaces and highest anticipated groundwater levels is less than five feet. Highest anticipated groundwater levels shall be established based on available records and/or site-specific geotechnical investigation by a qualified registered professional engineer or geologist.

Policy 2.3-3

Sink Holes. Confined animal improvements within a new bovine facility or within a bovine facility expansion shall not be located in a sink hole or areas draining into a sink hole.

Policy 2.3-4

Exclusion. The policies of this Section 2.3 shall not apply to the repair, maintenance, replacement or upgrading of a bovine facility, provided that such work does not increase the bovine capacity beyond the permitted herd ~~sizes~~[sizes](#) for such bovine facility.

~~2.4~~ **2.4 Regulatory Agency Compliance**

The County ~~recognizes~~[finds](#) that the applicable regulations and requirements of the RWQCB and the SJVAPCD, as administered by such agencies, provide a stringent and comprehensive regional scheme for regulating the specialized water quality and air quality aspects of confined animal facilities. The County seeks to avoid the imposition of duplicative and overlapping requirements that may conflict with the regulatory authority of such agencies.

Goal 2.4

New bovine facilities and bovine facility expansions shall comply with the applicable permitting and operational regulations of the RWQCB and the SJVAPCD, as administered by such agencies.

Policy 2.4-1

Regional Water Quality Review Board. New bovine facilities and bovine facility expansions shall comply with [the most current applicable RWQCB regulatory requirements, including](#) the requirements of California Code of Regulations, Title 27, pertaining to “Confined Animal Facilities,”

as administered by the RWQCB. A completed Report of Waste Discharge (including required technical reports) to the RWQCB shall be submitted to the County prior to issuance of any building permits and at least 120 days prior to discharge.

Policy 2.4-2 **San Joaquin Valley Air Pollution Control District.** New bovine facilities and bovine facility expansions shall comply with the most current applicable SJVAPCD regulatory requirements, including requirements of the SJVAPCD for obtaining an Authority to Construct and a Permit to Operate. A copy of the approved Authority to Construct shall be submitted to the County prior to issuance of any building permits.

Policy 2.4-3 **Changes to RWQCB WDRs and SJVAPCD Permits to Operate.** Prior to ~~the submittal~~submitting an application to the RWQCB or the SJVAPCD ~~of an application~~ to amend the existing WDRs or the Permit to Operate issued by the applicable agency for a bovine facility, an application shall be filed with and approved by the County to address such proposed changes. County approval of the application shall be contingent upon issuance of an amended WDR or Permit to Operate.

~~2.5~~ 2.5 *Permitting Requirements – Bovine Facilities and Bovine Facility Expansions*

Goal 2.5 **Improve and update the permit process for establishment of new bovine facilities and bovine facility expansions.**

Policy 2.5-1 **Dairies:** Dairies ~~shall be permitted on the basis of the permitted herd size~~are a bovine facility and are declared to be a special use and permitted only in specified zones upon the granting of a special use permit or administrative special use permit in compliance with and as provided in this chapter or element. Each permit and the ACFP List shall specify the permitted herd sizes and the ~~bovine~~confined animal facility site boundaries; together with any crop acreage.

Policy 2.5-2 **Cattle Feedlots:** Feedlots ~~shall be~~are a bovine facility and are declared to be a special use and permitted ~~on the basis of the permitted herd size~~only in specified zones upon the granting of a special use permit or administrative special use permit in compliance with and as provided in this chapter or element. Each permit and the ACFP List shall specify the permitted herd sizes and ~~the bovine~~confined animal facility site boundaries together with any crop acreage.

Policy 2.5-3 **Bovine Facility Expansions Criteria for Conformance Checklist Review:** Bovine facility expansions may be ~~approved~~permitted through ~~the~~a Conformance Checklist review procedure, in accordance with California Environmental Quality Act (CEQA) Guidelines Section 15168(c)(4), ~~provided that such.~~ Such permitted bovine facility ~~expansion~~

~~complies~~expansions must comply with all applicable regulations, policies, standards and mitigation requirements set forth in the ACFP, in the ACFP Environmental Impact Report (EIR) and in the County Zoning Ordinance. To help demonstrate compliance with these requirements,~~as demonstrated by performance by the Resource Management Agency of the County will complete~~ a Conformance Checklist review of ~~the expanded facilities within such~~ bovine facility ~~expansion and the issuance of~~expansions. If these requirements are met, the County may issue findings in accordance with CEQA Guidelines Section 15168(c)(2)~~;~~ issue a special use permit or other land use entitlement, and list the bovine expansion as a compliant bovine facility on the ACFP List. The Conformance Checklist criteria are set forth in Appendix A to this ACFP.

Policy 2.5-4

Special Use Permit Requirements: All new bovine facilities and any bovine facility expansions that do not or cannot comply with the requirements under Policy 2.5-3 must obtain a ~~Special Use Permit~~special use permit for such new bovine facility or for ~~thesuch~~ bovine facility expansion, which shall be subject to additional environmental review in accordance with CEQA Guidelines Section 15168(c). Upon obtaining a special use permit, all new bovine facilities, and any such bovine facility expansions, shall be listed in the ACFP List.

~~2.6~~2.6 *Applications - New Bovine Facilities and Bovine Facility Expansions*

~~2.6.1~~2.6.1 **Application Contents** - Applications for new bovine facilities and bovine facility expansions special use permits shall contain the following~~textual and mapped~~ information:

1. Names, addresses and phone numbers of the owner and operator;
2. Site address and assessor's parcel numbers for all land application sites;
3. Bovine animal types and numbers;
4. Manure application agreements for non-owned land (if applicable);
5. A scaled plan showing:
 - a. Buildings, corrals, lanes, retention ponds/settling basins, irrigation ditches and pipelines (private and community), silage storage and manure solids storage areas;
 - b. Onsite and offsite wastewater and manure application areas (if applicable);
 - c. Surface waterways on or near the facility, such as rivers, canals, sloughs and intermittent streams;
 - d. The location of onsite and adjacent water wells within one hundred (100) feet of the property line or the bovine facility boundaries;
 - e. Public facilities such as roads and easements;
 - f. Access points to public roads; and

- g. Any setback or windshed constraints described in Section 3.2, Bovine Facilities, Location and Siting.

~~2.6.2~~ **2.6.2 Environmental Review:** Applicants for new bovine facilities and bovine facility expansions special use permits are required to provide such technical reports, as applicable, which the Resource Management Agency deems pertinent with respect to site-specific environmental and bovine facility siting issues. These reports may include any of the following:

1. Biological Resources Survey;
2. Cultural Resources Evaluation;
3. Integrated Pest Management Plan;
4. Dead Animal Disposal Plan;
5. Hazardous Materials Business Plan;
6. Odor Control Measures;
7. Dairy CAP Consistency Checklist;
8. Geological – Hydrological Report;
9. Health Risk Assessment;
10. Traffic Evaluation;
11. Water Availability Evaluation for On-Site Wells; and
12. Comprehensive Nutrient Management Plan (CNMP).

~~2.7~~ **2.7 Design and Operational Standards**

These standards furnish guidance to bovine facility owners and operators wishing to seek approval of a new bovine facility or a bovine facility expansion to ensure compliance with this ACFP.

1. **Minimum Site Requirements:** Dairy sites, including the ~~bovine facility~~confined animal improvements and crop acreage, must contain a minimum of 160 acres. Cattle feedlot sites must be a minimum of 80 acres.
2. **Parking Requirements:** Sufficient on-site parking shall be provided for all automobiles and trucks. The parking area and the entrance roads shall be paved or treated with an acceptable dust-retardant treatment so that dust and mud will not create conditions detrimental to air quality and to the surrounding area and roads. Pavement or treatment areas shall be maintained at all times.
3. **Site Access:** All drive approaches at driveways and major entrances to the improved portion of the site shall be constructed and surfaced as per the Tulare County Improvement Standards, and the applicant or applicant's contractor shall obtain an encroachment permit from the Resource Management Agency prior to issuance of any building permits for construction and/or prior to performing work within any County road right-of-way.
4. **Site Maintenance:** All public road approaches, driveways and off-street parking areas shall be designed and maintained so that mud, dust, gravel, and manure do not create conditions detrimental to the surrounding public roadways.

5. **Public Utilities:** The applicant shall make all arrangements for the relocation of all overhead and underground public utility facilities that interfere with any improvement work to be performed by the applicant. The applicant shall also make arrangements with the affected public utility company for any cost of relocating such facilities and no portion of such relocation costs will be paid by the County.
6. **Food and Agricultural Code:** Dairy facilities shall meet the requirements of Division 15 of the California Food and Agricultural Code as administered by the Milk Inspection Service of the Tulare County Environmental Health Division. Dairy applicants shall provide detailed plans of the facility to the Milk Inspection Service for review and approval prior to issuance of any building permits.
7. **Water Wells:** All new wells shall comply with the construction requirements [of the latest version](#) of the Tulare County Well Ordinance.
 - a. No well, new or existing, shall be located closer than one hundred (100) feet from any animal enclosure, nor shall such enclosure encroach within one hundred (100) feet of an existing well. ~~Alternatively, any existing well may be lined to prevent water intrusion to fifty (50) feet below existing site grade;~~
 - b. Inactive wells shall be properly destroyed in accordance with the Tulare County Well Ordinance; and
 - c. All agricultural wells shall have an overhead air gap at the standpipes.
8. **Lagoon Locations:** Lagoons or other manure containment facilities shall have a minimum one hundred fifty (150) foot setback from all wells, public ditches, and public waterways. They shall fully conform to the requirements of the RWQCB.
9. **Fire Protection:** The fresh water pressure tank shall be plumbed with a valved, 2-1/2-inch hose connection (National Hose Thread) in such manner as to provide ready access for pumper connection. All plumbing from the tank to the valve shall be a minimum of 4 inches O.D. Portable fire extinguishers shall be installed in the milk house as per N.F.P.A. Pamphlet #10 (10# ABC type).

[A fresh water holding tank and a water pressure tank shall be provided and a](#) surfaced fire apparatus access, twelve (12) feet in width, shall be provided to within five (5) feet of ~~a fresh water holding tank and a water pressure tank.~~ [such tanks.](#)

A 30-inch by 30-inch hinged inspection cover shall be located on the fresh water holding tank. The inspection cover shall be located along the portion of the tank that fronts on the surfaced access.
10. **On-Site Residences:** Should any residences or mobile homes be constructed or proposed, all densities and setbacks (separations from animal confinement and waste facilities, etc.) shall be in compliance with the Zoning Ordinance. (If more than five unrelated employees are housed on the site, the dairy operator shall contact the Resource Management Agency

to determine if a Permit to Operate Employee Housing is required by Section 7-23-1000 *et seq.* of the Tulare County Ordinance Code and, if required, obtain such permit prior to occupancy.)

11. **Facility Setback:** ~~Buildings~~ Confined animal improvements (including buildings housing bovine animals, corrals, sump pits, and silage and hay storage areas) for a new bovine facility or a bovine facility expansion shall not be located closer than one hundred (100) feet from all property lines at the perimeter of the bovine facility site. Onsite sewer systems shall be located at least one hundred (100) feet from all wells, ditches, and waterways.
12. **Flood, Water Quality and Air Quality Protection:** Bovine facility construction and operations shall be undertaken, and maintained in full accord with, the regulations and permitting requirements of the RWQCB and the SJVAPCD with respect to flood protection, water quality protection, and air quality protection.
13. **Operational Requirements:** Dead animals shall be removed from the site within forty-eight (48) hours and shall not be visible from the public road while awaiting removal. Dead animal disposal shall be made in full compliance with any applicable Dead Animal Disposal Plan.

Bovine confinement areas, manure storage areas, lagoons, and crop acreage shall be properly managed to prevent a nuisance of odors, dust, or vector harborage and breeding. Such management shall be in full compliance with any applicable Odor Control Measures and Integrated Pest Management Plan.

Bovine facility operations shall meet all of the requirements of the mosquito abatement district, if any, in which the facility is located. A fly abatement program shall be used to keep flies under control on-site so that they do not become a nuisance on-site or to surrounding property owners. All vector control operations shall be conducted in full compliance with any applicable Integrated Pest Management Plan.

~~2.8~~ 2.8 *Severance and Continuing Compliance*

~~2.8.1~~ 2.8.1 *Severance and Site Alterations*

No portion of a bovine facility site, or any required easement, shall be sold, released or conveyed, or used for purposes other than those expressly permitted unless approved by the County: through a special use permit, or any other applicable land use entitlement. This shall not restrict the sale of the entire parcel of property as a unit subject to all of the conditions required herein. ~~In addition, if there is a change in the area available for recycled manure water, the bovine facility owner/operator shall immediately notify the Resource Management Agency.~~

~~2.8.2~~ 2.8.2 *Continuing Compliance*

An Annual Compliance Report shall be completed and filed with the Resource Management Agency for each bovine facility in Tulare County. Appendix B to this ACFP contains a copy of the

Tulare County Animal Confinement Facilities Plan Update

standard form of Annual Compliance Report as of the adoption of the ACFP. [The standard form Annual Compliance Report may be amended, modified or updated from time to time by the Tulare County Resource Management Agency Director.](#)

APPENDIX A TO ACFP

Bovine Facility Expansions Criteria for Conformance Checklist Review

The response to each question below must be “yes” to proceed under Policy 2.5-3.
If any response is “no”, the bovine facility expansion must proceed under Policy 2.5-4

1. Except in the case of an application by an Existing Bovine Facility seeking to become a Compliant Bovine Facility, is the Existing Bovine Facility in compliance with existing Regional Water Quality Control Board Central Valley Region (RWQCB) Waste Discharge Requirements (WDRs) and San Joaquin Valley Air Pollution Control District (SJVAPCD) Permit to Operate for the existing operations and facilities?
2. In connection with all applications for an Existing Bovine Facility expansion, would the expanded facilities covered by the application:
 - (a) generate less than 25,000 metric tons per year of Greenhouse Gas Emissions, as set forth in the Dairy Climate Action Plan (Dairy CAP), and would otherwise comply with the Dairy CAP?
 - (b) comply with all applicable requirements of the ACFP, including Policies 2.2-1 through 2.2-3, provided that 3. However, if an existing dairy does not comply with the separation and buffer standards in these policies, do the expanded ~~facilities~~ confined animal improvements ~~would~~ not encroach any closer than the existing facilities, ~~and would otherwise comply with the applicable requirements of the ACFP?~~
 - (c) comply with the applicable mitigation measures under the ACFP Environmental Impact Report?
 - (d) not involve substantial changes or new information of substantial importance that would trigger the requirement for a Subsequent or Supplemental EIR under CEQA Guidelines Sections 15162 or 15163?
 - (e) ~~(d)~~ comply with the applicable requirements of the County Zoning Ordinance?

APPENDIX B
TO ACFP

Standard Form of Annual Compliance Report
(as of the ACFP adoption date, and subject to future modifications)

~~Tulare County Animal Confinement Facilities Plan Update~~ ~~November~~
~~2015~~

~~B-1~~ ~~18~~



TULARE COUNTY RESOURCE MANAGEMENT AGENCY

5961 SOUTH MOONEY BLVD.
VISALIA, CA. 93277
PHONE (559) 624-7000

Sherman Dix
Michael Washam
Reed Schenke

Fiscal Services
Economic Development &
Planning
Public Works

REED SCHENKE, DIRECTOR

MICHAEL WASHAM, ASSOCIATE DIRECTOR

REPORT DUE: JULY 15, 2019

Amount:\$

Check #:

Type of Facility: ☐ Dairy ☐ Feedlot ☐ Beef Feedlot RMA Animal Facility No.

Facility Status: ☐ Operational ☐ Non-Operational ☐ Temporarily Closed (Herd Buyout) ☐ Permanently Closed

**For Feedlot/Heifer/Calf Facilities please see page 3 regarding fees.

PSP No: (Max: Herd = ; Milk =)

Pre-PSP/1973 Master Dairy List: (Max: Herd = ; Milk =)

ANNUAL COMPLIANCE REPORT - Year 2018

Information requested below is to be filled out by the current Animal Facility
Operator in BLUE or Black ink, and submitted, along with the filing fee to the Tulare
County Resource Management Agency

By: July 15, 2019.

Name of Animal Facility Operation:

Address of Animal Facility (Milk Barn if applicable):

Assessor Parcel Number (APN) of Facility (Milk Barn if applicable):

Current Operator Name:

Mailing Address:

Telephone Number: Fax Number:

Email address:

Current Property Owner Name:

Mailing Address:

Telephone Number: Fax Number:

Email address:

How many Acres does the facility occupy? (corrals, storage, etc.)

How many Acres are used for crops?

Total Acres:

Animal Facility No.:

I. Animal Counts:

Maximum Herd Size on the Animal Facility at any point in time between **January 1, 2018 through December 31, 2018.**

A. Animal Facility Bovines – List the Maximum On-Site Herd Size (per Breed of Cattle)(Please do not round):

		<u>Animal Head per Housing Type</u>	
<u>HOLSTEIN Bovines</u>	<u>Maximum Herd</u>	<u>Free Stall</u>	<u>Open Corral</u>
<u>Animal Facility cows in milk</u>			
<u>Mature bulls</u>			
<u>Dry cows and/or heifers, age 2+ years</u>			
<u>Heifers and/or bulls, 1-2 years</u>			
<u>Heifers and/or bulls, 3 months to 1 year</u>			
<u>Calves under three months (in pens/hutches)</u>			<u>Pens/Hutches</u>

		<u>Animal Head per Housing Type</u>	
<u>JERSEY Bovines</u>	<u>Maximum Herd</u>	<u>Free Stall</u>	<u>Open Corral</u>
<u>Animal Facility cows in milk</u>			
<u>Mature bulls</u>			
<u>Dry cows and/or heifers, age 2+ years</u>			
<u>Heifers and/or bulls, 1-2 years</u>			
<u>Heifers and/or bulls, 3 months to 1 year</u>			
<u>Calves under three months (in pens/hutches)</u>			<u>Pens/Hutches</u>

		<u>Animal Head per Housing Type</u>	
<u>GUERNSEY Bovines</u>	<u>Maximum Herd</u>	<u>Free Stall</u>	<u>Open Corral</u>
<u>Animal Facility cows in milk</u>			
<u>Mature bulls</u>			
<u>Dry cows and/or heifers, age 2+ years</u>			
<u>Heifers and/or bulls, 1-2 years</u>			
<u>Heifers and/or bulls, 3 months to 1 year</u>			
<u>Calves under three months (in pens/hutches)</u>			<u>Pens/Hutches</u>

Animal Facility No.:

**Animal Head per
Housing Type**

<u>HOLSTEIN/JERSEY Bovines</u>	<u>Maximum Herd</u>	<u>Free Stall</u>	<u>Open Corral</u>
<u>Animal Facility cows in milk</u>			
<u>Mature bulls</u>			
<u>Dry cows and/or heifers, age 2+ years</u>			
<u>Heifers and/or bulls, 1-2 years</u>			
<u>Heifers and/or bulls, 3 months to 1 year</u>			
<u>Calves under three months (in pens/hutches)</u>			<u>Pens/Hutches</u>

Animal Facility No.:

Animal Head per
Housing Type

<u>OTHER Bovines</u>	<u>Maximum Herd</u>	<u>Free Stall</u>	<u>Open Corral</u>
<u>Animal Facility cows in milk</u>			
<u>Mature bulls</u>			
<u>Dry cows and/or heifers, age 2+ years</u>			
<u>Heifers and/or bulls, 1-2 years</u>			
<u>Heifers and/or bulls, 3 months to 1 year</u>			
<u>Calves under three months (in pens/hutches)</u>			<u>Pens/Hutches</u>

OTHER FARM ANIMALS ON THE ANIMAL FACILITY:

Indicate the Maximum On-Site Numbers of each Animal Type at any point in time between January 1, 2018 through December 31, 2018.

<u>OTHER Animals</u>	<u>#Maximum Herd</u>	<u>Total Animals</u>
<u>Beef</u>		
<u>Horses</u>		
<u>Dairy Goats</u>		
<u>Meat Goats</u>		
<u>Sheep</u>		
<u>Swine</u>		
<u>Other: Note Type:</u>		

TOTAL Herd Size (Head) =

Fee Calculation: As required by Tulare County Board of Supervisors Resolution No. 2003-0556, the Annual Compliance Reporting and Monitoring Fee for each Animal Facility shall be "\$50.00 Per Animal Facility" for facilities with less than 800 animals and "\$100 Per Animal Facility" for facilities with 800 or more animals.

***Important information for Feedlot/Heifer/Calf Ranch Facilities that are in conjunction with a Specific Dairy and are not an independent bovine facility, no fee is due (Fees are already required for the animals on the dairy).

II. Compliance with Other Agencies:

1. What is the total herd size permitted by the San Joaquin Valley Air Pollution Control District (SJVAPCD)?
2. Is this facility compliant with the SJVAPCD permitted herd size? YES / NO

If "NO," please explain:

Animal Facility No.:

3. Is this facility in compliance with all pertinent SJVAPCD permits and regulations? YES / NO
If “NO” please explain.
4. What is the total number of mature animals permitted by the Central Valley Regional Water Quality Control Board (CVRWQCB)?

5. Is this facility compliant with the CVRWQCB number of mature animals? YES / NO
If “NO,” please explain:
6. Is this facility in compliance with all pertinent CVRWQCB permits and regulations? YES / NO
If “NO” please explain.

III. Dairy and Feedlot Climate Action Plan Information

1. Was this this facility a “new” facility or expansion approved under the 2017 updated ACFP and 2017 Dairy CAP?
2. If yes, please indicate which “Category A” and “Category B” greenhouse gas (GHG) reduction strategies that were made mitigation measures and/or conditions of project approval (see attached lists),and verify these strategies are being implemented. Provide estimates of GHG emissions reductions achieved by each strategy if possible (tons CO₂e/year).
3. If no, please list any “Category A” and “Category B” GHG reduction strategies that this facility has voluntarily implemented. Provide date of implementation. Provide estimates of GHG reductions achieved by each strategy if possible (tons CO₂e/year).

IV. Plot Plan: If any changes have occurred in this calendar year, submit a Plot Plan of the actual Animal Facility Site. If a Special Use Permit has been approved for your facility, please use the site plan approved for that project, noting in **RED**, any changes, modifications, or additions. If a Special Use Permit has not been approved, the plot plan for your facility should be drawn to scale on paper no smaller than 8½” by 14”, with detail sufficient to identify the sizes and locations of all on-site structures, including barns, corrals/pens, wastewater lagoons/sumps, and residences. Identify each structure shown on the Plot Plan. Submit a map of wastewater and manure application areas, specifying APNs.

V. Affidavit

I/We certify that the information submitted herein is complete and accurate to the best of my knowledge (failure to submit complete and accurate requisite information may result in penalties as provided for in Tulare County Board of Supervisors Resolution No. 2003-0556). Attach additional pages if necessary.

Animal Facility No.:
Current Operator/Operators

Signature: _____ Date: _____

Print Name: _____

Signature: _____ Date: _____

Print Name: _____

Current Property Owner/Owners

Signature: _____ Date: _____

Print Name: _____

Signature: _____ Date: _____

Print Name: _____

List here, if you would like someone else contacted for questions concerning the completeness of this report.

Name: _____

Telephone Number: _____ Fax Number: _____

Mailing Address: _____ Email Address: _____

Mail or present the completed Annual Compliance Report, along with the required fee (calculated as above) to:

Tulare County Resource Management Agency
5961 South Mooney Blvd
Visalia, CA 93277-9394

Contact Person: Jason Garcia-LoBue or Jose Saenz (559) 624-7000

Animal Facility No.:

Category A Reduction Strategies

Dairy Operations

- D1 Implement environmentally responsible purchasing of feed additives (i.e. use locally sourced materials and/or agricultural by-products such as citrus pulp and almond hulls, when available).
- D2 Use a TMR or other efficient feeding strategy intended to maximize feed-to-milk production efficiency in lactating cows.
- D3 Comply with nutrient management plans to reduce fertilizer requirements (i.e., GHG emissions associated with fertilizer production and transportation)
- D4 Comply with air and water quality plans to achieve GHG benefits (e.g., less water usage)

Energy

- E1 The farm must meet or exceed Title 24 standards in climate-controlled buildings (e.g., not barns)
- E2 Provide verification of energy savings (e.g., electric bills or third-party verification)
- E3 Install energy efficient boilers
- E4 Install energy efficient appliances (e.g., for milk cooling)
- E5 Install energy efficient area lighting

Transportation [20 or more new employees]

- T1 Provide bike parking if requested by employees
- T2 Provide end of trip facilities if requested by employees (e.g., shower for people biking)
Water, Solid Waste, and Recycling (if available and not prohibited by USDA, CDFA, or other government agencies)
- R1 Adopt a water conservation strategy
- R2 Design water-efficient landscapes (decorative landscaping only)
- R3 Use water-efficient landscape irrigation systems (decorative landscaping only)
- R4 Reduce turf in landscapes and lawns (decorative landscaping only)
- R5 Plant native or drought-resistant trees and vegetation (decorative landscaping only)

Category B Reduction Strategies

Dairy Operations

- D5 Use a digester, designed and operated per applicable standards, and the captured methane for energy use to displace fossil fuel use. Approaches include participation in centralized co-digestion facilities for processing dairy manure and landfill waste or in a digester project utilizing biomethane as a transportation fuel or for injection into natural gas pipelines or for electrical energy use on-site or off-site.
- D6 Use scrape systems to divert manure from lagoon to another part of the storage system, including composting for on-site or off-site use.
- D7 Increase solids separation to reduce loading.
- D8 Use pasture-based management practices.

Energy

- E6 Establish onsite renewable or carbon-neutral energy systems - generic
- E7 Establish onsite renewable energy systems - solar power
- E8 Establish onsite renewable energy systems - wind power
- E9 Utilize a combined heat and power system
- E10 Establish methane recovery on digester

Transportation

- T3 Provide employer-sponsored vanpool/shuttle
- T4 Increase transit accessibility if adjacent to public transportation
- T5 Implement intra-farm bike-sharing
- T6 Utilize alternative fueled vehicles on-site

Animal Facility No.:

T7 Utilize electric or hybrid vehicles on-site

Water, Solid Waste, and Recycling

R6 Institute or extend recycling and composting services

R7 Use locally sourced water supply

R8 Install low-flow water fixtures (decorative landscaping only)

R9 Recycle demolished construction material

Miscellaneous

M1 Plant trees

M2 Use alternative fuels for construction equipment (construction only)

M3 Use electric and hybrid construction equipment (construction only)

M4 Limit construction equipment idling beyond regulation requirements (construction only) or limit idling by delivery and other operational vehicles

M5 Institute a heavy-duty off-road vehicle plan (construction only)

M6 Implement a construction vehicle inventory tracking system (construction only)

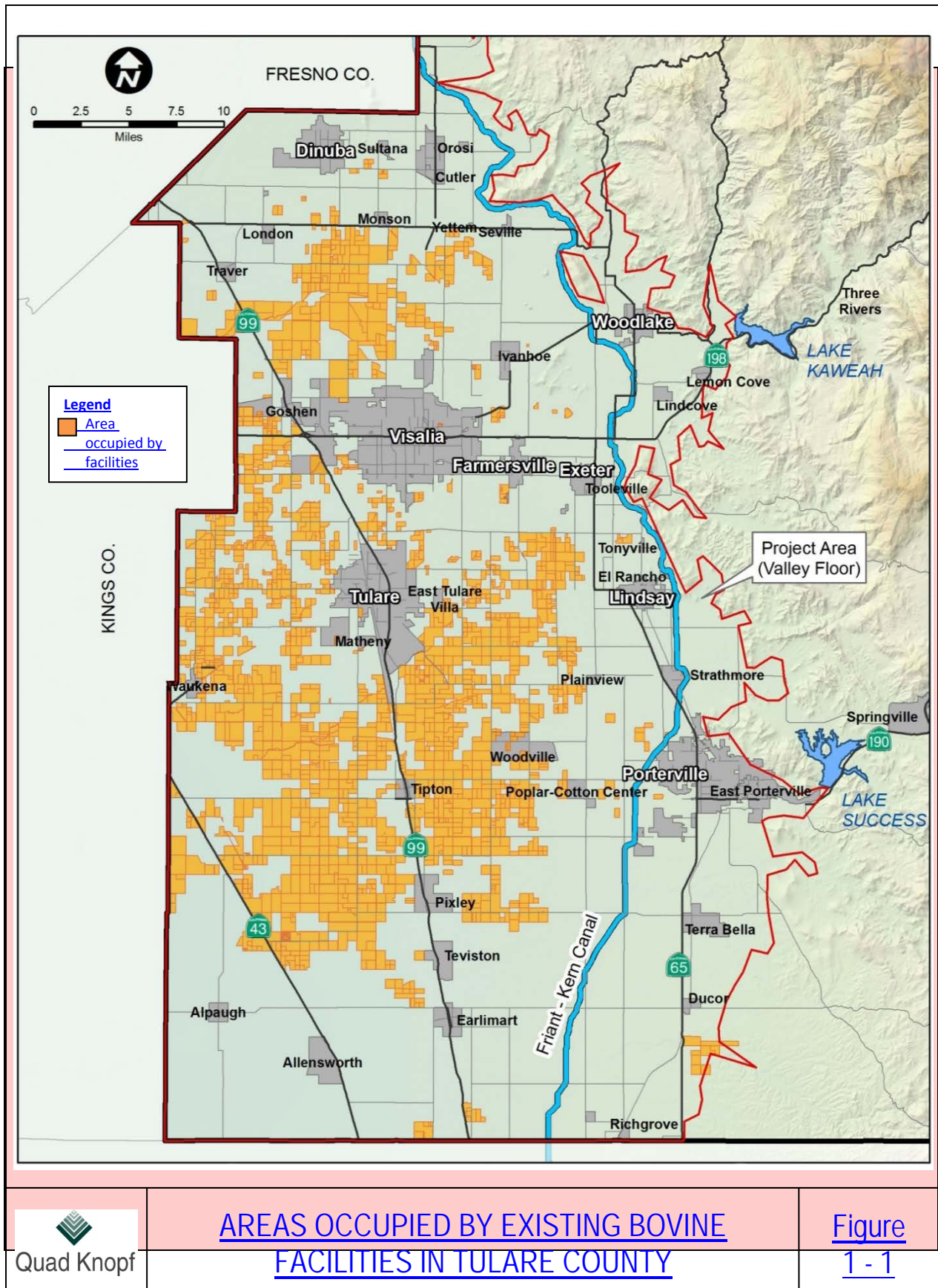
M7 Use local and sustainable building materials (construction only)

M8 Additional BMPs in agriculture and animal operations

M9 Environmentally responsible purchasing

M10 Implement an innovative strategy for GHG reductions

M11 Implement within the existing portion of a facility a Category A strategy or a Category B strategy to the same or greater extent as would have been done for the expanded portion



	AREAS OCCUPIED BY EXISTING BOVINE FACILITIES IN TULARE COUNTY	Figure 1-1
--	--	---------------------------

Appendix B

Revised Proposed Dairy and Feedlot Climate Action Plan



County of Tulare Dairy and Feedlot Climate Action Plan

Prepared for:
County of Tulare
Resource Management Agency
Visalia, California

Prepared by:
Ramboll Environ US Corporation
Los Angeles and San Francisco, California

Date:
~~November 2015~~
August 2017

Project Number:
05-13685H

Contents

	Page
1 Introduction	1
1.1 Dairy GHG Background Information	1
1.2 CEQA Guidelines	3
2 Regulatory Setting	6
2.1 Federal Regulations	6
2.1.1 USEPA Mandatory Reporting of Greenhouse Gases	6
2.2 State Regulations and Agreements	6
2.2.1 California State Executive Order S-3-05	6
2.2.2 California Global Warming Solutions Act of 2006 (Assembly Bill 32)	7
2.2.3 California State Executive Order B-30-15	9
2.2.4 California's Mandatory Reporting Rule	9
2.2.5 California Greenhouse Gas Cap and Trade Program	9
2.2.6 California Environmental Quality Act (CEQA) and California Senate Bill 97	11
2.2.7 California Senate Bill 700	11
2.2.8 California Senate Bill 605	11
2.3 Local Regulations, Ordinances, and Agreements	15
2.3.1 Tulare County	15
2.3.2 San Joaquin Valley Air Pollution Control District (SJVAPCD)	15
2.4 Funding Opportunities	16
3 GHG Emissions Overview: Baseline and Future	18
4 GHG Emissions Reduction Strategies Evaluated	22
4.1 GHG Emissions Reduction Strategies	22
4.2 Reduction Strategies by Source	24
4.3 Feasibility Assessment Considerations	29
4.4 Additional Considerations	29
5 CEQA Implications	31
5.1 Approach to Cumulatively Considerable Level Assessment	31
5.2 Cumulatively Considerable Streamlined Analysis Level Determination	32
5.2.1 Existing Criteria and Thresholds	32
5.2.2 Streamlined Analysis Level	34
5.3 Proposed CEQA Checklist	35

6	Implementation and Monitoring	39
7	Future Project GHG and Climate Change Evaluations	42
8	Future Updates	46
9	References	48
1	Introduction	1
1.1	Dairy GHG Background Information	1
1.2	CEQA Guidelines	3
2	Regulatory Setting	6
2.1	Federal Regulations	6
2.1.1	USEPA Mandatory Reporting of Greenhouse Gases	6
2.2	State Regulations and Agreements	6
2.2.1	California State Executive Order S-3-05	6
2.2.2	California Global Warming Solutions Act of 2006 (Assembly Bill 32)	7
2.2.3	California's Mandatory Reporting Rule	9
2.2.4	California Greenhouse Gas Cap-and-Trade Program	9
2.2.5	California Environmental Quality Act (CEQA) and California Senate Bill 97	11
2.2.6	California Senate Bill 700	11
2.2.7	California Senate Bill 605	11
2.2.8	California State Executive Order B-30-15	12
2.2.9	California Senate Bill 32	12
2.2.10	California Assembly Bill 197	13
2.2.11	California Senate Bill 1383	13
2.2.12	California Assembly Bill 1613	15
2.3	Local Regulations, Ordinances, and Agreements	15
2.3.1	Tulare County	15
2.3.2	San Joaquin Valley Air Pollution Control District (SJVAPCD)	15
2.4	Funding Opportunities	16
3	GHG Emissions Overview: Baseline and Future	18
4	GHG Emissions Reduction Strategies Evaluated	22
4.1	GHG Emissions Reduction Strategies	22
4.2	Reduction Strategies by Source	24
4.3	Feasibility Assessment Considerations	29
4.4	Additional Considerations	29
5	CEQA Implications	31
5.1	Approach to Cumulatively Considerable Level Assessment	31
5.2	Cumulatively Considerable Streamlined Analysis Level Determination	32
5.2.1	Existing Criteria and Thresholds	32
5.2.2	Streamlined Analysis Level	34
5.3	Proposed CEQA Checklist	35

6	Implementation and Monitoring	39
7	Future Project GHG and Climate Change Evaluations	42
8	Future Related Actions	46
9	References	48

List of Tables

Table 1:	CEQA Guidelines for CAP Elements
Table 2:	Assumptions Used in Inventory Calculations
Table 3:	Baseline and Projected Emissions
Table 4:	Potential GHG Reduction Strategies
Table 5:	Category A Reduction Strategies for Implementation at New or Expanding Facilities
Table 6:	Category B Reduction Strategies for Consideration at New or Expanding Facilities

List of Figures

Figure 1:	Flow Chart Illustrating Method of Determining Required Level of Analysis for CEQA for Expanding Dairy Projects <u>Facility Expansions</u>
-----------	--

List of Appendices

Appendix A:	Emission Calculations
Appendix B:	Values Extracted from Analyses Completed for the Tulare County ACFP Update EIR
Appendix C:	Summary of Potential Reduction Strategies
Appendix D:	Summary of Significance Thresholds

Acronyms and Abbreviations

Acronym	Definition
AB 32	Assembly Bill 32
<u>AB 197</u>	<u>Assembly Bill 197</u>
<u>AB 1613</u>	<u>Assembly Bill 1613</u>
ACFP	Animal Confinement Facilities Plan
AQMD	Air Quality Management District
ARB	Air Resources Board (California)
BAU	Business-as-Usual
BMPs	Best Management Practices
BPS	Best Performance Standards
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CAPs	USEPA Cap-and-Trade Program
CCAP	Climate Change Action Plan
CCR	Climate Change Research
CDFA	California Department of Food and Agriculture
<u>CEC</u>	<u>California Energy Commission</u>
CEC	California Energy Commission California Environmental Quality Act
CEQA	
CFR	Code of Federal Regulations
CH ₄	methane
CNRA	California Natural Resources Agency
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
<u>Dairy CAP</u>	<u>Dairy and Feedlot Climate Action Plan</u>
EIR	Environmental Impact Report
ENVIRON	ENVIRON International Corporation
EPIC	Electric Program Investment Charge Greenhouse Gases
GHG	
<u>GHG</u>	<u>Greenhouse Gases</u>
<u>GPU</u>	<u>General Plan Update</u>
GWPs	Global Warming Potentials
MT	metric tons
<u>MWh</u>	<u>Megawatt-hour</u>
MWh	Megawatt-hour Not Applicable
N/A	
N ₂ O	Nitrous Oxide <u>nitrous oxide</u>
OPR	Office of Planning and Research
OR	Operational Research
PEIR	Program Environmental Impact Report
PhD	Doctor of Philosophy
<u>PUC</u>	<u>Public Utilities Commission</u>
<u>SB 32</u>	Senate Bill <u>32</u>
<u>SB 1383</u>	<u>Senate Bill 1383</u>
SJVAPCD	San Joaquin Valley Air Pollution Control District
<u>SLCPs</u>	<u>short-lived climate pollutants</u>
<u>TMR</u>	<u>total mixed ration</u>

Acronym	Definition
USDA	United States Department Of Agriculture
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds

1 Introduction

In August 2012, the County of Tulare (County) adopted an update of the County's General Plan, the 2030 General Plan Update (GPU). The Tulare County Climate Action Plan (Tulare CAP) released in February 2010 was adopted in conjunction with the GPU as an implementation measure to serve as a guiding document for County actions to reduce greenhouse gas (GHG) emissions and to adapt to the potential effects of climate change. The Tulare CAP was prepared to fulfill the requirements of the California Environmental Quality Act (CEQA) Guidelines for GHG emissions reduction plans developed by the California Governor's Office of Planning and Research (OPR) and adopted by the California Natural Resources Agency (CNRA).¹ The Tulare CAP was designed to provide a supporting framework to produce fewer GHG emissions during buildout under the GPU.

The GPU did not include an update of the Animal Confinement Facilities Plan (ACFP), the portion of the County's General Plan governing dairies and cattle feedlots (feedlots). The ACFP, adopted in 2001, contains the County's regulatory standards and procedures applicable to the development and operation of dairies and cattle feedlots. ~~The GPU, and was retained as Chapter 12 of the updated GPU.~~ The GPU process provided for a separate subsequent process to update the ACFP (ACFP Update) with its own CEQA review and Environmental Impact Report. Under the GPU, the County directed the preparation of a separate climate action plan as part of the ACFP Update to specifically address dairies and feedlots. This Dairy and Feedlot Climate Action Plan (Dairy CAP) serves that purpose and is to be utilized in implementation of the ACFP Update and its application to new and expanding dairies and feedlots. This Dairy CAP presents ~~up-to-date~~ information and analysis concerning dairy/feedlot GHG emissions from 2013-2023 and approaches for reducing dairy and feedlot-related emissions, as well as specific elements consistent with ~~the latest~~ OPR guidance.

1.1 Dairy GHG Background Information

Similar to most sectors, dairies and feedlots emit GHGs from typical sources like vehicles (e.g., employee vehicle trips, delivery trucks), electricity usage, and water demand. These emissions are typically carbon dioxide emissions (CO₂) from combustion. However, dairies and feedlots also emit GHGs from the animals, manure management, crop production (i.e., fertilizer usage), and other associated activities. These emissions are predominantly methane and de minimis amounts of nitrous oxide (N₂O). This is important because the global warming potential (GWP) of methane and N₂O are 25 and 298 times larger, respectively, than for CO₂.²

Two of the largest sources of emissions at dairies and feedlots are methane emissions from enteric fermentation ~~ingenerated by~~ the ~~animals~~ animals' digestive

¹ OPR. 2009. SB 97 CEQA Guidelines Amendments. Available at: http://resources.ca.gov/ceqa/docs/Adopted_and_Transmitted_Text_of_SB97_CEQA_Guidelines_Amendments.pdf Accessed April 2015.

² 40 CFR Part 98, Table A-1.

processes and from manure. As with all types of animal agriculture, manure is generated on dairies and feedlots as a by-product of raising animals. This manure is not a waste product; instead, it is a valuable resource full of nutrients and is treated as such by farmers. Manure has many different uses (e.g., fertilizer, soil amendment, compost feedstock, biogas feedstock, etc.) that can be used individually or in combination depending on the farm and types of potential beneficial end uses. It can be applied as a liquid or a solid to on-site fields to meet crop nutrient needs; it can be transported off-site to meet crop nutrient needs at a different facility; or it can be ~~treated~~processed in an anaerobic digester to generate methane, among other options. The beneficial use of the manure is very site-specific and may vary from farm to farm. Any consideration of GHG reduction measures must be consistent with the eventual beneficial use of the manure.

Multiple CO₂-reduction measures that are typically used by industrial sectors³ are not applicable to these methane sources, which are inherent to livestock ~~rearing~~ operations, including dairies and cattle feedlots. Notably, at both the state and federal regulatory levels, GHG emissions reduction targets ~~are will~~ not be imposed on livestock emissions through at least 2023.⁴ This is due, in large part, to the unavailability of feasible means to substantially reduce livestock emissions. Consequently, livestock emissions reduction strategies are exclusively limited to voluntary and incentive-based programs.⁵

Historically, milk production in the United States (US) was pasture-based and resulted in relatively low milk production. Over the past decades, however, US dairies have transitioned to high input and high output systems. This transition has resulted in a decrease of GHG emissions per unit of milk produced.⁶ The increased efficiency is largely due to improved efficiency in formulating total mixed ration (TMR) for the animals, i.e., feeding to the specific nutrient requirements of different breeds for optimal milk production and selectively breeding for greater milk production. California dairies typically have more productive animals (i.e., milk produced per animal) than the national average due to the more efficient systems used in the state (e.g., TMR formulation).⁷ On average, California dairy cows annually produce 23,178 lbs of milk per cow compared to a nationwide annual

³ Examples of these measures can be found in: CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. Available at: <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>. Accessed April 2014.

⁴ ~~—The ARB Scoping Plan does not require any reductions from animal-related emissions (ARB Scoping Plan. Available at: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. Accessed August 2015.)~~—The USEPA also does not regulate livestock emissions; although the Mandatory Reporting Rule contains Subpart JJ for manure management, this provision is not currently being implemented (USEPA. 2015. Greenhouse Gas Reporting Program webpage. Resources by Subpart. Available at: <http://www.epa.gov/ghgreporting/reporters/subpart/index.html>. Accessed August 2015.)~~—~~

⁵ Ibid.

⁶ Capper, J.L., R.A. Cady, and D.E. Bauman. 2009. The environmental impact of dairy production: 1944 compared with 2007. *J. Anim. Sci.* doi: 10.2527/jas.2009-1781.

⁷ U.S. Department of Agriculture (USDA). National Agricultural Statistics Service (NASS). <http://www.nass.usda.gov/>. Accessed May 2014.

value of 21,822 lbs of milk per cow. Tulare County, which produces the most milk in California, has slightly more efficient cows that annually produce 23,350 lbs of milk per cow.^{8,9} Correspondingly, California dairies are more efficient in terms of emitting less GHGs per unit of milk produced than average US dairies.

As of 2013, Tulare County had approximately 1,000,000 head of cattle (i.e., milking cows, heifers and other support animals, and feedlot cattle). Tulare County is projected to have approximately 1,200,000 head by the year 2023. The overwhelming majority of animals (97%) are dairy-related; feedlot cattle also produce far less manure than milking cows (approximately 40% less¹⁰). The vast majority of the dairies are “flushed-lane” dairies that periodically remove manure from dairy freestall areas, collecting manure in lagoons and ~~reecyle~~recycling the flush water. Manure in the lagoons is then beneficially used, generally on local farmlands. Consistent with the history of dairying described above, many dairies already incorporate the enteric/manure-related GHG reduction measures described in this Dairy CAP.

1.2 CEQA Guidelines

CEQA Guidelines for GHG emissions reduction plans have been developed by OPR and adopted by the CNRA. CEQA Guidelines §15183.5 specifies that a plan for the reduction of GHG emissions should include or address specific elements. OPR is currently developing additional guidance with more details for climate action planning and the use of plans for the reduction of GHG emissions in a CEQA analysis.¹¹ While this guidance is being developed, OPR refers to a presentation provided during its Local Government Roundtable (June 20, 2011) regarding climate action planning¹² and to other recent climate action planning guidance documents, such as the San Joaquin Valley Air Pollution Control District’s (SJVAPCD’s) Climate Change Action Plan (CCAP).¹³

Table 1 below lists the elements to be included in a climate action plan pursuant to CEQA Guidelines §15183.5 and discusses how this Dairy CAP addresses each element as per current guidance cited above.

⁸ Total cattle (2013): Tulare = 484,845; California = 1,774,108. Milk production (2013): Tulare = 11,321,487 thousand lbs; California = 41,219,772 thousand lbs

⁹ California Department of Food and Agriculture. 2014. California Dairy Statistics Annual – 2013 Annual Data. Available at: http://www.cdfa.ca.gov/dairy/pdf/Annual/2013/2013_Annual_2012_Data.pdf Accessed April 2015.

¹⁰ USDA. Natural Resources Conservation Service. 2008. Agricultural Waste Management Field Handbook. Chapter 4. Agricultural Waste Characteristics. Available at: <http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17768.wba> Accessed April 2015.

¹¹ OPR. 2011. Climate Action Planning. Local Government Roundtable Questions and Answers. June 20. Available at: <http://opr.ca.gov/docs/capfaqs.pdf>. Accessed May 2014.

¹² OPR. 2011.

¹³ SJVAPCD. 2009. Final Staff Report – Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act. Available at: <http://www.valleyair.org/Programs/CCAP/12-17-09/1%20CCAP%20-%20FINAL%20CEQA%20GHG%20Staff%20Report%20-%20Dec%2017%202009.pdf>. Accessed April 2014.

Table 1. CEQA Guidelines for CAP Elements

CEQA Guideline Elements	Dairy CAP
1. Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic range.	This Dairy CAP has prepared and documented GHG emissions inventories of <u>Tulare County</u> industry-wide emissions sources for a 2013 baseline and a 2023 future year. The GHG inventory documentation for animal-related sources is presented in Appendix A and for non-animal sources, is presented in Appendix B .
2. Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable.	This Dairy CAP is consistent with the requirements of the Scoping Plan to meet Assembly Bill 32 (AB 32) <u>statewide 2020 GHG emissions reductions, with Senate Bill 32 (SB 32), with the draft 2017 Scoping Plan Update, with Senate Bill 1383 (SB 1383), and with the SLCP Strategy to meet statewide 2030 GHG emissions reductions through 2023</u> (see Section 2.2-2).
3. Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area.	The GHG emissions attributable to existing facilities and anticipated future projects have been identified and evaluated in the <u>Tulare County</u> inventory. The future year inventory accounts for projects – and potential growth – that are consistent with this Dairy CAP and the ACFP Update (see Section 3).
4. Specify measures or a group of measures, including performance standards, which substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level.	This Dairy CAP has identified readily implementable emissions reduction strategies to reduce GHG emission levels on a project-by-project basis (Appendix C). The emissions reduction strategies to achieve GHG emissions levels consistent with the Dairy CAP are discussed in Section 4.1 . The emissions reduction strategies implementation process, including the incorporation of the measures in future projects, is addressed in Section 6 .
5. Establish a mechanism to monitor the plan's progress toward achieving the specified emissions level and to require amendment if the plan is not achieving specified levels.	The <u>Dairy CAP includes a</u> monitoring plan for tracking emissions reduction strategies performance and overall Dairy CAP performance, <u>which and provides for amendments a post-2023 examination to assess whether modifications</u> to the Dairy CAP <u>as are</u> needed to remain consistent with <u>the requirements of the Scoping Plan to meet AB 32 requirements, is state level actions as</u> presented in Section 6 .

Table 1. CEQA Guidelines for CAP Elements	
CEQA Guideline Elements	Dairy CAP
6. Adopt the GHG reduction strategy in a public process following environmental review.	This Dairy CAP has been developed in conjunction with the ACFP Update. It will undergo full CEQA review in the Program EIR (PEIR) in conjunction with the ACFP Update process.

The adoption of a Climate Action Plan with a certified analysis under CEQA provides a means to streamline the CEQA process as it relates to climate change for individual projects. Per CEQA Guidelines¹⁴ §15183.5, a CAP can be utilized in the environmental review of future projects if it includes both the elements for a GHG emissions reduction plan specified in the CEQA Guidelines and has itself been evaluated and adopted under CEQA. Projects that are determined to be consistent with such a CAP ~~would~~will be presumed to have a less than cumulatively considerable impact on climate change.

¹⁴ California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387.

2 Regulatory Setting

Multiple federal, state and local regulations are applicable to GHG and climate change in general, and to CAPs in particular. This section summarizes the regulatory setting of the Dairy CAP. (In addition to the GHG-specific regulations described below, dairy and feedlot GHG emissions are indirectly affected by SJVAPCD air quality regulation and permits and by CVRWQCB water quality regulations and permits).

2.1 Federal Regulations¹⁵

2.1.1 USEPA Mandatory Reporting of Greenhouse Gases

The United States Environmental Protection Agency's (USEPA's) Mandatory Reporting of Greenhouse Gas Rule ~~“(USEPA Mandatory Reporting Rule”)~~ became law on January 1, 2010 (40 CFR Part 98). Designed to cover 85 to 90 percent of the nation's GHG emissions, this law requires certain large emitters and suppliers to report their GHG data on an annual basis. Generally, facilities that emit 25,000 metric tons (MT) or more of carbon dioxide equivalent (CO₂e) per year are required to report. The purpose of the law is not to control GHG emissions, but to collect accurate and pertinent data to inform future GHG policies and programs.

The USEPA Mandatory Reporting Rule currently features a subpart for livestock facilities with manure management systems that emit 25,000 MT of CO₂e per year or more (Subpart JJ - Manure Management); this subpart is not being implemented currently.¹⁶ In addition to an emissions threshold, the subpart identifies the animal population threshold below which facilities are not required to report emissions.¹⁷ For dairies, this number is calculated to be 3,200 mature dairy cows, while for cattle feedlots, this number is calculated to be 29,300 cattle. Because the USEPA has not yet implemented Subpart JJ, dairy facilities and cattle feedlots are currently not subject to federal GHG reporting requirements.

2.2 State Regulations and Agreements

2.2.1 California State Executive Order S-3-05

Recognizing the threat that climate change poses to the state of California, Governor Arnold Schwarzenegger signed Executive Order S-3-05 on June 1, 2005, and established the following GHG reduction targets for the state:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and

¹⁵ For additional information on specific regulations, see the Tulare CAP.

¹⁶ The USEPA includes the following statement on their website regarding the implementation of Subpart JJ: “EPA will not be implementing subpart JJ of Part 98. The Consolidated Appropriations Act of FY 2014 (H. R. 3547, Page 339, Section 421) continues a provision prohibiting the expenditure of funds for this purpose.” Available at: www.epa.gov/ghgreporting/reporters/subpart/index.html. Accessed April 2014.

¹⁷ 40 CFR Part 98, Subpart JJ, Table JJ-1.

- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

2.2.2 California Global Warming Solutions Act of 2006 (Assembly Bill 32)

In response to Executive Order S-3-05, the California legislature drafted the California Global Warming Solutions Act of 2006, commonly known as AB 32, which was signed into law on September 27, 2006.¹⁸ The law requires the California Air Resources Board (ARB) to adopt rules and regulations to reduce statewide greenhouse gas emissions to 1990 levels by 2020. The law emphasizes that in adopting these regulations the ARB shall, to the extent feasible, minimize “leakage”.¹⁹ For example, regulations that result in dairy relocations outside of California would not reduce global GHGs. The law also requires the ARB to prepare a scoping plan to identify and make recommendations on the emission reduction measures, compliance mechanisms, and incentives that are necessary or desirable to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions by 2020.

The initial AB 32 Climate Change Scoping Plan ~~“(AB 32 Scoping Plan”)~~ was approved by the ARB in 2008.²⁰ The AB 32 Scoping Plan was supplemented on August 24, 2011, and the First Update to the Scoping Plan was issued in May 2014: (2014 Scoping Plan Update).^{21,22} The AB 32 Scoping Plan highlights the various measures that will be used to achieve the goals of AB 32. One of the plan’s proposed strategies is to establish a cap-and-trade program for the economic sectors responsible for the majority of California’s GHG emissions. The AB 32 Scoping Plan recognizes that some sectors (e.g. agriculture) are currently not suitable for inclusion in the cap-and-trade program and, as a result, instead recommends separate complementary voluntary strategies for those sectors.

For the dairy industry, ***no reductions from animal-related emissions are required in the AB 32 Scoping Plan and no targets for animal-related emissions are imposed: to meet AB 32’s 2020 reductions.*** Instead, the AB 32 Scoping Plan includes the installation of manure digester systems to capture methane emissions as a voluntary strategy for the agricultural sector, recognizing that economic incentives will be needed in order to make the strategy effective. The 2011 supplement to the AB 32 Scoping Plan specifically highlights that most dairies in California are located in the San Joaquin Valley and are consequently subject to strict smog standards for new equipment. These strict standards apply to new equipment such as manure digester systems. Because of the low quality of the biogas produced in the manure digester systems, it is either technologically

¹⁸ <http://www.arb.ca.gov/cc/docs/ab32text.pdf>

¹⁹ “Leakage” is defined in AB 32 as “a reduction in emissions of greenhouse gases within the state that is offset by an increase in emissions of greenhouse gases outside of the state.”

²⁰ http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf

²¹ http://www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf

²²

http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm2013_update/first_update_climate_change_scoping_plan.pdf

infeasible or cost prohibitive to meet SJVAPCD's emissions standards (e.g., nitrous oxide) without financial incentives.²³ The ~~May-2014~~ First Scoping Plan Update acknowledges that the voluntary installation of manure digesters has not advanced as anticipated and identifies the challenges to the voluntary installation of manure digester systems, including the economic recession, increased feed and fuel prices, lack of sufficient financial incentives, and insufficient utility contracts. However, on a positive note, the ~~First2014~~ Scoping Plan Update indicates that, in response, ARB is continuing to work with other agencies to remove economic obstacles to digester installations, to evaluate the co-benefits, and to examine the potential for voluntary efforts to be more widely adopted. In addition, ARB plans to work with stakeholders to determine whether and how the program should become mandatory and/or more strongly incentivized.²⁴ ~~Tulare County will monitor these advances and make adjustments, where feasible.~~ The AB 32 Scoping Plan includes a voluntary incentive program, described in Section 2.2.4.1 below, as one potential monetary incentive. In addition, the ~~First2014~~ Scoping Plan Update incorporates a list of key recommended actions for the agriculture sector, including the following:

"In 2014, convene an interagency workgroup that includes CDFA, ARB, CEC, CPUC, and other appropriate State and local agencies and agriculture stakeholders to:

- Establish agriculture ~~seesector~~ GHG emission reduction planning targets for the mid-term time frame and 2050.
- Expand existing calculators and tools to develop a California-specific agricultural GHG tool for agriculture facility operators to use to estimate GHG emissions and sequestration potential from all on-farm sources. The tool would include a suite of agricultural GHG emission reduction and carbon sequestration practices and would allow users to run different scenarios to determine the best approach for achieving on-farm reductions.
- Make recommendations on strategies to reduce GHG emissions associated with the energy needed to deliver water used in agriculture based on the evaluation of existing reporting requirements and data.

~~The Dairy Digester Workgroup will develop recommendations for a methane capture standard for 2016.~~

- Conduct research that identifies and quantifies the GHG emission reduction benefits of highly efficient farming practices, and provide incentives for farmers and ranchers to employ those practices."²⁵

²³ http://www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf/d, at page 72.

²⁴ <http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm>.

²⁵ *Id.* Page ~~6+57~~.

~~2.2.31.1.1 California State Executive Order B-30-15~~

~~Governor Edmund G. Brown Jr. issued Executive Order B-30-15 on April 29, 2015, and identified an interim benchmark to maintain California's reduction efforts on the path to achieving the 2050 goal to reduce GHG emissions to 80 percent below 1990 levels, which was contained in the previous executive order.~~

~~By 2030, reduce GHG emissions to 40 percent below 1990 levels.~~

~~In response, all state agencies with jurisdiction over GHG emission sources are to implement measures pursuant to their statutory authority to achieve reductions to meet the 2030 and 2050 GHG emissions reduction targets. In addition, ARB plans to update the Scoping Plan to express the 2030 target in terms of the quantity of million metric tons of CO₂-equivalent reductions needed to achieve the target. While the Executive Order does not apply to cities and counties, it will result in an update of the Scoping Plan that has the potential to lead to regulatory changes that may affect the dairy sector. Legislation is required to make the Executive Order law, and legislative bills have been introduced to do so, at least one of which may pass prior to the end of the current legislative session.~~

~~2.2.72.2.3 California's Mandatory Reporting Rule~~

The state of California has its own mandatory reporting regulation, the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions ~~(“California Mandatory Reporting Rule”)~~ (17 CCR §§95100-95157). The California Mandatory Reporting Rule, approved in 2007, is similar to the USEPA Mandatory Reporting Rule in that it requires certain large emitters and suppliers to report their GHG data on an annual basis; however, the California emissions threshold is lower at only 10,000 MT of CO₂e per year. ~~Like the USEPA Mandatory Reporting Rule, the~~The California Mandatory Reporting Rule currently excludes GHG emissions related to livestock manure management systems.

~~2.2.82.2.4 California Greenhouse Gas Cap-and-Trade Program~~

To comply with the recommendations outlined in the AB 32 Scoping Plan, the ARB established the California Greenhouse Gas Cap-and-Trade Program ~~(“Cap-and-Trade Program”)~~ (17 CCR §§95800-96023),²⁶ which took effect on January 1, 2012. From the ARB's web site: “Cap-and-trade is a market based regulation that is designed to reduce greenhouse gases (GHGs) from multiple sources. Cap-and-trade sets a firm limit or “cap” on GHGs and minimize the compliance costs of achieving AB 32 goals ... Trading creates incentives to reduce GHGs below allowable levels through investments in clean technologies ... Market forces spur technological innovation and investments in clean energy. Cap-and-trade is an environmentally effective and economically efficient response to climate change.”²⁷ The first phase of the Cap-and-Trade Program only applies to in-state electrical generating facilities and large industrial facilities that emit over 25,000 MT of CO₂e per year. Compliance obligations for this first phase began on January 1, 2013, after which

²⁶ <http://www.arb.ca.gov/regact/2010/capandtrade10/finalrevfro.pdf>.

²⁷ <http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>.

covered entities are required to remain at or below their respective established emissions caps. The second phase of the program began on January 1, 2015, and will extend to fuel distributors.

~~2.2.8.12.2.4.1~~ **Dairies and Cap-and-Trade**

One way the Cap-and-Trade Program allows covered entities to meet their established emissions cap is through the purchase of emission offset credits. Per the Cap-and-Trade Program regulation, an offset credit must represent a GHG emission reduction that is “real, additional, quantifiable, permanent, verifiable, and enforceable” and must result from the use of an established offset protocol ~~(§(17 CCR §95970))~~. Per 17 CCR §95972 of the regulation, in order to be approved by the ARB, a compliance offset protocol must conservatively account for activity-shifting leakage and market-shifting leakage for the offset project type.²⁸

~~Dairies have a unique position in the The AB 32 Scoping Plan. The Scoping Plan does not to meet AB 32’s 2020 reduction goals as well as SB 1383 and the SLCP Strategy as to 2030 reduction goals (see Section 2.2.11) require no GHG emissions reductions from any animal-related sources on a dairy and does not impose any emissions reduction targets or feedlot prior to 2024.~~ Instead, voluntary incentive-based approaches are encouraged. Specifically, under the Cap and Trade Program, the Compliance Offset Protocol for Livestock Projects is one of the four protocols for voluntary activities that have been approved by the ARB to date.²⁹ This protocol provides the procedures necessary for quantifying and reporting GHG emission reductions associated with the installation of a biogas control system (e.g. a digester) for manure management on dairy cattle and swine farms. The protocol is designed to ensure accurate, transparent, and verifiable quantification of GHG emissions reductions associated with a digester project for generating offsets. Emission reductions quantified through the procedures outlined in the protocol can be sold in the market as emission offset credits. This arrangement can provide a financing tool that may assist in making the voluntary installation of a manure digester system feasible. In this context, feasibility depends upon achieving compliance with required emissions standards, economic viability, utility infrastructure support, and site suitability. Consequently, a proposed digester installation that is feasible for one farm may not be deemed feasible at another farm.

²⁸ “Activity-Shifting Leakage” is defined in §95802 of the regulation as “increased GHG emissions or decreased GHG removals that result from the displacement of activities or resources from inside the offset project’s boundary to locations outside the offset project’s boundary as a result of the offset project activity.” “Market-Shifting Leakage” is defined as “increased GHG emissions or decreased GHG removals outside an offset project’s boundary due to the effects of an offset project on an established market for goods or services.”

²⁹ <http://www.arb.ca.gov/regact/2010/capandtrade10/coplivestockfin.pdf>.

2.2.92.2.5 California Environmental Quality Act (CEQA) and California Senate Bill 97

Adopted in 1970, CEQA requires California lead agencies to assess the potential environmental impacts of proposed projects within their jurisdiction. However, when CEQA was first established, lead agencies were not required to assess the environmental impacts of a project's GHG emissions. In 2007, this changed with the passage of Senate Bill 97 ~~(“SB 97”)~~, which required OPR to develop amendments to the CEQA Guidelines that would specifically address the analysis and mitigation of GHG emissions. The resulting amendments to the CEQA Guidelines were adopted and became effective in March 2010. Lead agencies are now required to incorporate the analysis of GHG emissions into their CEQA reviews. Specifically, the amendments require the following, as described in the CEQA Guidelines (§15064.4):

- Quantify the GHG emissions from the project;
- Determine if the emissions exceed a significance threshold the lead agency determines to apply to the project; and
- Determine the extent to which the project complies with applicable regulations, requirements, or plans.

This Dairy CAP provides the required analysis for the ACFP Update to Chapter 12 of the Tulare County General Plan 2030. Additionally, new or expanding dairies and feedlots may be able to rely upon this Dairy CAP to demonstrate compliance with CEQA Guidelines (§15183.5). See Section 5 for details.

2.2.102.2.6 California Senate Bill 700

California Senate Bill 700 ~~(“SB 700”)~~ was signed into law on September 22, 2003 and effectively replaced the existing blanket exemption from air permits for agriculture with narrower, more limited exemptions in state law.³⁰ As a result, the ARB and local air agencies such as the SJVAPCD are now required to regulate air pollution from agricultural sources. Since the adoption of SB 700, SJVAPCD has established a permitting program for large dairies and cattle feedlots and has also implemented several rules that apply to the agricultural industry such as Rule 4550, *Conservation Management Practices*, which aims to limit fugitive dust emissions from agricultural operation sites, and Rule 4570, *Confined Animal Facilities*, which aims to limit emissions of volatile organic compounds (VOCs) from confined animal facilities.³¹ Neither of these rules currently addresses GHG gas emissions.

2.2.112.2.7 California Senate Bill 605

California Senate Bill 605 ~~(“SB 605”)~~ was signed into law on September 21, 2014 and requires the ARB to develop a comprehensive strategy to reduce statewide

³⁰ <http://www.arb.ca.gov/ag/sb700/sb700.pdf>.

³¹ Note that dairies with fewer than 500 milking cows are exempt from the provisions of the rule except for the recordkeeping requirements.

emissions of short-lived climate pollutants (SLCPs).³² SLCPs, such as methane, have relatively high potency compared to carbon dioxide, even though they remain in the atmosphere a short amount of time. Specifically, SB 605 requires the ARB to inventory the sources and emissions of these pollutants, identify research gaps, identify existing and potential reduction measures, prioritize the development of new measures, and develop a comprehensive strategy for dealing with ~~short-lived climate pollutant emissions by January 1, 2016. On September 30, 2015, ARB released its draft strategy describing the need and draft approach to reduce SLCP emissions to achieve the future GHG targets for the state.³³ The draft strategy states that “reduc[ing] these emissions is the only practical way to immediately slow global warming.” Agricultural emissions of methane have been identified as one of the areas the ARB is focusing on to reduce SLCP emissions.³⁴ SLCPs.³⁵ ARB adopted the SLCP Strategy on March 23, 2017 (SLCP Strategy), which addresses animal-related methane emissions from dairies, as more fully described in Section 2.2.11.~~

2.2.8 California State Executive Order B-30-15

Governor Edmund G. Brown Jr. issued Executive Order B-30-15 on April 29, 2015, and identified an interim benchmark to maintain California’s reduction efforts on the path to achieving the 2050 goal to reduce GHG emissions to 80 percent below 1990 levels, which was contained in the previous executive order.

- By 2030, reduce GHG emissions to 40 percent below 1990 levels.

As discussed in Section 2.2.9 below, on September 8, 2016, California Senate Bill 32 was signed into law to implement the 2030 emissions reduction goal established by Executive Order B-30-15. In addition, a draft update to the AB 32 Scoping Plan to meet the 2030 reduction target under SB 32 (2017 Scoping Plan Update) was issued by ARB on January 20, 2017.³⁶

2.2.9 California Senate Bill 32

California Senate Bill 32 (SB 32) was signed into law on September 8, 2016.³⁷ SB 32 builds upon AB 32, adopting the 2030 goal under California Executive Order B-30-15 to reduce GHG emissions to at least forty percent below 1990 levels and directing ARB to adopt regulations to achieve such reductions by December 31, 2030.

On January 20, 2017, ARB released for public review and comment the draft 2017 Scoping Plan Update: The Proposed Plan for Achieving California’s 2030 Greenhouse

³² http://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB605.

³³ ~~ARB. 2015. Draft Short-Lived Climate Pollutant Reduction Strategy. Available at: <http://www.arb.ca.gov/cc/shortlived/2015draft.pdf>. Accessed October 2015.~~

³⁴ ~~ARB. Reducing Short-lived Climate Pollutants in California. September 2014. Available at: http://arb.ca.gov/cc/shortlived/slep_booklet.pdf. Accessed April 2015.~~

³⁵ ARB. 2017. Short-Lived Climate Pollutant Reduction Strategy. Available at: https://www.arb.ca.gov/cc/shortlived/meetings/03142017/final_slcp_report.pdf. Accessed April 2017.

³⁷ https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32

Gas Target (2017 Scoping Plan Update).³⁸ The 2017 Scoping Plan Update is ARB's proposed plan to reduce greenhouse gas emissions by forty percent below 1990 levels by 2030. The 2017 Scoping Plan Update, which was required under California Executive Order B-30-15, updates the existing AB 32 Scoping Plan to address SB 32's 2030 emissions reduction goal. It is expected to be considered and approved in final form in 2017.

2.2.10 California Assembly Bill 197

California Assembly Bill 197 (AB 197) was signed into law on September 8, 2016 as a companion bill to AB 32.³⁹ AB 197 expands ARB's membership to include two non-voting members from the Legislature; creates a Joint Legislative Committee on Climate Change Policies to make recommendations to the Legislature concerning climate change policies; provides for annual reporting of GHG emissions from sectors covered by the AB 32 Scoping Plan (reporting is not required for dairies and feedlots) as well as evaluations of regulatory requirements and other programs that may affect GHG emissions trends; and specifies that the adoption of GHG emissions reduction rules and regulations shall consider the social costs. In addition, AB 32 Scoping Plan updates are required to identify the range of potential GHG emissions reductions and the cost-effectiveness for each emissions reduction measure, compliance mechanism and incentive.

2.2.11 California Senate Bill 1383

Senate Bill 1383 (SB 1383) was signed into law on September 19, 2016.⁴⁰ SB 1383 updates the initiatives of SB 605, which required ARB to develop a comprehensive strategy to reduce statewide emissions of short-lived climate pollutants (SLCPs), including methane (SLCP Strategy). SB 1383 adopts SLCP reductions targets, including a forty percent reduction in statewide methane emissions below 2013 levels by 2030. The SLCP Strategy, which was adopted by ARB on March 23, 2017, addresses methane emissions in particular.

Under the legislation, methane emissions from the dairy sector are singled out for specialized treatment. ARB is directed to coordinate with the Department of Food and Agriculture (CDFA), the Public Utilities Commission (PUC) and the State Energy Resources Conservation and Development Corporation (CEC) in adopting regulations to reduce methane emissions from dairy manure management operations by up to forty percent below the dairy sector's 2013 levels by 2030. Notably, prior to adopting such regulations, ARB must complete a number of steps, including working with stakeholders, such as dairy representatives, energy agencies, environmental stakeholders and project developers, to identify and address technical, market, regulatory and other challenges to development of dairy methane emissions reductions projects; conducting or considering dairy operation research on dairy emissions reduction projects, including scrape manure management systems, solids separation systems and enteric fermentation; and

³⁸ https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf

³⁹ https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB197

⁴⁰ https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB1383

considering the development and adoption of methane emissions reduction protocols. Such regulations are to be implemented and go into effect no sooner than January 1, 2024, and then only in the event that ARB, in consultation with CDFA, determines the regulations to be technologically feasible, economically feasible (taking into consideration milk prices, public and private funding commitments, whether markets exist for the biomethane and other products generated by dairy manure management reduction projects, and access to common carrier pipelines and electrical interconnection for dairy digesters), and cost-effective and are additionally found to include provisions to minimize potential leakage to other jurisdictions and to evaluate the achievements made by incentive-based programs.

By January 1, 2018, other actions required to be performed by ARB include establishment of energy infrastructure policies to encourage dairy manure digester projects; development of a pilot financial mechanism to reduce the economic uncertainty associated with the value of credits for dairy manure digester projects producing low-carbon transportation fuels; issuance of directives to gas corporations to implement at least five dairy manure digester pilot projects to demonstrate interconnection to the common carrier pipeline system; provision of guidance on credits generated pursuant to market-based compliance mechanisms developed from methane reduction protocols under the SLCP Strategy; and provision for the availability of at least a ten-year credit for projects pre-dating regulations, as well as eligibility for available extensions of credits.

By July 1, 2020, ARB and DFA are to evaluate the dairy sector's progress towards meeting the SLCP 2030 reduction goal on a voluntary basis, and, if sufficient progress has not been attained due to insufficient funding or market or technical barriers, ARB may reduce the SLCP Strategy's methane emission reduction goal for dairies. SB 1383 specifies that enteric emissions reductions are to be voluntary, through incentive-based programs, until such time that ARB determines that a cost-effective and scientifically proven method of reducing such emissions is available that would not damage animal health, public health or consumer acceptance. No methane emissions reduction regulations for the dairy sector are to be adopted to meet AB 32 or SB 32 goals other than pursuant to SB 1383's requirements and standards. The proposed 2017 Scoping Plan Update is consistent with SB 1383 and its timetable relative to addressing GHG emissions from the dairy sector.

To tackle the barriers to biomethane use, SB 1383 also provides that the CEC, in consultation with ARB and the PUC, is required to develop recommendations for the use of biomethane as part of its 2017 Integrated Energy Policy Report, including the identification of cost-effective strategies by considering priority uses of biomethane in the context of state policy objectives to reduce SLCPs and to promote alternative energy uses. Based on such recommendations, state agencies shall, as appropriate, adopt policies and incentives to significantly increase sustainable production and use of biomethane.

2.2.12 California Assembly Bill 1613

In recognition of the need for public funding sources to subsidize voluntary dairy methane emissions reduction projects, the Budget Act of 2016, AB 1613, allocates \$50 million from the Greenhouse Gas Reduction Fund to be administered by CDFA to support early and extra methane emissions reductions from dairy livestock operations.⁴¹ The particular value of this subsidy is that it provides funding to offset capital costs for construction. CDFA anticipates that approximately \$36 million will be used for constructing digesters, \$9 million for other dairy methane reduction projects and the remaining \$5 million for state administrative costs.⁴²

2.3 Local Regulations, Ordinances, and Agreements

2.3.1 Tulare County

Tulare County is processing the ACFP Update as a proposed amendment to the Tulare County General Plan. This Dairy CAP is being prepared in conjunction with the ACFP Update process which will update the approval process for new and expanding dairies and feedlots. It is noted that the County's land use authority is limited to new and expanding facilities and does not extend to requiring changes to existing facilities.

2.3.2 San Joaquin Valley Air Pollution Control District (SJVAPCD)

In August 2008, the Governing Board of the SJVAPCD adopted the CCAP in response to a perceived need for definitive guidance on how to address greenhouse gas emission impacts under CEQA. Specifically, the CCAP instructed the SJVAPCD Air Pollution Control Officer to develop guidance to assist both District staff and local land-use agencies (and other permitting bodies) in determining the significance of project-related impacts on global climate change under CEQA. The CCAP is generic for all land uses and is not specific to dairies.

In compliance with the CCAP, on December 17, 2009, the District issued the guidance document, *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*, and adopted the policy, *District Policy – Addressing GHG Emission Impacts for Stationary Source Projects under CEQA When Serving as the Lead Agency*.^{43,44} Both documents propose an approach that centers on the use of performance based standards, referred to as Best Performance Standards (BPS), to determine project significance and streamline the CEQA process. Best Performance Standards are defined in these documents as “the most effective Achieved-in-Practice means of reducing or limiting GHG emissions from a GHG emissions source” and are intended to represent pre-approved, pre-quantified emissions reductions. Projects that implement BPS in accordance

⁴¹ http://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB1613.

⁴² [California Department of Food and Agriculture, “Dairy Digester Research and Development Program, 2016-17, Public Stakeholder Listening Session,” accessed December 14, 2016 at https://www.cdfr.ca.gov/oefi/ddrdp/docs/2016-DDRDP-ListeningSessions.pdf](http://www.cdfr.ca.gov/oefi/ddrdp/docs/2016-DDRDP-ListeningSessions.pdf)

⁴³ http://www.arb.ca.gov/cc/scopingplan/2013_update/draft_proposed_first_update.pdf.

⁴⁴ <http://www.valleyair.org/programs/CCAP/12-17-09/2%20CCAP%20-%20FINAL%20District%20Policy%20CEQA%20GHG%20-%20Dec%2017%202009.pdf>.

with the District guidance are said to have a less than significant individual and cumulative impact on global climate change. Alternatively, projects that do not implement BPS are required to quantify project specific greenhouse gas emissions and, to obtain a less than significant impact determination, must demonstrate a reduction or mitigation of greenhouse gas emissions by 29% from the 2020 business-as-usual scenario.⁴⁵

A staff report, released concurrently with the District guidance and policy documents, presents examples of industry-specific BPS, including several for livestock-rearing operations. ***However, the report notes that the example BPS are “for illustrative purposes only, and should not be used by any lead agency as District-approved or sanctioned standards.”***⁴⁶ To date, the District has not approved any BPS that are applicable to livestock-rearing operations, including dairies and cattle feedlots. In the absence of the adoption of such BPS by the District, this Dairy CAP incorporates potential GHG reduction strategies as set forth in Section 4.

2.4 Funding Opportunities

Resulting from the need for financial incentives to support the voluntary installation of manure digester systems, as referenced in the ~~May-2014 First Amendment to the~~ Scoping Plan Update, certain governmental funding opportunities have been available from time to time. The reasons that such programs are needed include the extensive capital and operating costs required for an anaerobic digester. The cost of an anaerobic digester varies based on the number of animals (i.e., amount of manure sent to the digester), location of the dairy, type of digester, and end-use of the digester gas. For example, the cost of installing a digester is estimated to be \$1.15 million for a 1,000 cow dairy farm producing 744 Megawatt-hours (MWh) of electricity while the estimated digester cost is \$11.2 million for a 10,000 cow dairy farm producing 94.4 million cubic feet (12,600 MWh) of biogas.⁴⁷ In addition to this initial large capital cost, there are annual operating and maintenance costs. As an operation beyond dairying itself, the farmer may need to hire outside operators and/or consultants to successfully and effectively run the digester.

Due to the high capital costs and ongoing operating and maintenance costs, a digester would be cost-prohibitive for a farmer without incentives, grants, or other cost-sharing programs. Several funding opportunities have been, or are, available and have encouraged the construction of digesters. These funding opportunities include the following:

⁴⁵ Per the District, this level is set at 29% to be “consistent with GHG emission reduction targets established in ARB’s AB 32 scoping plan.” It should be noted that the May 2014 Update to the AB 32 Scoping Plan features revised 2020 baseline and target emissions levels, so that the required percent reduction in emissions is now approximately 15%.

⁴⁶ <http://www.valleyair.org/programs/CCAP/12-17-09/1%20CCAP%20-%20FINAL%20CEQA%20GHG%20Staff%20Report%20-%20Dec%2017%202009.pdf>.

⁴⁷ ESA. 2011. Economic Feasibility of Dairy Manure Digester and Co-Digester Facilities in the Central Valley of California; Prepared for the California Regional Water Quality Control Board, Central Valley Region.

- 1603 Program: The U.S. Federal Government established the 1603 Program as part of the American Recovery and Reinvestment Act of 2009 (Recovery Act). The 1603 Program: Payments for Specified Energy Property in Lieu of Tax Credits reimbursed eligible projects for a portion of the cost of installing specified energy properties or for the production of income. Digester projects were one of the eligible projects. Out of almost 9,800 projects nationwide, 98 digester projects received funding; 5 of these projects were in California. This program is no longer providing funding for digesters.
- Cap-and-trade funds: ARB has developed an investment plan to inform how cap-and-trade auction proceeds should be spent. The document identifies priority investments that are intended to further the state's GHG reduction goals. As described in this document, cap-and-trade funds have been allocated to incentivize digesters in California. ~~The expenditure plan of Through the California State Budget through Fiscal Year 2014-2015 specified that \$12 Dairy Digester Research & Development Program, AB 1613 allocates \$50 million is provided for Agricultural Energy and Operational Efficiency from the Greenhouse Gas Reduction Fund to support voluntary dairy methane reduction projects, including up to \$11.1 million for digesters and \$0.5 million for research projects alternative manure management practices, as discussed in Section 2.2.12.~~ Although the California State Budget will allocate cap-and-trade funds every year, ~~digesters are not guaranteed the status and scope of ongoing allocations for digesters and other manure management practices to reduce methane emissions cannot be assured.~~
- California Energy Commission (CEC): The CEC has awarded \$4 million each to two dairy farms to install and demonstrate dairy digesters.⁴⁸ In addition, CEC's Electric Program Investment Charge (EPIC) program allocates up to \$9 million a year to a competitive program for renewable energy projects including dairy digesters.
- Digester "hubs": An economic feasibility study was done on constructing a centralized digester project that would accept manure from a cluster of nearby dairy farms. This type of cost-sharing would encourage the construction of dairy digesters and spread the cost over multiple farms.⁴⁹

⁴⁸ California Energy Commission (CEC). 2015. Press release March 11, 2015. Energy Commission Approves Grants for Energy Storage, Biofuel, Efficiency and Transportation Programs. Available at: http://www.energy.ca.gov/releases/2015_releases/2015-03-11_approved_grants_nr.html Accessed April 2015.

⁴⁹ California Dairy Campaign. 2013. Economic Feasibility of Dairy Digester Clusters in California: A Case Study. Available at: <http://www.epa.gov/region9/organics/symposium/2013/cba-session2-econ-feas-dairy-digester-clusters.pdf> Accessed April 2015.

3 GHG Emissions Overview: Baseline and Future

As described in Section 1.2, CEQA Guidelines for GHG emissions reduction plans, such as this Dairy CAP, have been developed by OPR and adopted by the CNRA. The guidelines (CEQA Guidelines §15183.5) specify that a plan for the reduction of GHG emissions should include or address specific elements. Two of these elements include:

- Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic range, and
- Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area.

To address these two elements for this plan, GHG inventories were prepared using a baseline year of 2013 and a future year of 2023. The future year of 2023 is consistent with the ACFP Update and the PEIR. The inventories consist of industry-specific activity (e.g., animal emissions) and other general sources (e.g., energy, transportation). Animal-related sources include enteric fermentation and manure management. Other sources include equipment exhaust, agricultural soil management, electricity use, vehicle emissions (on-farm trucks, employee vehicles), and refrigeration. Animal-related sources were estimated using methodology developed by the Intergovernmental Panel on Climate Change (IPCC) and used by ARB for quantifying annual statewide GHG emissions. All other sources were obtained from estimates developed for the Tulare County ACFP Update EIR.⁵⁰ Table 2 summarizes the major assumptions that were used in this Dairy CAP.

⁵⁰ See Appendix B.

Table 2. Information Used in Animal-Related Inventory Calculations		
Data	Baseline (2013)	Future (2023)
Animal head counts	Tulare County Data Data reported for 2011 ^[a]	Assumed annual growth of 1.5% ^[b]
Manure Decomposition and Enteric Fermentation methodologies	IPCC ^{[c],[d]}	IPCC ^{[c],[d]}
<p>^[a] Although the baseline used is 2013, animal head counts from 2011 were used, because the numbers were slightly greater in that year and to be consistent with the PEIR and the ACFP Update.</p> <p>^[b] The assumed annual growth rate of 1.5% is consistent with the assumptions under the PEIR, the ACFP Update, and the AB 32 Scoping Plan.</p> <p>^[c] 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4, Chapter 10. Available at: http://www.ipcc-nggip.iges.or.jp/public/2006gl/. Accessed May 2014.</p> <p>^[d] Manure decomposition emissions were calculated using the methodology developed by IPCC. Statewide enteric fermentation emissions were obtained from ARB and prorated by the animal head counts assumed in Tulare. Because ARB uses the IPCC methodology as implemented in the Cattle Enteric Fermentation Model (CEFM), this approach and the emissions are consistent with IPCC and ARB methodologies.</p>		

The baseline year used in this Dairy CAP is 2013, consistent with the ACFP Update and PEIR (as described above), and includes emissions estimates from all activities at the facilities based on known data. The future year, 2023, estimates are projected from the baseline by estimating the impacts of future growth and projected increases in production. It should be noted that most dairies likely already incorporate several GHG reduction ~~measures~~strategies as part of their standard operations and therefore, baseline emissions would reflect ~~that those~~ reductions to the extent that the current emissions estimation methodology reflects those ~~measures~~strategies.

Table 3. Baseline and Projected Emissions in Metric Tons CO₂e/year		
Source^{[a][b]}	Baseline (2013) GHG emissions^[c]	Future (2023) GHG emissions^[c]
Farm Equipment Exhaust	38,129	52,195
Farm Agricultural Soil	812,050	1,111,838
Farm Electricity Consumption	79,480	108,763
Dairy Equipment Exhaust	99,406	135,478
Truck Trips	23,137	28,493
Dairy Employee and Visitor Trips	15,851	16,282
Dairy Electricity Consumption	145,335	171,566
Dairy Refrigeration	63,640	85,840
Dairy Manure Decomposition	3,496,077	4,057,340
Dairy Enteric Digestion	2,463,071	2,858,495
Feedlot Manure Decomposition	29,598	34,350
Feedlot Enteric Digestion	227,068	263,522
Total	7,492,843	8,924,162
<p>^[a] Emission estimates for all source categories except for manure decomposition and enteric digestion have been taken from analyses completed for the Tulare County ACFP Update EIR. See Appendix B.</p> <p>^[b] Details regarding the manure decomposition and enteric digestion emission estimates can be found in Appendix A.</p> <p>^[c] CO₂e = carbon dioxide equivalent emissions, which is the sum of all emissions after multiplying by their global warming potentials (GWPs). GWPs are 1 for CO₂, 25 for CH₄, 298 for N₂O, and 14,800 for HFC-23 (40 CFR Part 98, Table A-1).</p>		

As shown in Table 3, most of the GHG emissions at dairies and feedlots in Tulare County are animal-related emissions (i.e., manure decomposition and enteric digestion). The future year emissions estimates are based on assumptions about the future consistent with those used in related plans (see below). For example, the animal-related emissions assume a certain percentage growth in dairy and beef cattle population.

It is noted that 2023 has been utilized as the future projected year for a number of reasons. ~~The ACFP covers the period until 2023 and is to be updated to cover subsequent periods. In addition, AB 32 and the~~ AB 32 and the AB 32 Scoping Plan establish regulations and requirements to meet the statewide reductions proscribed to be achieved by 2020~~7~~, and SB 32 and SB 1383 address emissions reduction targets through 2030. To date, the AB 32 Scoping Plan ~~presents the program to meet~~meets the 2020 reduction requirements of AB 32~~and requires, and the~~

subsequent legislation and SLCP Strategy for 2030 reductions require no animal-related emissions reductions from the dairy sector prior to meet those goals2024. This Dairy CAP is consistent with the currentAB 32 Scoping Plan ~~and will be updated and re-evaluated periodically tofor 2020, with the extent that~~SLCP Strategy, and with the Scoping Plan is modified, in response to the 2014draft 2017 Scoping Plan Update ~~or otherwise, to meet 2030 reduction targets as it relates~~related to animal-related dairy emissions. Given the evolving nature of information concerning climate change, effective GHG emissions reduction strategies, and technological and practical advances regarding feasible emissions reductions protocols, as well as anticipated regulatory actions ~~in response to the Scoping Plan Update, legislative action or otherwise, the Dairy CAP provides for periodic updates to reflect such changes under SB 1383, the Dairy CAP in Section 8 provides for a post-2023 examination of the Dairy CAP to determine whether the Dairy CAP has been superseded by the enactment of state regulations that mandate emissions reductions, and to assess whether modifications are needed in order to reduce the possibility of duplication of or conflicts with state level actions.~~ Projections for a more extended horizon (i.e., beyond 2023) are speculative at this time given the numerous variables associated with projectingSB 1383 and SLCP Strategy's research and analysis as to the feasibility and effectiveness of animal-related emissions reductions as well as projections of manure and enteric emissions, animal herd counts, the anticipated growth of dairy operations in Tulare County, and the availability of established programs to foster feasible emissions reduction approaches.

4 GHG Emissions Reduction Strategies Evaluated

4.1 GHG Emissions Reduction Strategies

The process of identifying and evaluating GHG reduction strategies is consistent with the fourth CEQA Guideline element for climate action planning under §15183.5, as discussed in Section 1. Furthermore, a primary purpose of this Dairy CAP is to maintain the efficiency (i.e. GHG emissions/unit milk produced) achieved by California dairies over the past decades and, to the extent possible, identify approaches that could possibly be implemented at dairies to achieve additional reductions. These potential reduction strategies are discussed below. It is noted that these reduction strategies apply only to new or expanding dairies applying for discretionary county permitting that require analysis under CEQA. For expanding dairies, the measures are applicable only to the expansion, i.e., the dairy would not be required to retrofit existing equipment and/or operating procedures. As noted in Section 2.3.1 above, the County's land use authority is limited to proposed new and expanding facilities and does not extend to requiring changes to existing facilities.

As a sector, dairies and feedlots are inherently different from other industrial sectors. The majority of emissions from dairies and feedlots are animal-related emissions (i.e., manure decomposition and enteric digestion), as shown in Table 3, rather than process or combustion-related equipment typically associated with regulated industrial sectors.

~~No emissions reduction targets have been imposed on livestock emissions under the Scoping Plan, and no emissions reductions from livestock sources have been assumed in the Scoping Plan in order to meet statewide reduction targets. Under statewide legislation, including AB 32, SB 32 and SB 1383, reductions of methane emissions from dairy operations will continue to be voluntary at least through 2023.~~ This is due to the fact that relatively few emissions reduction strategies have been identified or accepted as feasibly reducing GHG emissions from animal-related sources. ~~Consequently, under the Scoping Plan, only voluntary and incentive-based programs, principally the voluntary use of manure digester systems supported by monetary incentives, are considered.~~ Under SB 1383, such dairy methane emissions reduction strategies are to continue to be voluntary in order to ensure that incentives, subsidies and market-based mechanisms remain available.

~~Why the Focus on Dairies?~~

~~Feedlot-related cattle emissions are much lower than dairies in Tulare. In contrast to dairies, beef manure is collected in feedlots. Beef animals are fed a different ration, with the focus on increasing animal bulk. As a result, some dairy emissions reduction strategies will not be applicable to beef feedlots.~~

However, there are some GHG reduction strategies that may have the potential to reduce emissions from the future year scenario presented in Section 2. The policies and GHG reduction strategies considered for inclusion in the Dairy CAP were drawn from GHG emission reduction guidelines completed by the California Air Pollution Control Officer's Association (CAPCOA) as well as guidance set forth by local agencies. There are currently no existing CAPs specific for the agricultural sector

and thus this Dairy CAP was unable to draw on policies and reduction strategies used previously. The analysis of potential reduction strategies takes into consideration the feasibility of a given practice as to the sector overall and as to individual farms. These sources for this analysis include the following:

- CAPCOA: Quantifying Greenhouse Gas Mitigation Measures⁵¹
- SJVAPCD: Final Staff Report – Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act⁵²
- CNRA: CEQA Guidelines, Appendix F – Energy Conservation⁵³
- SLCP Strategy
- October 2015 Policy Memorandum submitted to ARB by the California Climate & Agriculture Network, entitled “Diversified Strategies for Reducing Methane Emissions from Dairy Operations”⁵⁴ also referred to as the CalCAN memo.

The feasibility of these reduction strategies is highly dependent on the management practices being used at a specific farm; a reduction strategy that is easily implemented at one dairy may be infeasible at another. ~~The~~ management practices are frequently chosen due to site-specific conditions that are unable to be changed. For example, a dairy in a location with crop land is unlikely (except in very specific circumstances) to adopt manure GHG reduction strategies that would require transporting the manure to an off-site facility for processing and then transporting it back to the farm. It would also be contraindicated to use any manure GHG reduction strategy that would impair or limit the end-use of the manure. As such, the GHG reduction strategies discussed herein are grouped into three categories:

- Category A (In Dairy CAP)

Although there is no typical dairy or feedlot, there are practices that are common to many facilities. Reduction strategies in this category are more

⁵¹ CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. Available at: <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>. Accessed April 2014.

⁵² SJVAPCD. 2009. Final Staff Report – Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act. Available at: <http://www.valleyair.org/Programs/CCAP/12-17-09/1%20CCAP%20-%20FINAL%20CEQA%20GHG%20Staff%20Report%20-%20Dec%2017%202009.pdf>. Accessed April 2014.

⁵³ California Natural Resources Agency. 2009. CEQA Guidelines Amendments. Appendix F – Energy Conservation. Available at: http://resources.ca.gov/ceqa/docs/Adopted_and_Transmitted_Text_of_SB97_CEQA_Guidelines_Amendments.pdf. Accessed April 2015.

⁵⁴ California Climate and Agriculture Network (CalCAN). 2015. Diversified Strategies for Reducing Methane Emissions from Dairy Operations. Available at: <http://calclimateag.org/wp-content/uploads/2015/11/Diversified-Strategies-for-Methane-in-Dairies-Oct.-2015.pdf>. Accessed April 2017.

likely to be feasible at a greater number of facilities due to the expected commonalities at farms. However, because of the varying nature of dairies and feedlots, the actual reduction in emissions that can be achieved will also be variable and site-dependent. Note that it is possible that reduction strategies in this category may not be applicable at certain facilities due to the specific management practices used.

A new or expanding dairy implementing all applicable Category A reduction strategies would be consistent with the Dairy CAP. If ~~a dairy finds~~ a particular Category A strategy ~~is not applicable would be infeasible or impracticable based on the specifics as~~ to their farm, a Category B strategy may be substituted ~~and, in which case~~ the dairy project would also be consistent with the Dairy CAP.

- Category B (Optional/Substitute Strategies in Dairy CAP)

Reduction strategies in this category may be implemented on some farms, but are not necessarily expected to be practicable or feasible at the majority of facilities. In addition, the actual reduction in emissions that can be achieved will also be variable and site-dependent. Reduction strategies in this category are considered equivalent to and can be substituted for specific Category A strategies; a new or expanding dairy implementing ~~such strategies~~ a Category B strategy as a substitute for a Category A strategy would be consistent with the Dairy CAP.

- Category C (Rejected as infeasible)

Reduction strategies in this category were considered for dairies and feedlots but ultimately rejected ~~(a. A~~ comprehensive list of the strategies considered, along with an explanation ~~on as to~~ why Category C strategies were rejected, is provided in Appendix C) ~~).~~

4.2 Reduction Strategies by Source

~~Table 4~~ Table 4 lists Category A and Category B GHG reduction strategies, and provides references to accepted methodologies to quantify the emission reductions that can be achieved with the reduction strategies discussed below:

Dairy Operation Strategies (designated "D")

This category of reduction strategies focuses on implementing practices designed to reduce animal- and manure-related emissions. Strategies include feed additives, ration formulation, and manure management approaches. Multiple methods exist to quantify reductions from these strategies.

Energy Conservation and Efficiency (designated "E")

Energy conservation and efficiency reduction strategies focus on decreasing the energy required during production. These strategies may include more efficient boilers and other energy systems, as well as replacing more fossil-fuel based energy sources with renewable energy.

Transportation (designated "T")

Transportation strategies include practices to reduce emissions from fossil-fuel based transportation. Strategies may reduce emissions off-site (e.g., employee trips) or on-site (e.g., farm equipment).

Water, Solid Waste, and Recycling (designated "R")

This category of reduction strategies focuses on practices designed to reduce GHG emissions related to water demand, solid waste processing, and use of other resources.

Miscellaneous (designated "M")

This category of reduction strategies represents additional reduction practices that are not otherwise included in the previous categories. These strategies range from simple practices such as planting trees (M1) to more extensive approaches such as innovative methods for reducing GHGs (M12).

Table 4. Potential GHG Reduction Strategies^{55,56}

Dairy CAP Strategy #	Quantification Reference Strategy #^[1]	Additional Details
Dairy Operations		
D1 ⁵⁷	C9.1.5	<p>Implement environmentally responsible purchasing of feed additives (i.e. use locally sourced materials and/or agricultural by-products such as citrus pulp and almond hulls, when available). This strategy must be consistent with <u>total mixed ration (TMR)</u> or other efficient feeding practices, as well as animal health and efficient milk production requirements.</p> <p>Multiple methodologies exist to calculate potential reductions from this strategy. These methodologies include, but are not limited to, a life cycle analysis of feed additives or an assessment of GHG emissions associated with the transportation of a specific feed mixture.</p>

⁵⁵ Table 4 includes strategies grouped as Categories A and B; thus, this table includes all strategies included in Tables 5 and 6.

⁵⁶ Potential reduction strategies only apply to new dairies or the new area of expanding dairies. The County land use authority does not extend to existing dairy operations, and existing dairy operations are not required to implement reduction strategies.

⁵⁷ Changing the diet fed to animals is not always feasible or warranted. As described in Section 1.1, Tulare County dairies average high efficiency levels in milk production per cow. Altering animal diet may have little effect on GHG emissions, particularly GHG emissions per unit of milk.

Table 4. Potential GHG Reduction Strategies^{55,56}

Dairy CAP Strategy #	Quantification Reference Strategy #^[1]	Additional Details
D2 ⁵⁷	C9.1.5	Use a Total Mixed Ration <u>TMR</u> or other efficient feeding strategy intended to maximize feed-to-milk production efficiency in lactating cows. Improving feed ration efficiency and advanced breeding has led to the production of milk at up to four times higher per cow than in the developing world, with much less methane produced per gallon of milk. Multiple methodologies exist to calculate potential reductions from this practice. These methodologies include, but are not limited to, calculating enteric GHG emissions resulting from a specific feed mixture.
D3	C9.1.4	Comply with nutrient management plans to reduce fertilizer requirements ^{f, [2], [3]}
D4	C9.1.4	Comply with air and water quality plans to achieve GHG benefits ^{f, [2], [4]}
D5 ⁵⁸	S9(3)	Use a digester, designed and operated per applicable strategies, and the captured methane for energy use to displace fossil fuel use. <u>Approaches include participation in centralized co-digestion facilities for processing dairy manure and landfill waste or in a digester project utilizing biomethane as a transportation fuel or for injection into natural gas pipelines or for electrical energy use on-site or off-site.</u> The ARB provides a Cap-and-Trade offset protocol to calculate the emissions reductions potential from digesters. ⁵⁹
D6	O(1)	Use of scrape systems to divert manure from lagoon to another part of the storage system, <u>including composting for on-site or off-site use.</u>
D7	O(2)	Increase solids separation <u>to reduce loading.</u>
<u>D8</u>	<u>11</u>	<u>Use pasture-based management practices. May be feasible for individual dairies or feedlots, but not as a County-wide approach.</u>
Energy Conservation and Efficiency		
E1	C2.1.1	The facility must meet or exceed Title 24 standards in climate-controlled buildings. (e.g., not barns)

⁵⁸ The economic and technological feasibility of digesters are highly dependent on the number of head and location of the farm, among other factors. Thus, a digester may not be feasible for a particular dairy.

⁵⁹ ARB. 2014. Compliance Offset Protocol – Livestock Projects Webpage. Available at: <http://www.arb.ca.gov/cc/capandtrade/protocols/livestock/livestock.htm>. Accessed August 2015.

Table 4. Potential GHG Reduction Strategies^{55,56}

Dairy CAP Strategy #	Quantification Reference Strategy #^[1]	Additional Details
E2	C2.1.3	Provide verification of energy savings (e.g., electric bills or third-party verification)
E3	C2.1.5	Install energy efficient boilers
E4	C2.1.4	Install energy efficient appliances (e.g., for milk cooling)
E5	C2.2.1	Install energy efficient area lighting
E6	C2.3.1	Establish onsite renewable or carbon-neutral energy systems – Generic <u>generic</u>
E7	C2.3.2	Establish onsite renewable energy systems - Solar <u>solar</u> power
E8	C2.3.3	Establish onsite renewable energy systems - Wind <u>wind</u> power
E9	C2.3.4	Utilize a combined heat and power system
E10	C2.3.6	Establish methane recovery on digester for power production
Transportation [20 or more new employees]		
T1	C3.2.6	Provide bike parking if requested by employees
T2	C3.4.5	Provide end of trip facilities if requested by employees (e.g., shower for people biking)
T3	C3.4.11	Provide employer-sponsored vanpool/shuttle
T4	C3.1.5	Increase transit accessibility if adjacent to public transportation
T5	C3.4.12	Implement intra-farm bike-sharing
T6	C3.7.2	Utilize alternative fueled vehicles on-site
T7	C3.7.3	Utilize electric or hybrid vehicles on-site
Water, Solid Waste, and Recycling [NOT Manure Management], <u>and Recycling</u>		
R1	C4.2.2	Adopt a water conservation practice (e.g., maximizing water reuse, leak checking/fixing, low flow fixtures, etc.). The expected water reduction as compared to no action should be documented.
R2	C4.2.3	Design water-efficient landscapes (decorative landscaping only)
R3	C4.2.4	Use water-efficient landscape irrigation systems (decorative landscaping only)

Table 4. Potential GHG Reduction Strategies^{55,56}

Dairy CAP Strategy #	Quantification Reference Strategy # ^[1]	Additional Details
R4	C4.2.5	Reduce turf in landscapes and lawns (decorative landscaping only)
R5	C4.2.6	Plant native or drought-resistant trees and vegetation (decorative landscaping only)
R6	C6.1.1	Institute or extend recycling and non-manure composting services
R7	C4.1.3	Use locally sourced well-or-surface water <u>supply</u>
R8	C4.2.1	Install low-flow water fixtures (decorative landscaping only)
R9	C6.1.2	Recycle demolished construction material
Miscellaneous		
M1	C7.1.1	Plant trees
M2	C8.1.1	Use alternative fuels for construction equipment (Construction <u>construction</u> only)
M3	C8.1.2	Use electric and hybrid construction equipment (Construction <u>construction</u> only)
M4	C8.1.3	Limit construction equipment idling beyond regulation requirements (Construction <u>construction</u> only) <u>or limit idling by delivery and other operational vehicles</u>
M5	C8.1.4	Institute a heavy-duty off-road vehicle plan
M6	C8.1.5	Implement a construction vehicle inventory tracking system (Construction <u>construction</u> only)
M7	C9.1.3	Implement a <u>Use local and sustainable building materials</u> (construction vehicle inventory tracking system (Construction only))
M8	C9.1.4	Additional BMPs in agriculture and animal operations ^[2]
M9	C9.1.5	Environmentally responsible purchasing ^[2]
M10	C9.1.6	Implement an innovative strategy for GHG reductions ^[2]
<u>M11</u>	<u>C9.1.7</u>	<u>Implement within the existing portion of a facility a Category A strategy or a Category B strategy to the same or greater extent as would have been done for the expanded portion.</u>

Table 4. Potential GHG Reduction Strategies^{55,56}

Dairy CAP Strategy #	Quantification Reference Strategy # ^[1]	Additional Details
<p>^[1] Reference reduction strategies beginning with “C” refer to CAPCOA’s Quantifying Greenhouse Gas Mitigation Measures, which includes detailed emission reduction methodology.</p> <p>^[2] Calculated on a case-by-case basis.</p> <p>^[3] An example is minimizing additional manmade fertilizer usage.</p> <p>^[4] Examples of reduction strategies in air and water quality plans with GHG reduction co-benefits include: recycling flush lane water, BMPs designed to reduce water leaks (and corresponding reduction in indirect GHG emissions from water usage).</p>		

4.3 Feasibility Assessment Considerations

As discussed in the above sections, reduction strategies that are feasible or practicable for one farm may be infeasible or impracticable for another farm; that is why a range of categorized strategies was included in the above tables. Although the feasibility or practicability assessment will be dependent on the specific reduction strategy and farm, there are several aspects that will likely be taken into account for all reduction strategies. These considerations include, but are not limited to, the following:

- Economics: Does implementing the reduction strategy place a financial burden on the farmer without sufficient benefits?
- Size: Does the reduction strategy make sense for the size of the farm?
- Consistency with existing management practices (expanding dairies): Is the reduction strategy consistent with the existing practices used on the farm so that animal health, efficient milk production, manure reuse potential, etc. are not compromised and that operational changes are not so burdensome as to be economically impracticable or infeasible?

4.4 Additional Considerations

Greenhouse gases are a global pollutant. As such, GHG emissions – and reductions – on a global scale must be considered; a reduction in California that results in a corresponding or greater increase elsewhere does not produce benefits on a global scale. This concept, referred to as “leakage”, refers to “a reduction in emissions of [GHGs] within the state that is offset by an increase in emissions of [GHGs] outside the state.”⁶⁰ One of the main considerations of AB 32 ~~was, SB 32 and SB 1383 is~~ minimizing leakage. In fact, the text of ~~the regulation~~ AB 32 commits ARB to

⁶⁰ AB 32. §38505(j).

~~minimizing~~minimize leakage when adopting regulations pursuant to the goals of the original regulation.^{61,62}

California dairies are more efficient in terms of GHG emissions per unit of milk than average U.S. dairies elsewhere (see Section 1.1). In addition, manure management policies mandated by the SJVAPCD and the Regional Water Quality Review Board result in less time for manure to remain in anaerobic conditions that are conducive to methane formation during decomposition than most other operations outside of California. Thus, if policies or other factors encourage dairies to move out of California or increase operations outside of California, then it is likely to result in an artificial decrease in the state inventory as the associated GHG emissions would simply shift to out-of-state facilities ~~(i.e., a concept called leakage).~~ Any regulations, practices, or programs that force dairies to move out of the state, thereby shifting the corresponding GHG emissions out of the state, would result in leakage and would conflict with the ~~goals~~objectives of AB 32. ~~The goal of this CAP, SB 32 and other similar SB 1383. This same consideration applies to regulations, practices, or programs, is thus to focus on ensuring that force dairies are in compliance with to move out of Tulare County, thereby shifting the stated goals of AB 32. corresponding GHG emissions to other counties.~~

All currently available emissions reduction strategies have been considered and analyzed. As discussed ~~above~~in Section 8, the Dairy CAP provides for ~~periodic updates~~a post-2023 examination of the Dairy CAP, consistent with funding availability, to reflect new developments. If new feasible methods of reducing GHG emissions from dairies and feedlots become available (e.g., new offset protocols), these new emissions reduction strategies will be considered and may be incorporated into future Dairy CAP updates as appropriate.

⁶¹ AB 32. §38562(b)(8).

⁶² SLCP Strategy, pages 64, 67, and 138. Available at: https://www.arb.ca.gov/cc/shortlived/meetings/03142017/final_slcp_report.pdf. Accessed April 2017.

5 CEQA Implications

As discussed above in Section 2.2.5, any project that requires discretionary action in California (defined in [CEQA Guidelines](#) §15378) is required to undergo a CEQA evaluation, with the corresponding requirements to assess impacts of GHGs. Any new or expanding dairy or feedlot requiring a discretionary action will be required to demonstrate that the facility has fulfilled CEQA requirements, including the requirements related to GHGs. This section discusses the requirements of new or expanding facilities and how they can use this Dairy CAP to fulfill CEQA requirements related to GHGs.

5.1 Approach to Cumulatively Considerable Level Assessment

One criterion used to assess potential significance of GHG emissions from projects is whether the project would “conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of [GHGs].”⁶³ This Dairy CAP was designed specifically to reduce GHG emissions from dairies and feedlots and to be consistent with State and Federal plans, policies, and regulations. Any new or expanding facility that can demonstrate consistency with this Dairy CAP can be expected to have less than significant impacts related to GHGs. Specifically, the approach proposed by this Dairy CAP is that a facility can fulfill CEQA requirements related to GHG emissions under one of two approaches:

1. Streamlined analysis: The facility (other than a new facility) has emissions that are below the streamlined analysis level and is implementing Dairy CAP GHG emission reduction strategies consistent with the Dairy CAP. An analysis must be done to determine consistency with this Dairy CAP. If the facility can demonstrate consistency with the Dairy CAP by showing that it has implemented reduction strategies from a defined checklist of GHG reduction practices (or ~~demonstrated~~ why ~~these practices~~ a specific applicable Category A reduction strategy would be impracticable or infeasible for the specific facility expansion and implements a substitute Category B reduction strategy), then the facility expansion does not need to undergo further analysis and the project is considered to have less than ~~significant cumulative impacts related to GHGs~~ cumulatively considerable GHG impact. The proposed checklist will include reduction strategies in Category A (see Section 4).
2. Project analysis: If the facility is a new dairy OR it is ~~an expanding~~ facility expansion with emissions in excess of the streamlined analysis level OR the facility is ~~an expanding~~ a facility expansion with emissions that are less than the streamlined analysis level and does not provide justification as to why the facility expansion cannot incorporate the applicable Dairy CAP-defined

⁶³ Office of Planning and Research (OPR). 2014. CEQA checklist. Section VII.b. Greenhouse Gases. Available at http://resources.ca.gov/ceqa/docs/2014_CEQA_Statutes_and_Guidelines.pdf. Appendix G. Environmental Checklist Form. Accessed April 2014.

GHG reduction strategies (i.e., Category A strategies~~), or provides a justification but does not substitute a Category B reduction strategy for the applicable Category A strategy.~~ then the facility expansion must perform additional individualized analyses to indicate whether the project has cumulatively significant impacts related to GHGs. All new facilities will be required to perform an individualized analysis of GHG emissions.

5.2 Cumulatively Considerable Streamlined Analysis Level Determination

An element of a CAP is to establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable. The determination of a level of cumulative contribution due to GHG emissions from dairies and feedlots is informed by the statewide AB 32 Scoping Plan for 2020 and the 2017 Scoping Plan Update and the SLCP Strategy, which ~~is~~are designed to identify the sources of GHG emissions reductions that will achieve the reductions mandated by AB 32. ~~The Scoping Plan has been devised to periodically re-examine, SB 32 and re-evaluate its requirements based on evolving information and available data concerning the effectiveness of its strategies and requirements in timely meeting AB 32's GHG reduction goals. The current version of the Scoping Plan~~SB 1383. SB 1383 takes into consideration the GHG emissions from the dairy sector through the year 20202023 and requires no reductions in animal-related emissions prior to 2024.

For purposes of the Dairy CAP, a list of emissions reductions approaches has been formulated to address GHG emissions from new and expanding dairies. A streamlined climate change evaluation under CEQA would be applied to those projects (other than a new facility) with emissions below a certain level of GHG emissions and which also incorporate available feasible GHG reductions approaches consistent with the Dairy CAP. All new dairies, as well as any expanding facilitiesfacility expansions that either exceed the streamlined analysis level or that fail to incorporate the applicable emissions reduction approaches, would be required to perform an individualized CEQA review.

In order to define the emissions level for purposes of performing an individualized CEQA review, a review was performed of existing CEQA significance thresholds as well as criteria for other GHG programs. Note that this streamlined analysis level is not intended to constitute a threshold for determining significance of GHGs under CEQA. Instead, this streamlined analysis level is designed to be one aspect of an approach to determining the level of analysis required under CEQA. This review and proposed definitions are discussed below.

5.2.1 Existing Criteria and Thresholds

Thresholds for GHGs have been identified for significance under CEQA as well as for other programs requiring reporting. These thresholds can generally be grouped into three categories: numerical thresholds, efficiency metrics, and improvements over a Business-as-Usual (BAU) scenario.

- Numerical thresholds – This type of threshold is often referred to as a “bright-line threshold” and consists of a specific numerical threshold that applies to certain types of projects. For example, the South Coast Air Quality Management District (AQMD) has defined a numerical threshold of 10,000 MT CO₂e/year applicable for stationary source projects. Any relevant project with GHG emissions above this threshold is considered to have significant impacts from GHGs. Numerical thresholds have been defined by multiple AQMDs and considered applicable primarily to industrial stationary source projects. There are also several numerical thresholds that have been specifically defined for land use projects.

In addition to CEQA significance thresholds, there are multiple numerical thresholds used to determine inclusion in other GHG-related programs, such as ARB’s Cap-and-Trade Program and Mandatory Reporting Program.

- Efficiency metrics – This type of threshold compares project emissions normalized over a service population to a defined threshold. For example, the Bay Area AQMD has defined a service population efficiency metric of 4.6 MT CO₂e/service population/year. The efficiency metric is calculated by quantifying the project’s annual GHG emissions and normalizing by the service population (typically residents and employees). If the project’s calculated metric is greater than the defined threshold, then the project is considered to have significant impacts from GHGs. The efficiency metrics thresholds defined by AQMDs to date have only been applied to land use development projects; no efficiency metrics thresholds have been defined for industrial projects.

Because these thresholds have only been defined for land use development projects, these thresholds were rejected for purposes of this Dairy CAP.

Although these thresholds are rejected for purposes of this Dairy CAP, efficiency metrics could serve a useful role in the dairy industry. As discussed in Section 1.1, one type of efficiency metric, e.g., GHG emissions per unit of milk produced, provides useful information on how farms have improved over time. These efficiency metrics will continue to provide useful information and future Dairy CAPs may wish to consider their use. However, they are not used for purposes of this Dairy CAP.

- Improvements compared to BAU – This type of threshold requires that a project show a defined percent reduction compared to a BAU scenario for a determination of less than significant. For example, the SJVAPCD has set a 29% reduction compared to BAU as the threshold for significance for CEQA projects that do not meet other requirements. This requires that a project proponent define a BAU scenario and calculate expected emissions from this scenario. If the project emissions demonstrate a 29% reduction as compared to BAU emissions, then the project is considered to be less than significant for GHG emissions.

A BAU scenario is the set of conditions reasonably expected to occur, taking into account current laws and regulations, but in the absence of additional GHG reduction measures. In addition, as discussed in Section 3, the majority of emissions from dairies and feedlots are animal-related whereas the majority of potential reduction measures focus on other emissions sources. Livestock-related emissions reductions strategies under the [AB 32 Scoping Plan for 2020 and the 2017 Scoping Plan Update](#) include no required reductions and are limited exclusively to voluntary, incentive-based programs [through at least 2023](#) due to the unavailability of feasible measures to reduce these types of emissions. Because of the lack of feasible emissions reduction strategies for livestock-related emissions as well as the consequent difficulty in defining a BAU scenario for a dairy or feedlot, defined percent reduction thresholds were rejected for the purposes of this Dairy CAP.

A summary table of the existing criteria and thresholds discussed above are provided in Appendix D.

5.2.2 Streamlined Analysis Level

As described in Section 1.2, CEQA Guidelines for GHG emissions reduction plans, such as this Dairy CAP, have been developed by OPR and adopted by the CNRA. The guidelines (CEQA Guidelines ~~section §~~15183.5) specify that a plan for the reduction of GHG emissions should include or address specific elements. One of these elements includes:

- Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable.

As discussed above, both the efficiency metrics thresholds and BAU thresholds were rejected, and the review focused on the numerical thresholds. A streamlined analysis level of 25,000 MT CO₂e/year was chosen because:

- It is consistent with ARB's Cap-and-Trade program as well as with USEPA's Mandatory Reporting Rule;
- Per the USEPA's Mandatory Reporting Rule, it covers approximately 85 to 90% of emissions and the majority of large emitters;
- ARB's Mandatory Reporting Rule (10,000 MT CO₂e/year) currently excludes emissions from livestock manure management (Of note, the USEPA's Mandatory Reporting Rule also currently excludes emissions from livestock manure management (Subpart JJ));
- A threshold of 10,000 MT CO₂e/year has been defined as a CEQA significance threshold in other jurisdictions. As stated above, the streamlined analysis level in this Dairy CAP is not intended, nor is it meant to be used, as a significance threshold under CEQA. Using a threshold that has instead been used to determine applicability of other GHG [emissions reduction](#) programs, [such as](#)

ARB's Cap-and-Trade program and USEPA's Mandatory Reporting Rule, was deemed to be more consistent with the CEQA Guidelines streamlining process.

5.3 Proposed CEQA Checklist

Table 5 lists the Category A reduction strategies, which new or expanding dairies or feedlots must (1) incorporate into their facility to the extent applicable based on the or (2) provide justification as to why the given strategy is ~~not feasible~~impracticable or infeasible for the facility.

Table 6 lists the Category B reduction strategies, which new or expanding dairies or feedlots must consider for implementation at the facility. It is anticipated that a facility may choose to replace a reduction strategy in Table 5 with a strategy in Table 6 to provide operational flexibility in reducing GHG emissions. In addition, if expanding facilities are not able to implement Category A reduction strategies, or substitute Category B strategies, in the expansion, the facility may choose to utilize strategy M11 to implement an equal number of Category A or B strategies within the **existing** portion of the facility to the same or greater extent as would have been done for the expanded portion.

Table 5. Category A Reduction Strategies for Implementation at New or Expanding Facilities Consistent with the Dairy CAP		
Checklist #	Reference # (Appendix C)	Reduction Strategies
Dairy Operations		
D1	C9.1.5	Implement environmentally responsible purchasing of feed additives (i.e. use locally sourced materials and/or agricultural by-products such as citrus pulp and almond hulls, when available). This measure must be consistent with TMR or other efficient feeding strategies, as well as animal health and efficient milk production requirements.
D2	C9.1.5	Use a Total Mixed Ration TMR or other efficient feeding strategy intended to maximize feed-to-milk production efficiency in lactating cows.
D3	C9.1.4	Comply with nutrient management plans to reduce fertilizer requirements (i.e., GHG emissions associated with fertilizer production and transportation)
D4	C9.1.4	Comply with air and water quality plans to achieve GHG benefits (e.g., less water usage)
Energy		
E1	C2.1.1	The farm must meet or exceed Title 24 standards in climate-controlled buildings (e.g., not barns)
E2	C2.1.3	Provide verification of energy savings (e.g., electric bills or third-party verification)
E3	C2.1.5	Install energy efficient boilers

Table 5. Category A Reduction Strategies for Implementation at New or Expanding Facilities Consistent with the Dairy CAP		
Checklist #	Reference # (Appendix C)	Reduction Strategies
E4	C2.1.4	Install energy efficient appliances (e.g., for milk cooling)
E5	C2.2.1	Install energy efficient area lighting
Transportation [20 or more new employees]		
T1	C3.2.6	Provide bike parking if requested by employees
T2	C3.4.5	Provide end of trip facilities if requested by employees (e.g., shower for people biking)
Water, Solid Waste, and Recycling (if available and not prohibited by USDA, CDFA, or other government agencies)		
R1	C4.2.2	Adopt a water conservation strategy
R2	C4.2.3	Design water-efficient landscapes (decorative landscaping only)
R3	C4.2.4	Use water-efficient landscape irrigation systems (decorative landscaping only)
R4	C4.2.5	Reduce turf in landscapes and lawns (decorative landscaping only)
R5	C4.2.6	Plant native or drought-resistant trees and vegetation (decorative landscaping only)

Table 6. Category B Reduction Strategies for Consideration at New or Expanding Facilities (may be used as substitutes for Category A Strategies)		
Checklist #	Reference # (Appendix C)	Measure <u>Reduction Strategies</u>
Dairy Operations		
D5	S9(3)	Use a digester, designed and operated per applicable standards, and the captured methane for energy use to displace fossil fuel use. <u>Approaches include participation in centralized co-digestion facilities for processing dairy manure and landfill waste or in a digester project utilizing biomethane as a transportation fuel or for injection into natural gas pipelines or for electrical energy use on-site or off-site.</u>
D6	O(1)	Use of scrape systems to divert manure from lagoon to another part of the storage system, <u>including composting for on-site or off-site use.</u>
D7	O(2)	Increase solids separation <u>to reduce loading.</u>

Table 6. Category B Reduction Strategies for Consideration at New or Expanding Facilities (may be used as substitutes for Category A Strategies)		
Checklist #	Reference # (Appendix C)	MeasureReduction Strategies
<u>D8</u>	<u>11</u>	<u>Use pasture-based management practices. May be feasible for individual dairies or feedlots, but not as a Countywide approach.</u>
Energy		
<u>E6</u>	<u>C2.3.1</u>	<u>Establish onsite renewable or carbon-neutral energy systems - generic</u>
E6 <u>E7</u>	C2.3.2	Establish onsite renewable energy systems - Solar <u>solar</u> power
E7 <u>E8</u>	C2.3.3	Establish onsite renewable energy systems - Wind <u>wind</u> power
E8 <u>E9</u>	C2.3.4	Utilize a combined heat and power system
E9 <u>E10</u>	C2.3.6	Establish methane recovery on digester
Transportation		
T3	C3.4.11	Provide employer-sponsored vanpool/shuttle
T4	C3.1.5	Increase transit accessibility if adjacent to public transportation
T5	C3.4.12	Implement intra-farm bike-sharing
T6	C3.7.2	Utilize alternative fueled vehicles on-site
T7	C3.7.3	Utilize electric or hybrid vehicles on-site
Water, Solid Waste, and Recycling		
R6	C6.1.1	Institute or extend recycling and composting services
R7	C4.1.3	Use locally sourced well or surface water <u>supply</u>
R8	C4.2.1	Install low-flow water fixtures (decorative landscaping only)
R9	C6.1.2	Recycle demolished construction material
Miscellaneous		
M1	C7.1.1	Plant trees
M2	C8.1.1	Use alternative fuels for construction equipment (Construction <u>construction</u> only)
M3	C8.1.2	Use electric and hybrid construction equipment (Construction <u>construction</u> only)

Table 6. Category B Reduction Strategies for Consideration at New or Expanding Facilities (may be used as substitutes for Category A Strategies)		
Checklist #	Reference # (Appendix C)	Measure<u>Reduction Strategies</u>
M4	C8.1.3	Limit construction equipment idling beyond regulation requirements (Construction <u>construction</u> only) <u>or limit idling by delivery and other operational vehicles</u>
M5	C8.1.4	Institute a heavy-duty off- Road <u>road</u> vehicle plan (Construction <u>construction</u> only)
M6	C8.1.5	Implement a construction vehicle inventory tracking system (Construction <u>construction</u> only)
M7	C9.1.3	Use local and sustainable building materials (Construction <u>construction</u> only)
M8	C9.1.4	Additional BMPs in agriculture and animal operations
M9	C9.1.5	Environmentally responsible purchasing
M10	C9.1.6	Implement an innovative strategy for GHG Reductions <u>reductions</u>
<u>M11</u>	<u>C9.1.7</u>	<u>Implement within the existing portion of a facility a Category A strategy or a Category B strategy to the same or greater extent as would have been done for the expanded portion.</u>

6 Implementation and Monitoring

The Tulare CAP discusses implementation and monitoring, and this Dairy CAP will be subject to the relevant provisions in that document- pertaining to operational activities common to any use or industry. As discussed throughout this document, because of the differences inherent ~~to in~~ the dairy sector that have been described previously in the document, ~~setting a quantitative mandated~~ reduction target ~~does not make sense~~ would be inconsistent with the state legislation that provides for only voluntary reductions in animal-related emissions prior to 2024. However, it is important to track the progress of the dairy industry related to the goal of this Dairy CAP, namely maintaining the efficiency of milk production and, when possible, implementing GHG emissions reduction strategies. As such, this document proposes using a voluntary benchmark to track the progress of the County's dairy sector in that regard. This approach is consistent with the continued voluntary nature of emissions reduction strategies for dairies under state law.

Voluntary benchmarks have been formulated in recognition of the voluntary reductions under state law and the availability of new funding opportunities to support and incentivize those voluntary efforts. For example, existing state subsidies and incentive-based programs (e.g., AB 1613, which allocates \$50 million to support voluntary emissions reductions projects) provide opportunities for voluntary animal-related emissions reductions for new and expanding dairies as well as existing dairies. These voluntary benchmarks have been devised based upon emissions reduction projects that may be funded through available state incentives and subsidies and are dependent on voluntary efforts by dairies and project developers.

Any numerical target for such a voluntary benchmark is difficult to project given the variables likely to affect the number and scope of emissions reduction projects within the County through 2023. Recognizing these difficulties, the voluntary benchmark target for this Dairy CAP has been based upon existing funding opportunities, the assumed percentage of funding available to Tulare County, and assumed GHG emissions reductions per dollar of funding, as described below. Monitoring progress compared to the voluntary benchmark target would be a useful measure of the effectiveness of subsidies and incentives in realizing potential reductions.

While the \$50 million earmarked under AB 1613 for projects to reduce animal-related emissions provides initial funding, it is possible that such funding for construction of dairy digester and other projects will continue in future years.⁶⁴ It is reasonable to assume that Tulare County dairies and project developers will compete effectively to qualify for a significant share of any such funds for specific

⁶⁴ SLCP Strategy, pages 67-68. Available at: https://www.arb.ca.gov/cc/shortlived/meetings/03142017/final_slcp_report.pdf. Accessed April 2017.

projects. In fact, if Tulare County's share is commensurate with its ratio of dairy cows, which is approximately 27.3% of the state's dairy cattle population according to CDFA's "California Dairy Statistics Annual 2015 Data," it could garner more than a quarter of the AB 1613 funds to reduce emissions from dairies.⁶⁵ This would significantly boost opportunities to see reductions in dairy GHG emissions from existing dairies (as well as dairy expansions and new dairies).

Digester projects are anticipated to compete for this funding more favorably than other methane reduction projects due to the high methane emissions reductions return on each dollar invested. Based on a 2015 analysis by Ramboll Environ, emissions reductions from dairy digesters over the first ten years of operation are estimated to occur at approximately one metric ton of carbon dioxide equivalent per \$7 of public funds invested.⁶⁶ Stated another way, each \$70 invested in digester projects would enable the reduction of the dairy GHG emissions inventory by one metric ton per year.

The initial benchmark target through 2023 has been projected based on the following assumptions: (a) the continuation of similar annual amounts of state funding in years 2017 to 2021, for total funding of \$300 million (including the initial \$50 million under AB 1613), which is not a certainty; (b) such state funding has a 10% administrative cost, (c) Tulare County projects receiving a 27.3% share of those funds, a ratio consistent with its share of the total statewide dairy cow population; (d) the construction, completion and operation of those funded projects by no later than 2023, and (e) each \$70 invested enables the reduction of GHG emissions by one metric ton per year.

Applying these assumptions above, the benchmark target for these voluntary emissions reductions within the County by 2023 would be approximately 1.05 million metric tons of GHG emissions per year. If those same metrics are applied solely to the initial 2016 funding of \$50 million under AB 1613, the annual emissions reductions within the County would approximate 176,000 metric tons of GHG emissions.

The initial voluntary benchmark target utilizes both of these projections. That initial voluntary benchmark target is subject to possible review to reflect the actual pace and number of voluntary projects that are initiated and implemented as these subsidy programs evolve and, as noted, may be adjusted over the course of time as these voluntary efforts progress.

Although this Dairy CAP focuses on new and expanding dairies, the County will also track the implementation of Category A and B ~~measures~~reduction strategies on

⁶⁵ California Department of Food and Agriculture. 2015. California Dairy Statistics Annual. 2015 Annual Data. Available at: https://www.cdfa.ca.gov/dairy/pdf/Annual/2015/2015_Statistics_Annual.pdf. Accessed April 2017.

⁶⁶ "Overview of Dairy Digester Greenhouse Gas Reduction Cost-Benefit Analysis," by Ramboll Environ, December 2015, <http://dairycare.com/sites/default/files/Digester%20memo%20151216.pdf>

existing dairies. Often, existing, well-established dairies are in better financial condition to implement new practices that are outside the purview of “typical” operating scenarios on a dairy. It is important to account for reductions that occur at existing dairies, even if the existing dairies are not required to implement any of the reduction strategies discussed herein. Thus, ~~implementation and~~ monitoring will apply to existing dairies as well as new and expanding dairies.

The following are suggestions for periodic monitoring and review of the implementation of the Dairy CAP:

- Number of dairy permitting projects: A review of dairy permitting projects in Tulare County will be completed every five years ~~-,~~ consistent with funding availability but in no event later than 2024. This review will monitor the number of new and expanding dairies that are permitted using the two possible approaches described in Section 5.1.
- Ease of permitting approaches: As part of the review described above, an evaluation of the ease of using the two possible approaches will be obtained from the perspective of the County’s permitting section as well as the project applicant.
- Analysis of reduction strategies: As part of that review, Tulare County staff will enumerate the number of Category A and B strategies that have been implemented on new, expanding, and existing dairies ~~-,~~ based upon a review of ACFP Annual Compliance Reports for existing dairies and Mitigation Monitoring and Reporting Programs for new dairies and dairy expansions. To the extent possible and subject to funding availability, staff will also estimate the potential reductions that have been achieved ~~-, either by using the default methodologies referenced in Table 5 or~~ by using site-specific information when available from the farmer. Those estimates of quantified emissions reductions will be utilized to gauge the progress in meeting the voluntary emissions reduction benchmark targets.

In addition, consistent with the timetable established under SB 1383 and the SLCP Strategy, the County will re-examine the Dairy CAP post-2023 as provided in Section 8.

7 Future Project GHG and Climate Change Evaluations

This Dairy CAP is intended to serve as a GHG reduction plan for the purpose of evaluating and addressing impacts of GHG emissions and climate change from future projects (CEQA Guidelines §15183.5). Because the Dairy CAP is intended to reduce the climate change impacts from new or expanding dairies and feedlots to a less than cumulatively considerable level, consistency of a future project with the Dairy CAP may be used to evaluate a project's GHG-related impacts. Projects that are determined to be consistent or in compliance with the ~~emission~~emissions reduction strategies and policies of the Dairy CAP, as discussed in Section 5, are presumed to have a less than significant impact on climate change. (See CEQA Guidelines §15064.4(b)(3))

Thus, a new or expanding dairy classified as requiring a ~~Project Analysis~~project analysis (i.e., not eligible for streamlined CEQA compliance) must complete a site-specific GHG evaluation that complies with the ~~three~~applicable CEQA requirements ~~as defined by OPR:~~

- ~~• The, including the~~ extent to which the project ~~supports or includes applicable reduction strategies, or advances the actions identified in the Climate Action Plan;~~
- ~~• The consistency of the project~~complies with ~~the emissions reduction targets set by the Climate Action Plan;~~⁶⁷ ~~and~~
- ~~• The extent to which the Dairy CAP requirements (CEQA Guidelines section 15064.4(b)). (The project analysis would interfere~~be performed consistent with ~~implementation of Climate Action Plan strategies, practices, or actions.~~

~~the requirements of ACFP Policy 2.5.4).~~ As described in Section 5.1, a facility is classified as requiring a ~~Project Analysis~~project analysis if:

- The facility is a new dairy or feedlot, OR
- The facility expansion has emissions above the streamlined analysis level of 25,000 MTCO₂e, OR
- The facility expansion does not provide justification for why the facility ~~does not~~expansion cannot incorporate the applicable Category A GHG reduction ~~measures (or, if applicable, substituted strategies based on the scope of the expansion, or provides a justification but does not implement a substitute~~ Category B ~~measures)~~reduction strategy for each such Category A strategy.

⁶⁷~~Because the Scoping Plan expressly rejects setting required emissions reductions from dairies and cattle feedlots and does not specify any required emissions reduction targets for the livestock-rearing sector, reduction targets are not identified other than to the extent that voluntary, incentive-based programs are adopted.~~

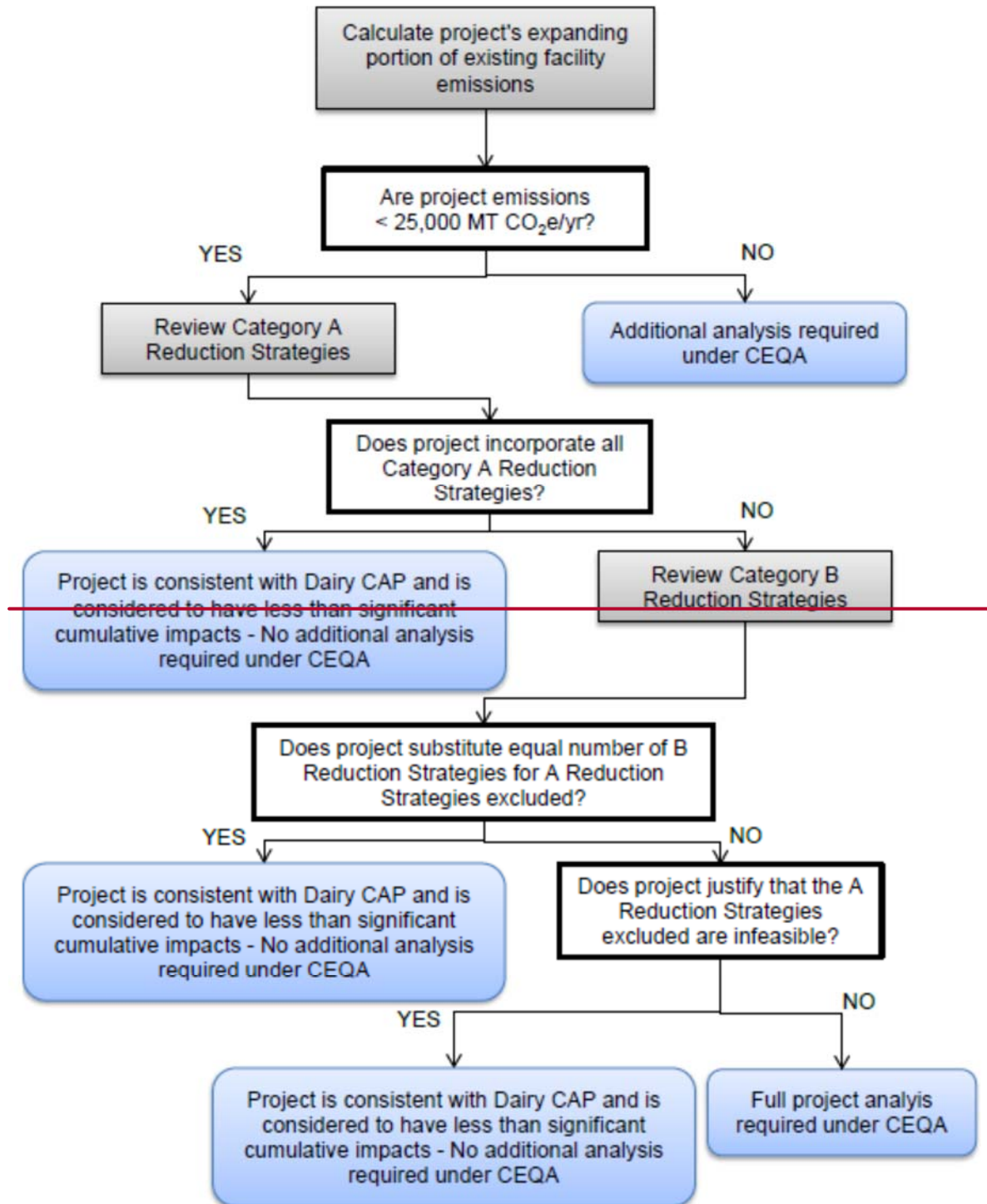
This classification indicates that the project MAY have cumulatively ~~significant~~considerable impacts related to GHGs and additional CEQA analysis must be done.

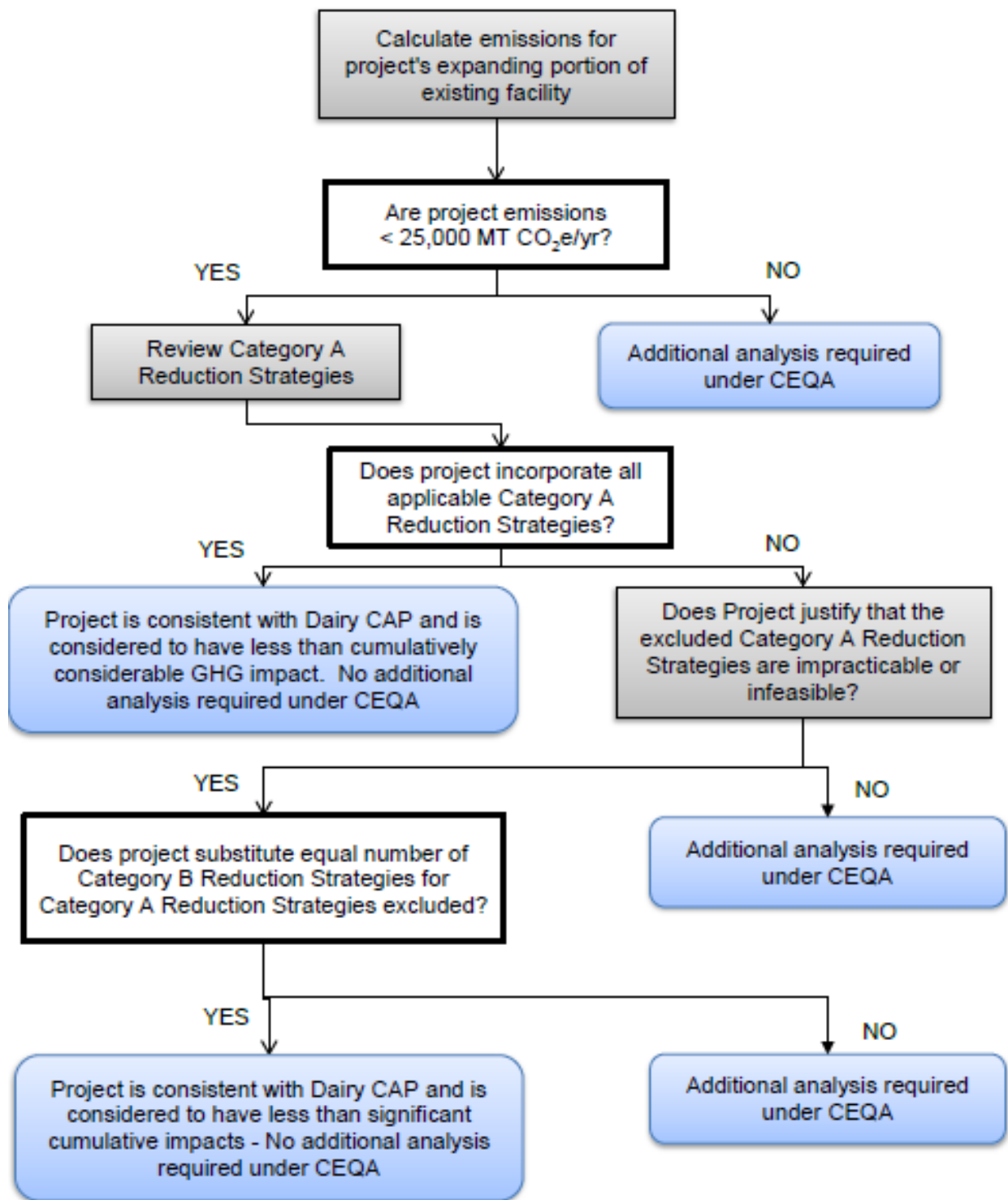
A proposed project's CEQA environmental review that ~~references~~utilizes this Dairy CAP for GHG emissions and climate change impact analysis for streamlined CEQA compliance must identify the requirements specified in the Dairy CAP that apply to the project. If the applicable ~~measures~~reduction strategies are not otherwise binding and enforceable, they ~~must~~would be incorporated as ~~mitigation measures~~conditions of approval for the project. (The streamlined CEQA compliance procedures would be consistent with the requirements of ACFP Policy 2.5.3.)

If Tulare County initially determines that a proposed project is not consistent with the Dairy CAP, it will be necessary to evaluate other project design and/or mitigation measures to make the project consistent with the Dairy CAP, or further analyze climate change impacts for significance. If a project cannot be shown to be consistent with the Dairy CAP, an environmental impact report (EIR) analysis (i.e., alternatives discussion and analysis, additional mitigation assessment, etc.) may be required.

Figure 1 illustrates this approach to determining whether an ~~expanding~~expansion facility is consistent with the Dairy CAP or would require additional CEQA analysis. All new dairies will be required to perform a ~~Project Analysis~~project analysis under CEQA.

Figure 1. Flow Chart Illustrating Method of Determining Required Level of Analysis for CEQA for ~~Expanding Facilities~~ Facility Expansions.





8 Future ~~Updates~~ Related Actions

At this time, the feasible approaches to reducing animal-related GHG emissions are limited. ~~As~~The County, as the location of a significant portion of dairy production operations statewide and, indeed, nationwide, ~~the County is,~~ consistent with funding available, committed to participating at all levels in promoting ~~any available and developing~~ programs to facilitate feasible GHG emissions reductions strategies for the dairy sector.

The most promising technology for addressing animal-related GHG emissions is the implementation of digesters. Under the AB 32 Scoping Plan for 2020 reductions and the SLCP Strategy for SB 32 and AB 1383 2030 reductions, dairy digesters are identified as a voluntary approach to reduce GHG emissions until at least 2024 in large part due to economic infeasibility in the absence of significant subsidies, cooperation from local utilities in providing feasible and extended energy purchase terms, and infrastructure coordination and bundling of individual dairies. ~~The~~As noted in Section 6, state subsidies and incentive-based programs, including AB 1613, provide funding sources for both dairy digesters and other animal-related emissions reduction strategies.

Consistent with the funding availability, the County is committed to spearheading efforts to tap into state and federal subsidy programs, to monitor new developments at the state level relative to dairy emissions and emissions reduction strategies, to provide support and education to promote the opportunities presented by state funding and to optimize participation by dairies within the County, to establish pilot programs, to streamline permitting requirements ~~and waive fees~~ for digester projects and other emissions reduction strategies, to track and document the GHG emissions reductions and effectiveness of digesters, and to solicit and maintain an inventory of interested dairies. Specific initiatives by the County may include the following:

- ~~Digester Permitting — Consideration of an ordinance similar to that adopted by Kern County to provide by-right permitting for dairy digesters less than 10 MW.~~
- ~~Property Tax Equity — Consider adoption of regulations similar to those applicable to solar projects providing property tax incentives for dairy digester projects.~~
- Incentivize Funding – ~~Establish~~ Consideration of County policies by resolution to actively coordinate with ARB, CEC, and CDFA to encourage continued and increased availability of incentive funding (via cap-and-trade revenues, including AB 1613 funding sources) to allow construction of dairy digesters in the County, to identify appropriate incentives for dairy digester projects in the County, and to ensure that dairies within the County have maximum access to these opportunities.

- Dairy Digester Information Officer – Designate within the County’s Resource Management Agency a Dairy Digester Information Officer whose duties will include:
 - Maintaining an inventory of operating dairy digesters in the County;
 - Maintaining current information on dairy digester incentive programs, opportunities, and application deadlines;
 - Distributing via email to interested parties updates on dairy digester and other emissions reduction strategies incentives; and
 - Co-sponsoring with Dairy Cares, Tulare County Farm Bureau, University of California Cooperative Extension, and other organizations an annual fair or symposium for dairy farmers that provides up-to-date information on digesters, digester and other emissions reduction strategies and related technologies, and digester incentives, while providing access to digester developers, lenders, investors, utilities, engineering firms, and energy companies.

These efforts are designed to promote the County and its dairy sector as an optimal location for digester investment and development.

In addition, consistent with funding availability, the County will monitor the implementation of the 2016 legislation as it relates to dairy methane emissions and will conduct a post-2023 examination of the Dairy CAP to determine whether the Dairy CAP has been superseded by the enactment of state regulations that mandate emissions reductions, and to assess whether modifications are needed in order to reduce the possibility of duplication of or conflicts with state level actions. To the extent that the Dairy CAP may be superseded by state regulations, the Conformance Checklist in Appendix A of the ACFP may be modified to reflect the state regulations in order to reduce the possibility of duplication of or conflicts with state level actions, and the County may continue to implement Policies 2.5-3 and 2.5-4 of the ACFP.

9 References

- California Air Pollution Control Officers Association (CAPCOA). 2010. Quantifying Greenhouse Gas Mitigation Measures. August. Available at: <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>. Accessed April 2014.
- Capper, J.L., R.A. Cady, and D.E. Bauman. 2009. The environmental impact of dairy production: 1944 compared with 2007. *J. Anim. Sci.* doi. 10.2527/jas.2009-1781.
- CARB. 2008. Climate Change Scoping Plan. December. Available at: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. Accessed April 2014.
- CARB. 2011. Attachment D. Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document. August 19. Available at: http://www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf. Accessed April 2014.
- CARB. 2011. Compliance Offset Protocol Livestock Projects. Capturing and Destroying Methane from Manure Management Systems. October 20. Available at: <http://www.arb.ca.gov/regact/2010/capandtrade10/coplivestockfin.pdf>. Accessed April 2014.
- Office of Planning and Research (OPR). OPR. 2011. Climate Action Planning. Local Government Roundtable Questions and Answers. June 20. Available at: <http://opr.ca.gov/docs/capfaqs.pdf>. Accessed May 2014.
- OPR. 2014. CEQA Statute and Guidelines. Appendix G. Environmental Checklist Form. Available at http://resources.ca.gov/ceqa/docs/2014_CEQA_Statutes_and_Guidelines.pdf. Accessed April 2014.
- San Joaquin Valley Air Pollution Control District (SJVAPCD). 2009. Final Staff Report. Addressing Greenhouse Gas Emissions Impacts under the California Environmental Quality Act. December 17. Available at: <http://www.valleyair.org/Programs/CCAP/12-17-09/1%20CCAP%20-%20FINAL%20CEQA%20GHG%20Staff%20Report%20-%20Dec%2017%202009.pdf>. Accessed April 2014.
- SJVAPCD. 2009. Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA. December 17. Available at: <http://www.valleyair.org/programs/CCAP/12-17-09/3%20CCAP%20-%20FINAL%20LU%20Guidance%20-%20Dec%2017%202009.pdf>. Accessed April 2014.
- SJVAPCD. 2009. District Policy. Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency. December 17. Available at: <http://www.valleyair.org/programs/CCAP/12-17-09/2%20CCAP%20-%20FINAL%20District%20Policy%20CEQA%20GHG%20-%20Dec%2017%202009.pdf>. Accessed April 2014.
- Tulare County. 2000. Animal Confinement Facilities Plan. Phase I: Dairy/Bovine Animal Confinement Facilities. March. Available at: <http://generalplan.co.tulare.ca.us/documents/GP/001Adopted%20Tulare%20County%2>

0General%20Plan%20Materials/110Part%20I%20Voluntary%20Elements%20Chapters%206,%2012%20and%2015/002CHP%2012%20Animal%20Confinement%20Facilities%20Plan%202000/GPA%2099-05%20ANIMAL%20CONFINEMENT%20FACILITIES%20PLAN.pdf. Accessed April 2014.

Tulare County. 2010. Climate Action Plan. County of Tulare Resource Management Agency. Prepared by Michael Brandman Associates. Available at: <http://generalplan.co.tulare.ca.us/>. Accessed April 2014.

Tulare County. 2012. Zoning Ordinance. Section 16: Variances and Special Use Permits. Available at: <http://www.tularecounty.ca.gov/rma/index.cfm/linkservid/1C5E7F91-D023-9522-33FFE2177EE408DE/showMeta/0/>. Accessed April 2014.

U.S. Department of Agriculture (USDA). National Agricultural Statistics Service (NASS). <http://www.nass.usda.gov/>. Accessed May 2014.

USDA. Natural Resources Conservation Service. 2008. Agricultural Waste Management Field Handbook. Chapter 4. Agricultural Waste Characteristics. Available at: <http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17768.wba> Accessed April 2015.

U.S. Environmental Protection Agency (USEPA). 2015. Greenhouse Gas Reporting Program webpage. Resources by Subpart. Available at: <http://www.epa.gov/ghgreporting/reporters/subpart/index.html>. Accessed August 12, 2015.).

Appendix A

Emission Calculations

Appendix A. Dairy and Feedlot Emissions Calculations for Manure Decomposition and Enteric Fermentation

Table A-1. Feedlot Cattle Head counts

Category	Total Cattle	Other Cattle ^[a]
California (2012) ^[b]	5,350,000	1,816,164
Base Year (2012) ^[b]	1,030,000	133,886
Future Year (2023) ^[c]	1,195,357	155,380

Notes:

^[a] This category is assumed to include all cattle other than milking cows, replacement dairy heifers (0-24 months), and dairy calves (see Table A-3).

^[b] California Agricultural Statistics for 2013. Available at:

http://www.nass.usda.gov/Statistics_by_State/California/Publications/California_Ag_Statistics/index.asp

^[c] The Future Year population is projected from the Base Year assuming a 1.5% annual growth rate.

Table A-2. Methane and Nitrous Oxide Emissions Beef Cattle - Enteric Digestion and Manure Management

Source	Enteric Digestion	Manure Management	
	CO ₂ e (MMT CO ₂ e/yr)		
California (2012) ^[a]	3.1	0.40	
	CH ₄ (MT CH ₄ /yr)	CH ₄ (MT CH ₄ /yr)	N ₂ O (MT N ₂ O/yr)
California (2012) ^[a]	123,207	5,269	905
Base Year (2013) ^[b]	9,083	388	67
Future Year (2023) ^[b]	10,541	451	77
	CO ₂ e (MT CO ₂ e/yr) ^[c]	CO ₂ e (MT CO ₂ e/yr) ^[c]	
California (2012) ^[a]	3,080,184	401,499	
Base Year (2013) ^[b]	227,068	30,399	
Future Year (2023) ^[b]	263,522	35,279	

^[a] California populations and methane emissions are from the CARB 2000-2012 GHG Inventory for the year 2012. Data available here: http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_by_ipcc_00-12_2014-03-24.xlsx Accessed April 2015.

^[b] CARB uses the same methodology that EPA uses to estimate emissions from enteric fermentation and manure management. As such, this table assumes that Tulare emissions are proportional to the California emissions based on population.

^[c] CO₂e = carbon dioxide equivalent emissions, which is the sum of all emissions after multiplying by their global warming potentials (GWPs). GWP is 25 for CH₄ and 298 for N₂O (Table A-1, 40 CFR Part 98).

Abbreviations:

CFR - Code of Federal Regulations

CH₄ - methane

CO₂e - carbon dioxide equivalents

GWP - global warming potential

IPCC - Intergovernmental Panel on Climate Change

lbs - pounds

MT - metric tonne

yr - year

Table A-3. Dairy Cattle Head Counts

Category	Dairy Cows	Dairy Heifers 0-12 mo	Dairy Heifers 12-24 mo	Dairy Calves
California (2012) ^[a]	1,780,000	245,322	588,161	920,353
Base Year (2013) ^[b]	543,431	137,985	148,928	65,770
Future Year (2023) ^[b]	630,674	160,137	172,837	76,329

Notes:

^[a] California populations and methane emissions are from the CARB 2000-2012 GHG Inventory.^[b] The Base Year cattle populations are assumed to be the 2011 Tulare cattle populations. The Future Year cattle populations are projected assuming a 1.5% annual growth rate.**Table A-4. Methane Emissions from Enteric Fermentation - Dairy Cattle**

Category	Dairy Cows	Dairy Heifers 0-12 mo	Dairy Heifers 12-24 mo	Dairy Calves
CO₂e (MMT CO₂e/yr)				
California (2012) ^[a]	6.641	0.281	1.017	0.282
CH₄ (kg CH₄/yr)				
California (2012) ^[a]	265,623,543	11,240,117	40,681,265	11,270,084
Base Year (2013) ^[b]	81,094,420	6,322,171	10,300,886	805,379
Future Year (2023) ^[b]	94,113,385	7,337,137	11,954,599	934,676
CO₂e (MT CO₂e/yr)^[c]				
California (2012)	6,640,589	281,003	1,017,032	281,752
Baseline (2013)	2,027,360	158,054	257,522	20,134
Future Year (2023)	2,352,835	183,428	298,865	23,367

Notes:

^[a] California populations and methane emissions are from the CARB 2000-2012 GHG Inventory for the year 2012. Data available here: http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_by_ipcc_00-12_2014-03-24.xlsx Accessed April 2015.^[b] CARB uses the same methodology that EPA uses to estimate emissions from enteric fermentation. As such, this table assumes that Tulare methane emissions are proportional to the California methane emissions based on population.^[c] CO₂e = carbon dioxide equivalent emissions, which is the sum of all emissions after multiplying by their global warming potentials (GWPs). GWP is 25 for CH₄ (Table A-1, 40 CFR Part 98).

Abbreviations:

CARB - California Air Resources Board

CFR - Code of Federal Regulations

CH₄ - methaneCO₂e - carbon dioxide equivalents

GHG - greenhouse gas

GWP - global warming potential

kg - kilogram

mo - months old

MT - metric tonne

yr - year

Table A-5. Dairy Cattle Head Counts

Category	Dairy Cows	Dairy Heifers
Base Year (2013) ^[a]	534,633	352,683
Future Year (2023) ^[a]	620,463	409,303

Notes:

^[a] The Base Year cattle populations are assumed to be the 2011 Tulare cattle populations. The Future Year cattle populations are projected assuming a 1.5% annual growth rate.

Table A-6. Methane Emissions from Manure Management - Dairy Cows

	Base Year (2013)			Future Year (2023)						
	CH _{4,man} (kg CH ₄ /yr) ^[a]	V _{ex} (kg/yr) ^[b]	WMS*N _{animals} (animal) ^[c]	CH _{4,man} (kg CH ₄ /yr) ^[a]	V _{ex} (kg/yr) ^[b]	WMS*N _{animals} (animal) ^[c]	VS (kg VS/animal/yr) ^[d]	B ₀ (m ³ CH ₄ /kg VS) ^[e]	MCF (%) ^[f]	c ₁ (kg/m ³) ^[g]
Anaerobic digester	519,273	18,057,107	6,374	602,638	20,956,010	7,397	2,833	0.24	0.181	0.662
Anaerobic lagoon	104,734,878	881,293,371	311,081	121,549,102	1,022,776,936	361,023	2,833	0.24	0.748	0.662
Daily spread	126,968	159,828,502	56,417	147,351	185,487,502	65,474	2,833	0.24	0.005	0.662
Deep pit	82,721	1,568,222	554	96,001	1,819,986	642	2,833	0.24	0.332	0.662
Dry lot	0	0	0	0	0	0	2,833	0.24	0.015	0.662
Liquid/slurry	16,133,214	305,853,583	107,961	18,723,253	354,955,570	125,293	2,833	0.24	0.332	0.662
Pasture	24,229	10,166,642	3,589	28,119	11,798,804	4,165	2,833	0.24	0.015	0.662
Solid storage	876,051	137,847,860	48,658	1,016,693	159,978,070	56,469	2,833	0.24	0.04	0.662
Total	122,497,334	--	534,633	142,163,157	--	620,463	--	--	--	--
Total (MMT CO ₂ e/yr) ^[h]	3.1			3.6						

Table A-7. Methane Emissions from Manure Management - Dairy Heifers

	Base Year (2013)			Future Year (2023)						
	CH _{4,man} (kg CH ₄ /yr) ^[a]	V _{ex} (kg/yr) ^[b]	WMS*N _{animals} (animal) ^[c]	CH _{4,man} (kg CH ₄ /yr) ^[a]	V _{ex} (kg/yr) ^[b]	WMS*N _{animals} (animal) ^[c]	VS (kg VS/animal/yr) ^[d]	B ₀ (m ³ CH ₄ /kg VS) ^[e]	MCF (%) ^[f]	c ₁ (kg/m ³) ^[g]
Anaerobic digester	0	0	0	0	0	0	1,255	0.17	0.181	0.662
Anaerobic lagoon	0	0	0	0	0	0	1,255	0.17	0.748	0.662
Daily spread	26,903	47,811,006	38,096	31,222	55,486,624	44,212	1,255	0.17	0.005	0.662
Deep pit	0	0	0	0	0	0	1,255	0.17	0.332	0.662
Dry lot	653,028	386,842,083	308,241	757,866	448,946,030	357,726	1,255	0.17	0.015	0.662
Liquid/slurry	144,546	3,868,660	3,083	167,751	4,489,738	3,577	1,255	0.17	0.332	0.662
Pasture	6,913	4,095,416	3,263	8,023	4,752,897	3,787	1,255	0.17	0.015	0.662
Solid storage	0	0	0	0	0	0	1,255	0.17	0.04	0.662
Total	831,391	--	352,683	964,863	--	409,303	--	--	--	--
Total (MMT CO ₂ e/yr) ^[h]	0.02			0.02						

Notes:

^[a] Methane emissions estimated using Equation 1 (see below).

Equation 1 $CH_{4,man} = V_{ex} \times B_0 \times MCF \times c_1$

^[b] Volatile solids excreted estimated using Equation 2 (see below).

Equation 2 $V_{ex} = VS \times (WMS \times N_{animals})$

^[c] Number of animals per waste management system. Assumes Tulare has the same distribution of waste management systems as California does (CARB Annex III.B.)

^[d] Volatile solids excreted per animal (CARB Annex III.B.)

^[e] Maximum methane producing capacity (CARB Annex III.B.)

^[f] Methane conversion factor (CARB Annex III.B.)

^[g] Conversion factor representing density of methane at 25°C (CARB Annex III.B.)

^[h] CO₂e = carbon dioxide equivalent emissions, which is the sum of all emissions after multiplying by their global warming potentials (GWPs). GWP is 25 for CH₄ (Table A-1, 40 CFR Part 98).

Abbreviations:

B₀ - maximum methane producing capacity

c₁ - density of methane at 25°C

CARB - California Air Resources Board

CFR - Code of Federal Regulations

CH_{4,man} - methane emissions from manure management

CO₂e - carbon dioxide equivalents

GWP - global warming potential

kg - kilogram

m³ - cubic meters

MCF - methane conversion factor

MMT - million metric tonnes

N_{animals} - animal population

V_{ex} - amount of volatile solids excreted in each WMS

VS - volatile solids production rate

WMS - waste management system

yr - year

Table A-8. Nitrous Oxide Emissions from Manure Management - Dairy Cows

	Dairy Cow Parameters						Base Year (2013)		Future Year (2023)	
	N _{ex} (g/yr) ^[a]	Direct N as N ₂ O (g N ₂ O-N/g) ^[b]	Volatilization fraction ^[c] (fraction)	Indirect N as N ₂ O, volatilized ^[d] (g N ₂ O-N/g)	Runoff fraction ^[e] (fraction)	Indirect N as N ₂ O, runoff ^[f] (g N ₂ O-N/g)	WMS*N _{animals} (animal) ^[g]	N ₂ O _{man} ^[h] (kg N ₂ O/yr)	WMS*N _{animals} (animal) ^[g]	N ₂ O _{man} ^[h] (kg N ₂ O/yr)
Anaerobic digester	157,605	0	0.43	0.01	0.008	0.0075	6,374	6,881	7,397	7,986
Anaerobic lagoon	157,605	0	0.43	0.01	0.008	0.0075	311,081	335,841	361,023	389,758
Daily spread	157,605	0	0.10	0.01	0	0.0075	56,417	13,970	65,474	16,212
Deep pit	157,605	0.002	0.24	0.01	0	0.0075	554	603	642	700
Dry lot ^[i]	157,605	0.02	0.15	0.01	0.02	0.0075	0	0	0	0
Liquid/slurry	157,605	0.005	0.26	0.01	0.008	0.0075	107,961	204,772	125,293	237,646
Pasture	157,605	0	0.00	0.01	0	0.0075	3,589	0	4,165	0
Solid storage	157,605	0.005	0.27	0.01	0	0.0075	48,658	92,772	56,469	107,666
Total	--	--	--	--	--	--	534,633	654,839	620,463	759,967
Total (MMT CO ₂ e/yr) ^[j]								0.20		0.23

Table A-9. Nitrous Oxide Emissions from Manure Management - Dairy Heifers

	Dairy Heifer Parameters						Base Year (2013)		Future Year (2023)	
	N _{ex} (g/yr) ^[a]	Direct N as N ₂ O (g N ₂ O-N/g) ^[b]	Volatilization fraction ^[c] (fraction)	Indirect N as N ₂ O, volatilized ^[d] (g N ₂ O-N/g)	Runoff fraction ^[e] (fraction)	Indirect N as N ₂ O, runoff ^[f] (g N ₂ O-N/g)	WMS*N _{animals} (animal) ^[g]	N ₂ O _{man} ^[h] (kg N ₂ O/yr)	WMS*N _{animals} (animal) ^[g]	N ₂ O _{man} ^[h] (kg N ₂ O/yr)
Anaerobic digester ^[k]	69,044	0	0.43	0.01	0.008	0.0075	0	0	0	0
Anaerobic lagoon ^[k]	69,044	0	0.43	0.01	0.008	0.0075	0	0	0	0
Daily spread	69,044	0	0.10	0.01	0	0.0075	38,096	4,133	44,212	4,796
Deep pit ^[k]	69,044	0.002	0.24	0.01	0	0.0075	0	0	0	0
Dry lot	69,044	0.02	0.15	0.01	0.02	0.0075	308,241	723,898	357,726	840,114
Liquid/slurry	69,044	0.005	0.26	0.01	0.008	0.0075	3,083	2,561	3,577	2,973
Pasture	69,044	0	0.00	0.01	0	0.0075	3,263	0	3,787	0
Solid storage ^[k]	69,044	0.005	0.27	0.01	0	0.0075	0	0	0	0
Total	--	--	--	--	--	--	352,683	730,592	409,303	847,882
Total (MMT CO ₂ e/yr) ^[j]								0.22		0.25

Notes:

^[a] Nitrogen excreted per animal (CARB Annex III.B.)

^[b] Emission factor representing direct nitrogen as N₂O-N for the particular waste management system (CARB Annex III.B.)

^[c] Volatilization fraction of N for the animal group (CARB Annex III.B.)

^[d] Emission factor representing indirect nitrogen as N₂O-N for re-deposited volatilized N (CARB Annex III.B.)

^[e] Runoff fraction of N for the animal group (CARB Annex III.B.)

^[f] Emission factor representing indirect nitrogen as N₂O-N for runoff N (CARB Annex III.B.)

^[g] Number of animals per waste management system. Assumes Tulare has the same distribution of waste management systems as California does (CARB Annex III.B.)

^[h] N₂O emissions estimated using Equation 1 (see below).

Equation 1
$$N_2O = W_{ms} \times N_{animals} \times N_{excreted} \times [D_{EF} + (V_{frac} \times V_{EF}) + (R_{frac} \times R_{EF})] \times 1.5711$$

^[i] Data were not provided for dairy cows: dry lot; instead the data for heifers: dry lot were used.

^[j] CO₂e = carbon dioxide equivalent emissions, which is the sum of all emissions after multiplying by their global warming potentials (GWPs). GWP is 25 for CH₄ and 298 for N₂O (Table A-1, 40 CFR Part 98).

^[k] Data were not provided for dairy heifers: anaerobic digester, anaerobic lagoon, deep pit, or solid storage; instead the corresponding data for dairy cows were used.

Abbreviations:

CARB - California Air Resources Board

CFR - Code of Federal Regulations

CO₂e - carbon dioxide equivalents

g - gram

GWP - global warming potential

kg - kilogram

MMT - million metric tonnes

N - nitrogen

N₂O - nitrous oxide

N₂O_{man} - nitrous oxide emissions from manure management

N_{animals} - animal population

N_{ex} - nitrogen excreted per animal

WMS - waste management system

yr - year

Appendix B

Values Extracted from Analyses Completed for the Tulare County ACFP Update EIR

Administrative Draft

Table B-1. Project Level GHG Emissions without Mitigation (Metric Tons/Year)

Source	CO ₂	CH ₄	N ₂ O	HFC-23	CO ₂ e
Farm Equipment Exhaust	38,054	3	0	0.0	38,129
Farm Agricultural Soil	0	0	2,725	0.0	812,050
Farm Electricity Consumption	79,107	3	1	0.0	79,480
Dairy Equipment Exhaust	99,106	12	0	0.0	99,406
Truck Trips	23,137	0	0	0.0	23,137
Dairy Employee and Visitor Trips	14,882	3	3	0.0	15,851
Dairy Electricity Consumption	144,792	6	1	0.0	145,335
Dairy Refrigeration	0	0	0	4.3	63,640
Total	399,078	27	2,730	4.3	1,277,028

Notes:

1. Project level conditions represent existing conditions relative to a zero baseline. Existing conditions are from 2013 for Dairy Electricity Consumption and 2009 for all other sources.
2. Dairy emissions include support stock at heifer and calf ranches.
3. Farm emissions are associated with dairy and cattle ranch support crops.
4. Metric Ton = 1,000 kg = 1.1 short tons
5. CO₂e = carbon dioxide equivalent emissions, which is the sum of all emissions after multiplying by their global warming potentials (GWPs). GWPs are 1 for CO₂, 25 for CH₄, 298 for N₂O, and 14,800 for HFC-23 (Table A-1, 40 CFR Part 98).

Table B-2. Cumulative GHG Emissions without Mitigation (Metric Tons/Year)

Source	CO ₂	CH ₄	N ₂ O	HFC-23	CO ₂ e
Farm Equipment Exhaust	52,145	2	0	0.0	52,195
Farm Agricultural Soil	0	0	3731	0.0	1,111,838
Farm Electricity Consumption	108,340	5	1	0.0	108,763
Dairy Equipment Exhaust	135,303	7	0	0.0	135,478
Truck Trips	28,493	0	0	0.0	28,493
Dairy Employee and Visitor Trips	14,692	4	5	0.0	16,282
Dairy Electricity Consumption	170,925	7	2	0.0	171,566
Dairy Refrigeration	0	0	0	5.8	85,840
Total	509,898	25	3,739	5.8	1,710,455

Notes:

1. Cumulative conditions represent (10 year horizon) build out conditions with a 1.5% growth rate relative to a zero baseline.
2. Dairy emissions include support stock at heifer and calf ranches.
3. Farm emissions are associated with dairy and cattle ranch support crops.
4. Metric Ton = 1,000 kg = 1.1 short tons
5. CO₂e = carbon dioxide equivalent emissions, which is the sum of all emissions after multiplying by their global warming potentials (GWPs). GWPs are 1 for CO₂, 25 for CH₄, 298 for N₂O, and 14,800 for HFC-23 (Table A-1, 40 CFR Part 98).

Abbreviations:

CH₄ - methane

CO₂ - carbon dioxide

CO₂e - carbon dioxide equivalents

GHG - greenhouse gas

GWP - global warming potential

HFC-23 - fluoroform

kg - kilogram

N₂O - nitrous oxide

Appendix C

Summary of Potential Emissions Reduction Strategies

Administrative Draft

Appendix C: Potential Reduction Strategies

Categorization		A: Likely feasible, variable efficacy B: To be considered, variable efficacy C: Rejected as Infeasible		
Strategies		Category	Notes	Checklist #
California Air Pollution Control Officers Association (CAPCOA) ^[1]				
2.0 Energy^[2]				
2.1 Building Energy Use				
	2.1.1 Buildings Exceed Title 24 Building Envelope Energy Efficiency Standards By X%	A	See details in checklist	E1
	2.1.2 Install Programmable Thermostat Timers	C	This strategy is applicable to residences, not dairies/feedlots, and is rejected.	NA
	2.1.3 Obtain Third-party HVAC Commissioning and Verification of Energy Savings	A	See details in checklist	E2
	2.1.4 Install Energy Efficient Appliances	A	See details in checklist	E4
	2.1.5 Install Energy Efficient Boilers	A	See details in checklist	E3
2.2 Lighting				
	2.2.1 Install Higher Efficacy Public Street and Area Lighting	A	See details in checklist	E5
	2.2.2 Limit Outdoor Lighting Requirements	C	Outdoor lighting at dairies/feedlots is based on operational needs. Because of the lack of flexibility, this is rejected.	NA
	2.2.3 Replace Traffic Lights with LED Traffic Lights	C	This strategy is related to public infrastructure and is rejected.	NA
2.3 Alternative Energy Generation				
	2.3.1 Establish Onsite Renewable or Carbon-Neutral Energy Systems-Generic	B	See details in checklist	E6
	2.3.2 Establish Onsite Renewable Energy Systems-Solar Power	B	See details in checklist	E7
	2.3.3 Establish Onsite Renewable Energy Systems-Wind Power	B	See details in checklist	E8
	2.3.4 Utilize a Combined Heat and Power System	B	See details in checklist	E9
	2.3.5 Establish Methane Recovery in Landfills	C	Dairies/feedlots will not have a landfill and this strategy is rejected.	NA
	2.3.6 Establish Methane Recovery in Wastewater Treatment Plants	B	See details in checklist	E10
3.0 Transportation				
3.1 Land Use/Location				
	3.1.1 Increase Density	C	This strategy is expected to have a "[n]egligible impact in a rural context" and is rejected.	NA
	3.1.2 Increase Location Efficiency	C	This strategy is expected to have a "[n]egligible impact in a rural context" and is rejected.	NA
	3.1.3 Increase Diversity of Urban and Suburban Developments (Mixed Use)	C	This strategy is expected to have a "[n]egligible impact in a rural context" and is rejected.	NA
	3.1.4 Increase Destination Accessibility	C	This strategy is expected to have a "[n]egligible impact in a rural context" and is rejected.	NA
	3.1.5 Increase Transit Accessibility	B	See details in checklist	T4

Administrative Draft

Strategies		Category	Notes	Checklist #
	3.1.6 Integrate Affordable and Below Market Rate Housing	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and primarily "[a]ppropriate for residential and mixed-use projects". This strategy is rejected.	NA
	3.1.7 Orient Project Toward Non-Auto Corridor	C	This strategy is expected to be applicable in an "[u]rban and suburban context". This strategy is rejected.	NA
	3.1.8 Locate Project near Bike Path/Bike Lane	C	This strategy is expected to be applicable in an "[u]rban and suburban context". This strategy is rejected.	NA
	3.1.9 Improve Design of Development	C	This strategy is expected to have a "[n]egligible impact in a rural context" and is rejected.	NA
3.2 Neighborhood/Site Enhancements				
	3.2.1 Provide Pedestrian Network Improvements	C	Dairies/feedlots have very limited pedestrian traffic and this strategy is rejected.	NA
	3.2.2 Provide Traffic Calming Strategies	C	Dairies/feedlots have very limited pedestrian traffic and this strategy is rejected.	NA
	3.2.3 Implement a Neighborhood Electric Vehicle (NEV) Network	C	This strategy is primarily "[a]ppropriate for mixed-use projects" and is rejected.	NA
	3.2.4 Create Urban Non-Motorized Zones	C	This strategy is expected to be applicable in an "[u]rban context". This strategy is rejected.	NA
	3.2.5 Incorporate Bike Lane Street Design (on-site)	C	This strategy is expected to be applicable in an "[u]rban and suburban context". This strategy is rejected.	NA
	3.2.6 Provide Bike Parking in Non-Residential Projects	A	See details in checklist	T1
	3.2.7 Provide Bike Parking with Multi-Unit Residential Projects	C	This strategy is "[a]ppropriate for residential projects" and is rejected.	NA
	3.2.8 Provide Electric Vehicle Parking	C	This strategy would have only a negligible effect and is rejected as infeasible.	NA
	3.2.9 Dedicate Land for Bike Trails	C	This strategy is unrealistic, as dairies/feedlots are unlikely to be part of an adopted bikeway plan. This strategy is rejected.	NA
3.3 Parking Policy/Pricing				
	3.3.1 Limit Parking Supply	C	This strategy is expected to have a "[n]egligible impact in a rural context" and is rejected.	NA
	3.3.2 Unbundle Parking Costs from Property Cost	C	This strategy is expected to have a "[n]egligible impact in a rural context" and is rejected.	NA
	3.3.3 Implement Market Price Public Parking (On-Street)	C	This strategy is expected to have a "[n]egligible impact in a rural context" and is rejected.	NA
	3.3.4 Require Residential Area Parking Permits	C	This strategy is expected to be applicable in an "[u]rban context". This strategy is rejected.	NA

Administrative Draft

Strategies		Category	Notes	Checklist #
3.4 Commute Trip Reduction Programs				
3.4.1	Implement Commute Trip Reduction Program - Voluntary	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and to be "[n]eligible in a rural context". This strategy is rejected.	NA
	Implement Commute Trip Reduction Program – Required	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and to be "[n]eligible in a rural context". This strategy is rejected.	NA
3.4.2	Implementation/Monitoring	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and to be "[n]eligible in a rural context". This strategy is rejected.	NA
3.4.3	Provide Ride-Sharing Programs	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and to be "[n]eligible in a rural context". This strategy is rejected.	NA
3.4.4	Implement Subsidized or Discounted Transit Program	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and to be "[n]eligible in a rural context". This strategy is rejected.	NA
3.4.5	Provide End of Trip Facilities	A	See details in checklist	T2
3.4.6	Encourage Telecommuting and Alternative Work Schedules	C	Typical operations at dairies/feedlots do not allow for telecommuting or alternative work schedule. This strategy is rejected.	NA
3.4.7	Implement Commute Trip Reduction Marketing	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and to be "[n]eligible in a rural context". This strategy is rejected.	NA
3.4.8	Implement Preferential Parking Permit Program	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and is rejected.	NA
3.4.9	Implement Car-Sharing Program	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and to be "[n]eligible in a rural context". This strategy is rejected.	NA
3.4.10	Implement a School Pool Program	C	This strategy is "[a]ppropriate for residential and mixed-use projects" and is rejected for dairies/feedlots.	NA
3.4.11	Provide Employer-Sponsored Vanpool/Shuttle	B	See details in checklist	T3
3.4.12	Implement Bike-Sharing Programs	B	See details in checklist	T5
3.4.13	Implement School Bus Program	C	This strategy is primarily "[a]ppropriate for residential and mixed-use projects" and is rejected.	NA
3.4.14	Price Workplace Parking	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and to be "[n]eligible in a rural context". This strategy is rejected.	NA
3.4.15	Implement Employee Parking “Cash-Out”	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and to be "[n]eligible in a rural context". This strategy is rejected.	NA

Administrative Draft

Strategies		Category	Notes	Checklist #
3.5 Transit System Improvements				
	3.5.1 Provide a Bus Rapid Transit System	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and to be "[n]eligible in a rural context". It is "[a]ppropriate for specific or general plans" and is rejected.	NA
	3.5.2 Implement Transit Access Improvements	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and is rejected.	NA
	3.5.3 Expand Transit Network	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and is "[a]ppropriate for specific or general plans". This strategy is rejected.	NA
	3.5.4 Increase Transit Service Frequency/Speed	C	"Urban and suburban context" "Appropriate for specific or general plans"	NA
	3.5.5 Provide Bike Parking Near Transit	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and is rejected.	NA
	3.5.6 Provide Local Shuttles	C	This strategy is expected to be applicable in an "[u]rban and suburban context" and is rejected.	NA
3.6 Road Pricing/Management				
	3.6.1 Implement Area or Cordon Pricing	C	This strategy is applicable in a "[c]entral business district or urban center only" and is rejected for dairies/feedlots.	NA
	3.6.2 Improve Traffic Flow	C	Dairies/feedlots are primarily located in rural areas and do not impact the overall traffic flow. This strategy is not applicable for an individual facility and is rejected.	NA
	3.6.3 Required Project Contributions to Transportation Infrastructure Improvement Projects	C	Dairies/feedlots are primarily located in rural areas and do not impact large sections of the transportation infrastructure. This strategy is not applicable for an individual facility and is rejected.	NA
	3.6.4 Install Park-and-Ride Lots	C	Dairies/feedlots are primarily located in rural areas and do not require sufficient employees to justify a park-and-ride lot. This strategy is not applicable for an individual facility and is rejected.	NA
3.7 Vehicles				
	3.7.1 Electrify Loading Docks and/or Require Idling-Reduction Systems	C	Dairies/feedlots require the use of multiple delivery vehicles (e.g., animal feed, milk transportation, etc.). However, an individual facility often does not purchase or operate these vehicles and has no control over the selection of electric vehicles and thus the use of electrified loading docks. This strategy is not applicable for an individual facility and is rejected.	NA
	3.7.2 Utilize Alternative Fueled Vehicles	B	See details in checklist	T6
	3.7.3 Utilize Electric or Hybrid Vehicles	B	See details in checklist	T7

Administrative Draft

Strategies		Category	Notes	Checklist #
4.0 Water				
4.1 Water Supply				
	4.1.1 Use Reclaimed Water	C		NA
	4.1.2 Use Gray Water	C	Dairies/feedlots do not produce a large quantity of gray water and this strategy is rejected.	NA
	4.1.3 Use Locally Sourced Water Supply	B	See details in checklist	R7
4.2 Water Use				
	4.2.1 Install Low-Flow Water Fixtures	B	See details in checklist	R8
	4.2.2 Adopt a Water Conservation Strategy	A	See details in checklist	R1
	4.2.3 Design Water-Efficient Landscapes	A	See details in checklist	R2
	4.2.4 Use Water-Efficient Landscape Irrigation Systems	A	See details in checklist	R3
	4.2.5 Reduce Turf in Landscapes and Lawns	A	See details in checklist	R4
	4.2.6 Plant Native or Drought-Resistant Trees and Vegetation	A	See details in checklist	R5
5.0 Area Landscaping				
5.1 Landscaping Equipment				
	5.1.1 Prohibit Gas Powered Landscape Equipment	C	The equipment needed for landscaping at dairies/feedlots is minimal and this strategy is rejected.	NA
	5.1.2 Implement Lawnmower Exchange Program	C	This strategy is not applicable for an individual facility and is rejected.	NA
	5.1.3 Electric Yard Equipment Compatibility	C	The equipment needed for landscaping at dairies/feedlots is minimal and this strategy is rejected.	NA
6.0 Solid Waste				
6.1 Solid Waste				
	6.1.1 Institute or Extend Recycling and Composting Services	B	See details in checklist	R6
	6.1.2 Recycle Demolished Construction Material	B	See details in checklist	R9
7.0 Vegetation				
7.1 Vegetation				
	7.1.1 Urban Tree Planting	B	See details in checklist	M1
	7.1.2 Create New Vegetated Open Space	C		NA

Administrative Draft

Strategies		Category	Notes	Checklist #
8.0 Construction				
8.1 Construction				
	8.1.1 Use Alternative Fuels for Construction Equipment	B	See details in checklist	M2
	8.1.2 Use Electric and Hybrid Construction Equipment	B	See details in checklist	M3
	8.1.3 Limit Construction Equipment Idling beyond Regulation Requirements	B	See details in checklist	M4
	8.1.4 Institute a Heavy-Duty Off-Road Vehicle Plan	B	See details in checklist	M5
	8.1.5 Implement a Construction Vehicle Inventory Tracking System	B	See details in checklist	M6
9.0 Miscellaneous				
9.1 Miscellaneous				
	9.1.1 Establish a Carbon Sequestration Project	C	This strategy is not applicable for an individual facility and is rejected.	NA
	9.1.2 Establish Off-Site Mitigation	C		NA
	9.1.3 Use Local and Sustainable Building Materials	B	See details in checklist	M7
	9.1.4 Require Best Management Practices in Agriculture and Animal Operations	A/B	See details in checklist	D3, D4, M8
	9.1.5 Require Environmentally Responsible Purchasing	A/B	See details in checklist	D1, D2, M9
	9.1.6 Implement an Innovative Strategy for GHG Mitigation	B	See details in checklist	M10
	9.1.7 Implement a Category A or Category B strategy within existing portion of expansion project	B	See details in checklist	M11
10.0 General Plans				
10.1 General Plans				
	10.1.1 Fund Incentives for Energy Efficiency	C	This strategy is at the General Plan level and is not applicable to an individual facility. This strategy is rejected.	NA
	10.1.2 Establish a Local Farmer's Market	C	This strategy is at the General Plan level and is not applicable to an individual facility. This strategy is rejected.	NA
	10.1.3 Establish Community Gardens	C	This strategy is at the General Plan level and is not applicable to an individual facility. This strategy is rejected.	NA
	10.1.4 Plant Urban Shade Trees	C	This strategy is at the General Plan level and is not applicable to an individual facility. This strategy is rejected.	NA
	10.1.5 Implement Strategies to Reduce Urban Heat-Island Effect	C	This strategy is at the General Plan level and is not applicable to an individual facility. This strategy is rejected.	NA

Administrative Draft

Strategies		Category	Notes	Checklist #
San Joaquin Valley Air Pollution Control District (SJVAPCD) ^{[3], [4]}				
9(1)	All ruminant animal feed shall include at least 6% cottonseed, or, upon District approval, based on sufficient demonstration that use of cottonseed is not feasible, an equivalent substitute	C	The SJVAPCD specifies "that these examples of BPS are for illustrative purposes only, and should not be used by any lead agency as District-approved or sanctioned standards." In addition, this strategy is not feasible in practice and would create a fixed market for cotton seed. This strategy is rejected.	NA
9(2)	Manure from animal housing areas for mature cows shall be removed and transferred into appropriate treatment facilities at least four times a day...	C	Increasing the frequency at which barns are flushed or scraped has the potential to increase energy use by farm equipment. It also transports organic materials into treatment facilities (i.e. lagoons) more quickly, where they are more likely to produce methane sooner. This strategy is rejected.	NA
9(3) ^[2]	Collected manure shall be treated anaerobically in digesters or covered lagoons, designed and operated per NRCS standards, with captured methane used for energy recovery in a method that displaces current or required fossil fuel use...	B	See details in the checklist.	D5
Additional Measures ^[5]				
O(1)	Conversion of manure handling to scrape system.	B	Scrape systems divert manure from lagoons to another type of storage system, which can potentially reduce GHG emissions.	D6
O(2)	Increase solids separation	B	Mechanical separation of the solids from the manure has the potential to reduce GHG emissions.	D7
O(3)	Pasture-based management practices	B	See details in checklist	D8

Notes:

^[1] CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. August. Accessed at: <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>. Accessed on December 12, 2013.

^[2] This strategy is also consistent with CEQA, Appendix F: Energy Conservation.

^[3] SJVAPCD. 2009. Final Staff Report - Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act. December 17. Accessed at: <http://www.valleyair.org/programs/CCAP/12-17-09/1%20CCAP%20-%20FINAL%20CEQA%20GHG%20Staff%20Report%20-%20Dec%2017%202009.pdf>. Accessed on December 12, 2013.

^[4] Note that the staff report states "that these examples of BPS are for illustrative purposes only, and should not be used by any lead agency as District-approved or sanctioned standards."

^[5] The additional measures are based on recent advances in the scientific understanding of methods to reduce GHGs on dairies.

Appendix D

Summary of Significance Thresholds

Appendix D: Summary of Potential CEQA Significance Thresholds

Category	Jurisdictional Body	Bright-Line Limit (MT CO ₂ e/yr)	Service Population Efficiency Metric (MT CO ₂ e/sp/yr)	Improvement Over BAU Conditions	Significance for Threshold Basis	References
State	ARB (Cap & Trade)	25,000	N/A	N/A	<p>This applicability threshold is primarily for large industrial source categories. [§ 95811]</p> <p>The threshold of 25,000 MT CO₂e/yr is designed to 1) be consistent with USEPA's Mandatory Reporting Rule (which covers approximately 85-90% of emissions) and 2) cover the majority of large emitters.</p>	17 CCR §§ 95810-95814
State	ARB (Mandatory Reporting)	10,000	N/A	N/A	<p>This threshold applies to specific industrial source categories. Note that some industrial source categories must report regardless of emissions level.</p> <p>The following emission source is listed as an exclusion, "Fugitive methane and fugitive nitrous oxide emissions from livestock manure management systems described in 40 CFR Part 98, Subpart JJ, regardless of the magnitude of emissions produced." [§ 95101]. This exclusion is consistent with US EPA's current exclusion of manure management from mandatory reporting.</p>	17 CCR § 95101
Air District	Antelope Valley	100,000	N/A	N/A	Doesn't specify.	2011. Antelope Valley AQMD. California Environmental Quality Act (CEQA) and Federal Conformity Guidelines. August. Accessed online at: http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=2908 .
Air District	Bay Area	1,100 - land use development projects 10,000 - stationary source projects	4.6 - land use development projects	N/A	<p>Thresholds were removed from the 2012 updated CEQA Guidelines. Thresholds listed here are from the 2010 draft CEQA Guidelines.</p> <p>Excerpt from BAAQMD's website dated January 16, 2014 and checked on August 13, 2015, "...the Air District has been ordered to set aside the Thresholds and is no longer recommending that these Thresholds be used as a general measure of a project's significant air quality impacts."</p> <p>The Alameda County Superior Court issued a writ of mandate ordering BAAQMD to set aside these Thresholds. The writ and decision was overturned by the Court of Appeal of the State of California, although an appeal of the Court of Appeals decision is currently pending in the California Supreme Court. There is no ruling as of yet. In the interim, many Bay Area agencies continue to use the 2014 draft guidelines.</p>	<p>2012. Bay Area AQMD. California Environmental Quality Act Air Quality Guidelines. May. Accessed online at: http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_Final_May%202012.ashx?la=en.</p> <p>2010. Bay Area AQMD. California Environmental Quality Act Air Quality Guidelines. May. Accessed online at: http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/Draft_BAAQMD_CEQA_Guidelines_May_2010_Final.ashx?la=en.</p> <p>Excerpt: http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines</p>

Administrative Draft

Category	Jurisdictional Body	Bright-Line Limit (MT CO ₂ e/yr)	Service Population Efficiency Metric (MT CO ₂ e/sp/yr)	Improvement Over BAU Conditions	Significance for Threshold Basis	References
Air District	Eastern Kern	25,000 - stationary source projects	N/A	20%	Thresholds apply to stationary source projects. [page 4]	2012. Eastern Kern APCD. Eastern Kern Air Pollution Control District Policy. Addendum to CEQA Guidelines Addressing GHG Emission Impacts for Stationary Source Projects when Serving as Lead CEQA Agency. March 8. Accessed online at: http://www.kernair.org/Documents/CEQA/EKAPCD%20CEQA%20GHG%20Policy%20Adopted%203-8-12.pdf .
Air District	San Diego County	2,500 - land use development projects 10,000 - stationary source projects	4.32 - land use development projects	16% (updated for recession, but including RPS and Pavley in the BAU)	Per Table 4 in the guidelines, agriculture projects have the option of using the land use development threshold or the performance threshold. The stationary source threshold should be used for the portions of the project that involve stationary source emissions.	2013. San Diego County. County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements. Climate Change. November 7. Accessed online at: http://www.sdcounty.ca.gov/pds/advance/Guidelines_for_Determining_Significance_Climate_Change.pdf .
Air District	San Joaquin Valley	N/A	N/A	29% (based upon a point system)	Performance threshold applies to both stationary source and land use development projects. The District's approach relies on the use of performance based standards (Best Performance Standards [BPS]) to determine the significance of project specific GHG emission impacts. Note that no BPS have been defined specific to dairies.	2009. San Joaquin Valley APCD. District Policy. Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA when Serving as the Lead Agency. December 17. Accessed online at: http://www.valleyair.org/Programs/CCAP/12-17-09/2%20CCAP%20-%20FINAL%20District%20Policy%20CEQA%20GHG%20-%20Dec%2017%202009.pdf . 2009. San Joaquin Valley APCD. Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA. December 17. Accessed online at: http://www.valleyair.org/Programs/CCAP/12-17-09/3%20CCAP%20-%20FINAL%20LU%20Guidance%20-%20Dec%2017%202009.pdf .
Air District	San Luis Obispo	1,150 - land use development projects 10,000 - stationary source projects	4.9 - land use development projects	N/A	Land use development includes the following project types: residential, commercial, and public land uses and facilities. Stationary source projects include land uses that would accommodate processes and equipment that emit GHG emissions and would require a permit to operate. [page 3-6]	2012. San Luis Obispo APCD. CEQA Air Quality Handbook. A Guide for Assessing the Air Quality Impacts for Projects Subject to CEQA Review. April. Accessed online at: http://www.slocleanair.org/images/cms/upload/files/CEQA_Handbook_2012_v1.pdf .
Air District	Santa Barbara	10,000 - stationary source projects	N/A	N/A	Threshold is for stationary source projects. [page 1]	Santa Barbara County APCD. CEQA Significance Thresholds for GHGs - Questions and Answers. Accessed online at: http://www.sbcapcd.org/apcd/ceqa-ghg-faq.pdf .
Air District	South Coast (draft)	3,000 - mixed use residential/commercial 10,000 - industrial projects (FINAL)	2020 Target: 4.8 2035 Target: 3.0	No recommendation as of September 2010	3,000 MT CO ₂ e/yr for mixed use (3,500 MT CO ₂ e/yr for residential; 1,400 MT CO ₂ e/yr for commercial). 10,000 MT CO ₂ e/yr for mixed use.	2008. South Coast AQMD. Draft Guidance Document - Interim CEQA Greenhouse Gas (GHG) Significance Threshold. October. Accessed online at: http://www.aqmd.gov/hb/2008/December/081231a.htm .
Air District	Tehama	900 - land use development projects	N/A	25%	From the CAPCOA CEQA and Climate Change document. Based on general land use projects such as residential and commercial projects. [page 3-8]	2009. Tehama County APCD. Planning & Permitting Air Quality Handbook. Guidelines for Assessing Air Quality Impacts. December. Accessed online at: http://www.tehcoapcd.net/PDF/CEQA%20Handbook%20Dec%2009.pdf

Appendix C

Proposed Zoning Ordinance Amendment to Implement ACFP

ORDINANCE NO.

AN ORDINANCE AMENDING SECTION 2, SECTION 2.2, SUBSECTION B OF Part II OF SECTION 16, SUBSECTION G OF PART II OF SECTION 16, AND SECTION 22.1 AND DELETING SECTION 15.1 OF UNCODIFIED TULARE COUNTY ORDINANCE NO. 352 (COMMONLY KNOWN AS THE TULARE COUNTY ZONING ORDINANCE), PERTAINING TO THE DEFINITIONS OF BOVINES AND BOVINE FACILITIES, CLARIFYING THE LOCATIONS FOR BOVINE FACILITIES AND BOVINE FACILITY EXPANSIONS, PROVIDING THAT CERTAIN COMPLIANT BOVINE FACILITIES MAY BE CONSIDERED UNDER THE ADMINISTRATIVE SPECIAL USE PERMIT PROCESS AND ADDRESSING COMPLIANCE REPORTING AND MONITORING.

THE BOARD OF SUPERVISORS OF THE COUNTY OF TULARE ORDAINS AS FOLLOWS:

Section 1. “Section 2: Definitions” of the uncodified ordinance no. 352 (hereinafter referred to as the Tulare County Zoning Ordinance) is amended to add the following definitions after the definition of “Borrow Pit” and before the definition of “Building”:

Bovine or Bovine Animal: Dairy (including mature cows and support stock) and beef cattle and/or other similar ox-like animals.

Bovine Facility: A dairy, cattle feedlot or other confined animal facility for bovines.

Bovine Facility Expansion: Any expansion of either an existing bovine facility or a new bovine facility authorized by the County under Section 2.5 of the Animal Confinement Facilities Plan or any other applicable regulations.

Section 2. “Section 2: Definitions” of the Tulare County Zoning Ordinance is amended to add the following definition after the definition of “Commission” and before the definition of “Convalescent Homes”:

Compliant Bovine Facility: Each existing bovine facility which has obtained Waste Discharge Requirements (WDRs) from the California Regional Water Quality Control Board (RWQCB) via General Order R5-2007-0035 or via an individual order, and which has obtained a Permit to Operate from the San Joaquin Valley Air Pollution Control District (SJVAPCD) (unless expressly exempt from such permit), and which is in compliance with the permitted herd size as provided in the ACFP List.

Section 3. “Section 2: Definitions” of the Tulare County Zoning Ordinance is amended to add the following definition after the definition of “Exhibition” and before the definition of “Family”:

Existing Bovine Facility: Each of the bovine facilities existing in Tulare County as of December 31, 2013, as same may be expanded by a bovine facility expansion.

Section 4: “Section 2.2: Definitions Pertaining to Animal Confinement Facilities” of the Tulare County Zoning Ordinance is amended to delete the definition of “Animal Unit”.

///

Section 5: The definition of “Crop Acreage” in “Section 2.2: Definitions Pertaining to Animal Confinement Facilities” of the Tulare County Zoning Ordinance is amended to read:

CROP ACREAGE

Irrigable portion of lands serving and essential to a bovine facility, including wastewater conveyance ditches, areas used for wastewater discharge and for facility feed crops, excluding buildings, corrals and/or pens, feed and/or manure storage areas, lagoons/sumps, canals, waterways, and public road rights-of-way.

Section 6: Section 15.1 CONFINED ANIMAL FEEDING OPERATIONS is deleted.

Section 7: Subsection B of Part II of “Section 16: Variances and Special Use Permits” of the Tulare County Zoning Ordinance is amended to delete the use “Dairy” and add the use “Bovine Facility” after “Borrow pit” and before “Bowling Alley” to read:

Bovine Facility – A new bovine facility when more than 25 bovine animals are on the property at any time - AE-40, AF. An existing bovine facility or existing bovine facility expansion when more than 25 bovine animals are on the property at any time – A-E, AE-20, AE-40, AE-80, A-1, AF. Lands allocated to nutrient waste disposal for a new bovine facility – AE-20, AE-40, AE-80, AF. Lands allocated to nutrient waste disposal for an existing bovine facility or an existing bovine facility expansion - A-E, AE-20, AE-40, AE-80, A-1, AF.

Section 8: Subsection G of Part II of “Section 16: Variances and Special Use Permits” of the Tulare County Zoning Ordinance is hereby amended to add “Certain Compliant Bovine Facilities to the list of uses eligible for consideration under the Administrative Special Use Permit process.

Section 9: “Section 22.1 CONFINED ANIMAL FEEDING OPERATIONS COMPLIANCE REPORTING AND MONITORING” is amended to read:

SECTION 22.1 BOVINE FACILITIES COMPLIANCE REPORTING AND MONITORING

PURPOSE A.

It is the purpose of this Section to establish a program to monitor all bovine facilities for compliance with the policies of the Animal Confinement Facilities Plan (ACFP), an element of the Tulare County General Plan 2030 Update as such plans may be amended from time to time. In addition, monitoring shall include compliance with all land use entitlements approved by the County for such bovine facilities and with applicable mitigation measures of the Program Environmental Impact Report (PEIR) and provisions of the Dairy Climate Action Plan (Dairy CAP) adopted for the ACFP.

ANNUAL COMPLIANCE REPORT B.

The owner and operator of each bovine facility shall complete and submit an Annual Compliance Report (ACR) to the Resource Management Agency Director (“RMA Director”) in substantially the form and content set out in Appendix B to the ACFP as such form may be amended and updated from time to time by the RMA Director or his/her designee. Each ACR shall be submitted no later than July 15th of every year (or such other date set by the RMA Director upon

prior written notice to the owner or operator) upon forms furnished by the Tulare County Resource Management Agency. The ACR shall cover the preceding calendar year.

COMPLIANCE INSPECTIONS C.

The RMA Director shall schedule and conduct compliance inspections for bovine facilities to determine compliance with County regulations as provided in "Purpose A" and other matters as determined by the RMA Director. The goal shall be to schedule inspections so that all bovine facilities are inspected at least every (5) years. An annual compilation of all the compliance inspections shall be prepared by the Tulare County Resource Management Agency by August 1st of each year for the preceding calendar year and may include information from any applicable ACR. Inspections may be reflected in the ACFP List established in compliance with the ACFP. Section 10. The foregoing ordinance shall take effect thirty (30) days from the date of the passage hereof, and prior to the expiration of fifteen (15) days from the passage hereof [a summary] shall be published once in the _____, a newspaper printed and published in the County of Tulare, State of California, together with the names of the Board of Supervisors voting for and against the same.

THE FOREGOING ORDINANCE was passed and adopted by the Board of Supervisors of the County of Tulare, State of California, on the ____ day of _____, 20__, at a regular meeting of said Board duly and regularly convened on said day by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

COUNTY OF TULARE

By: _____
Chairman, Board of Supervisors

ATTEST: MICHAEL C. SPATA
County Administrative Officer/
Clerk of the Board of Supervisors

By: _____
Deputy Clerk

Appendix D

Proposed Criteria and Standards Resolution to Implement ACFP

1 **BEFORE THE PLANNING COMMISSION**
2 **COUNTY OF TULARE, STATE OF CALIFORNIA**
3

4 IN THE MATTER OF ADOPTION OF CRITERIA)
5 AND STANDARDS FOR ADMINISTRATIVE) RESOLUTION NO.
6 ACTION FOR CERTAIN COMPLIANT BOVINE)
7 FACILITIES)

8 Resolution of the Planning Commission of Tulare County recommending that the Board of
9 Supervisors adopt criteria and standards to be used in the administrative review and approval of
10 special use permits pertaining to certain compliant bovine facilities.

11 WHEREAS, the Planning Commission recommended by Planning Commission Resolution
12 No. ... on [...date ...] that the Tulare County Board of Supervisors certify a Final Program
13 Environmental Impact Report State Clearinghouse No. 2011111078 (hereinafter referred to as the
14 “EIR”); adopt CEQA findings of fact; adopt an updated Animal Confinement Facilities Plan
15 (hereinafter referred to as the “2017 ACFP”) updating and replacing Chapter 12 in Component C of
16 Part I of the Tulare County General Plan; and adopt a Dairy and Feedlot Climate Action Plan
17 (hereinafter referred to as the “Dairy CAP”), and
18

19 WHEREAS, the Tulare County Board of Supervisors will consider certifying the EIR,
20 consider adopting CEQA findings of fact, and consider adoption of the 2017 ACFP and Dairy CAP
21 during and after public hearing[s] on the same, and
22

23 WHEREAS, the 2017 ACFP provides a process for the County to deem existing bovine
24 facilities as compliant bovine facilities upon compliance with certain regulatory requirements, and

25 WHEREAS, the review and approval of administrative special use permits for certain
26 compliant bovine facilities by the Director of the Resource Management Agency through the
27 administrative process set forth in §16.II.G of the Tulare County Zoning Ordinance would provide a
28

1 process to document deemed approval of compliant bovine facilities and update existing special use
2 permits subject to the criteria and standards set forth below, and

3 WHEREAS, a public hearing was held and an opportunity for public comment on this matter
4 was provided at a regular meeting of the Planning Commission on [...date...] in conjunction with the
5 Planning Commission's review and consideration of the proposed 2017 ACFP and EIR, and

6 WHEREAS, the comments and questions raised at such public hearing are addressed in facts
7 and findings made in Planning Commission Resolution No. ...

8 NOW, THEREFORE, BE IT RESOLVED as follows:

9 This Planning Commission hereby establishes, contingent upon approval of the Tulare County
10 Board of Supervisors, the criteria, standards, policies and controls for those administrative special use
11 permits approving certain compliant bovine facilities when processed administratively in accordance
12 with §16.II.G of the Tulare County Zoning Ordinance.

13 1. This process shall only apply to those bovine facilities to be deemed compliant
14 pursuant to Section 2.1, particularly Policy 2.1-2, of the 2017 ACFP. For existing bovine facilities to
15 be deemed complaint, the existing bovine facilities must have, and report compliance with the
16 permitted herd sizes under, both validly issued Waste Discharge Requirements (WDRs) from the
17 Regional Water Quality Control Board (RWQCB) and a valid Permit to Operate from the San Joaquin
18 Valley Air Pollution Control District (SJVAPCD) as set out in Section 2.1 of the 2017 ACFP.

19 2. The Administrative Special Use Permit approval shall be contingent upon and shall not
20 take effect until any needed changes to the RWQCB's WDRs or to the SJVAPCD's Permit to Operate
21 applicable to the subject bovine facilities have been approved and been provided to County of Tulare
22 or until ten (10) days after the date of the Director's signed decision, whichever is later.

23 3. The Administrative Special Use Permit will automatically expire and become null and
24 void two (2) years after the use for which it was granted is discontinued or abandoned. However, upon
25 application by the applicant or his/her successor, the Director may extend the expiration date in
26 accordance with the procedures set forth in the Zoning Ordinance.

1 4. All standard conditions and all special conditions of approval of the Administrative
2 Special Use Permit must be complied with at all times in order to continue the use or uses allowed.
3 Compliance with such conditions is subject to review at any time.

4 5. The Administrative Special Use Permit approval shall be contingent upon and shall not
5 take effect until the applicant, at his own expense, has executed and filed with the County Recorder, a
6 certified copy of the decision of the Director granting said permit with a duly authorized acceptance,
7 in a form approved by County Counsel, endorsed thereon.

8 AND, BE IT FURTHER RESOLVED as follows:

9 The Planning Commission hereby recommends that the Board of Supervisors adopt these
10 criteria and standards for application by the Director in approving Administrative Special Use Permits
11 for certain existing bovine facilities to be deemed compliant under Section 2.1 of the 2017 ACFP
12 when processed administratively in accordance with §16.II.G of the Tulare County Zoning Ordinance,
13 and

14 The Planning Commission hereby recommends that the Board of Supervisors find that
15 adoption of these criteria and standards is part of the project described and evaluated in the EIR, so
16 that no additional CEQA compliance is required prior to their adoption.

17 The foregoing resolution was adopted on motion of Commissioner _____,
18 seconded by Commissioner _____, at a regular meeting of the Planning
19 Commission held on _____, 20____, by the following roll call vote:

20 AYES: _____

21 NOES: _____

22 ABSTAIN: _____

23 ABSENT: _____

24
25 ATTEST: TULARE COUNTY PLANNING COMMISSION

26 By: _____
27 , Secretary

28 * * * * *

JJR/2009196/7-29-2017/1064229

Appendix E

Draft Mitigation Monitoring and Reporting Program

APPENDIX E – DRAFT MITIGATION MONITORING AND REPORTING PROGRAM

Introduction

State and local agencies are required by Section 21081.6 of the California Public Resources Code and CEQA Guidelines Section 15097 to adopt a mitigation measure monitoring or reporting program when CEQA findings for EIRs are adopted.

Lead agencies are given broad latitude in developing programs to meet the requirements of Public Resources Code Section 21081.6. The mitigation monitoring and reporting program (MMRP) outlined in this document is based upon guidance issued by the Governor's Office of Planning and Research.

This MMRP establishes monitoring and reporting processes for mitigation measures identified in the Final Program EIR for the Tulare County Animal Confinement Facilities Plan, and Dairy and Feedlot Climate Action Plan. The MMRP lists the significant impacts identified in the EIR, the adopted mitigation measures that reduce each significant impact, the person or agency responsible for implementing the measures, and the agency or agencies responsible for monitoring and reporting on the implementation of the mitigation measures.

The MMRP

The Resource Management Agency (RMA) will ensure that all new or expanded dairy or feedlot facilities implement with the EIR mitigation measures. Compliance with Special Use Permit conditions as well as other conditions of project approval is enforced by RMA. The MMRP is presented in Table E-1.

Table E-1
Draft Mitigation Monitoring and Reporting Program

Impact	Mitigation Measures	Implementation	Monitoring	Timing
AESTHETICS				
Impact #3.1.3: Light and Glare	Mitigation Measure #3.1.3: Outdoor lighting at expanded or new dairies and other bovine facilities shall be designed and installed to direct all illumination downward and onsite.	Project applicant	Tulare County Resource Management Agency	Following project construction
AIR QUALITY				
Impact #3.3.1: Conflict with or Obstruct Implementation of any Applicable Air Quality Plan	Mitigation Measure #3.3.1: The County will require, as a component of the ACFP Annual Compliance Report, owners to submit evidence of full compliance with all pertinent SJVAPCD permits and regulations. If there is evidence of non-compliance, the County will notify the SJVAPCD and require the owner to submit a Corrective Action Plan.	Owner/operator Tulare County Resource Management Agency	Tulare County Resource Management Agency	Annual
Impact #3.3.2: Cause a Violation of any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation	Mitigation Measure #3.3.2: The County will require, as a component of the ACFP Annual Compliance Report, owners to submit evidence of full compliance with all pertinent SJVAPCD permits and regulations. If there is evidence of non-compliance, the County will notify the SJVAPCD and require the owner to submit a Corrective Action Plan.	Owner/operator Tulare County Resource Management Agency	Tulare County Resource Management Agency	Annual
Impact #3.3.3: Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant for Which the Project Region is Non-attainment Under an Applicable Federal or State Ambient Air Quality Standard	Mitigation Measure #3.3.3: The County will require, as a component of the ACFP Annual Compliance Report, owners to submit evidence of full compliance with all pertinent SJVAPCD permits and regulations. If there is evidence of non-compliance, the County will notify the SJVAPCD and require the owner to submit a Corrective Action Plan.	Owner/operator Tulare County Resource Management Agency	Tulare County Resource Management Agency	Annual

Impact	Mitigation Measures	Implementation	Monitoring	Timing
BIOLOGICAL RESOURCES				
Impact #3.4.1: Substantial Adverse Effect on Special Status Species	<p>Mitigation Measure #3.4.1: Each new dairy/other bovine facility development or expansion shall be evaluated by a wildlife biologist. If special status species are potentially present and could be affected by project activities, the County will require assessments of potential habitat for special-status species on proposed projects sites. Special status wildlife specifies surveys shall be conducted by a qualified biologist according to appropriate USFWS or DFW protocol and special status plant surveys shall be conducted according to the latest version of the California Native Plant Society and DFW protocols for each special status species that potentially occurs. If special status species are determined to be present and subject to impacts from project construction or operation, the County will require avoidance or substantial reduction of impacts to that habitat through feasible alternatives or mitigation measures, including the establishment of buffer areas and compensatory mitigation where unavoidable losses of occupied habitat would occur. Mitigation measures will be developed consistent with applicable state and federal requirements. For those species for which published mitigation guidance exists, mitigation measures will follow the guidance provided in these publications or provide a similar level of protection. If previous published guidance does not exist, mitigation will be developed in consultation with the appropriate agencies (USFWS or DFW). The County will require project applicants to obtain any required incidental take permits prior to project implementation.</p> <p>Mitigation approaches for specific special status species include the following:</p> <ul style="list-style-type: none"> ▪ Special status plants: In areas where special status plant species potentially occur, follow DFW survey and evaluation guidelines.³⁸ Avoid special plant species where possible by delineation and observing at least a 50-foot no disturbance buffer. ▪ California tiger salamander: In areas with seasonal wetlands suitable for breeding habitat for the California tiger salamander conduct survey according 	Project applicant	Tulare County Resource Management Agency	Pre-construction

Impact	Mitigation Measures	Implementation	Monitoring	Timing
	<p>to the USFWS 2003 protocol³⁹ or assume presence and either avoid take or apply for ITP.</p> <ul style="list-style-type: none"> ▪ Blunt-nosed leopard lizard: Conduct protocol level-surveys⁴⁰ in suitable habitat (grassland and shrub scrub habitat with required habitat elements such as small mammal borrows), and avoid take since species is fully protected. <p>Tulare County January 2016 Draft Environmental Impact Report 3.4 - 21</p> <ul style="list-style-type: none"> ▪ Swainson's hawk and nesting raptors: Conduct Swainson's hawk protocol surveys⁴¹ and either avoid take or apply for ITP. Mitigate consistent with DFW recommendations. ▪ Burrowing owl: Conduct surveys for the western burrowing owl if project occurs within suitable burrowing owl habitat (e.g., fallowed agricultural lands, native lands, undisturbed lands, levees of canal banks) or is situated within 250 feet of burrowing owl habitat. If ground disturbance will occur within 250 feet of a burrowing owl or burrowing owl burrow avoid or mitigate consistent with CDFW guidelines. ▪ San Joaquin antelope squirrel, Tipton kangaroo rat, and San Joaquin kit fox: Conduct protocol-level surveys consistent with most recent survey protocols and either avoid take or apply for ITP. Mitigate consistent with DFW recommendations. 			
Impact #3.4.2: Substantial Adverse Effect on any Riparian Habitat or Other Sensitive Community	Mitigation Measure #3.4.2: Applicants for expanded or new dairy and other facilities will retain a qualified biologist to document whether riparian habitats or other sensitive natural communities may occur on their project site and could be affected by project activities as part of their application, or whether offsite habitat areas could be significantly affected. If onsite sensitive natural communities are potentially present and could be affected by project activities or offsite habitat areas could be significantly affected, the County will require assessments by a qualified biologist, and avoidance or substantial reduction of impacts to sensitive natural communities through feasible alternatives or mitigation	Project applicant	Tulare County Resource Management Agency	Pre-construction

Impact	Mitigation Measures	Implementation	Monitoring	Timing
	<p>measures, including the establishment of appropriate buffer areas and compensatory mitigation where unavoidable losses would occur.</p> <p>Significant impacts to any riparian habitat or sensitive natural community impact will be mitigated consistent with USFWS or DFW recommendations. DFW recommends a 200-foot no disturbance buffer for riparian vegetation delineated from the water body's high water mark.</p>			
Impact #3.4.3: Substantial Adverse Effect on Wetlands and Jurisdictional Waters	<p>Mitigation Measures #3.4.3: Applicants for expanded or new dairy and other facilities will retain a qualified biologist or wetlands specialist to evaluate and document whether wetlands or other jurisdictional waters may occur on their project site and could be affected by project activities as part of their application. If they are potentially present and could be affected by project activities, the County will require formal wetlands delineations and assessments by a qualified wetlands specialist, and avoidance or substantial reduction of impacts to wetlands and other jurisdictional waters through feasible alternatives or mitigation measures, including appropriate buffer areas and compensatory mitigation where unavoidable losses would occur. Impacts to wetlands or jurisdictional waters will be mitigated in accord with USFWS, DFW and/or ACOE and CVRWQCB requirements. DFW recommends that wetlands impacts be mitigated on a minimum of an acre-for-acre basis, and that no-disturbance buffers be established 200 feet from the high water mark of jurisdictional waters and 250 feet from the high water mark of vernal pools and swales.</p> <p>The County will require project applicants to obtain and submit copies of any required permits (e.g., Section 404, Waste Discharge Requirements, and streambed alteration agreements) prior to project implementation.</p>	Project applicant	Tulare County Resource Management Agency	Pre-construction
Impact #3.4.4: Substantially Interfere with the Movement of	Mitigation Measure #3.4.4: Applicants for expanded or new dairy and other facilities will retain a qualified wildlife biologist to evaluate and document whether fish or wildlife	Project applicant	Tulare County Resource	Pre-construction

Impact	Mitigation Measures	Implementation	Monitoring	Timing
Fish or Wildlife or Impede Wildlife Corridors, or Disturb Wildlife Nursery Sites	movement, corridors or nurseries could be affected as part of their application. If they could be affected, the County will require assessments by a qualified biologist, and avoidance or substantial reduction of impacts through feasible alternatives or mitigation measures. These include providing buffer zones adjacent to identified wildlife corridors, using native plant landscaping within a least 200 feet identified wildlife corridors, using shielded or direct lighting in areas near identified wildlife corridors, and installing physical barriers such as fencing to prevent animal and human entry into identified wildlife corridors.		Management Agency	
CULTURAL RESOURCES				
Impact #3.5.1: Disturbance of Historical, Tribal, or Archeological Resources	<p>Mitigation Measure #3.5.1: Applicants for expanded or new dairy and other bovine facilities will retain a qualified archeologist to conduct a cultural resource records search for each new or expanded dairy facilities site. Based on that records search, the applicant will retain a qualified archeologist to prepare an inventory report and evaluation of significance if the search discloses the likelihood of significant historical or archeological resources, and the County will consult with the Native American Heritage Commission, and, for projects require additional CEQA review, with Native American tribes as required by AB 52. The County will require the applicant to implement appropriate mitigation measures as consistent with CEQA Guidelines Section 15126.4(b), including compliance with the Secretary of Interior's standards for historic buildings, and for archeological resources preservation in place if feasible or data recovery if preservation in place is not feasible.</p> <p>If there is no recorded evidence of historical or archaeological sites on the project site, the possibility remains that resources may exist. If, in the course of project construction any archaeological or historical resources are uncovered, discovered, or otherwise detected or observed, the applicant will immediately cease activities within 50 feet of the find area shall. The applicant will contact a qualified archaeologist to evaluate the find and advise the County of Tulare of the</p>	Project applicant County Environmental Assessment Officer	Tulare County Resource Management Agency	Pre-construction and during ground disturbance

Impact	Mitigation Measures	Implementation	Monitoring	Timing
	resource's significance. If the County's Environmental Assessment Officer determines that the resource is significant, the County will require the applicant to implement appropriate mitigation measures as defined by CEQA Guidelines Section 15126.4(b).			
Impact #3.5.2: Destruction of Paleontological Resources or Geologic Feature	Mitigation Measure #3.5.2: Even if there is no record evidence of paleontological sites on new or expanding dairy and other bovine facility sites, the possibility remains that resources exist. If, in the course of project construction including construction of Dairy CAP GHG reduction measures with construction impacts, any paleontological resources are uncovered, discovered, or otherwise detected or observed, the applicant will immediately cease activities within 50 feet of the find area. The applicant will contact a qualified paleontologist to evaluate the find and advise the County of Tulare of the resource's significance. If the County's Environmental Assessment Officer determines the resource is significant, the County will require the applicant to implement appropriate mitigation measures such as excavation and transfer to a museum will be required prior to any resumption of work in the affected area of the project.	Project applicant County Environmental Assessment Officer	Tulare County Resource Management Agency	During ground disturbance
Impact #3.5.3: Disturbance of Human Remains	Mitigation Measure #3.5.3: The County will not allow construction of dairies or bovine facilities on areas identified or identifiable as former cemeteries or burial grounds. If, in the course of future project construction or operation, any skeletal remains are uncovered, discovered, or otherwise detected or observed, the applicant will immediately cease activities in the affected area and the County will require compliance with Health & Safety Code Section 7050.5 and Public Resources Code Section 5097.98. The applicant will consult a qualified archaeologist, the County's Environmental Assessment Officer, the County Coroner and local Native American organizations, and the County will require appropriate measures that may include avoidance of disturbance at the burial site or dignified reburial of the remains.	Project applicant County Environmental Assessment Officer	Tulare County Resource Management Agency	During ground disturbance

Impact	Mitigation Measures	Implementation	Monitoring	Timing
GREENHOUSE GAS/ENERGY ANALYSIS				
Impact #3.7.1: Increase in Greenhouse Gas Emissions Compared to Existing Conditions	Mitigation Measure #3.7.1: The Dairy CAP identifies all potentially feasible GHG reduction strategies for dairies and other bovine facilities. Because of the site-specific variations in individual facilities, some emissions reductions measures are likely to be feasible at most facilities (Category A), but some are not (Category B). Feasible project-specific GHG reduction measures will either be adopted as CEQA mitigation measures for projects undergoing project-specific GHG analysis, or as conditions of project approval for projects using this Program EIR for streamlined CEQA compliance under CEQA Guidelines Section 15068, when the County approves expanded or new facilities under the ACFP; project-specific GHG reductions achieved by project-specific GHG reduction measures will be quantified at that time. The County will require, as a component of the ACFP Annual Compliance Report, owners to submit evidence that adopted GHG reduction measures are being implemented. If there is evidence of non-compliance, the County will require the owner to submit a Corrective Action Plan.	Project applicant Owner/operator Tulare County Resource Management Agency	Tulare County Resource Management Agency	Project approvals for individual bovine facilities (for inclusion of GHG reduction measures as mitigation measures or conditions) Annual (for Annual Compliance Reports)
Impact #3.7.2: Inconsistent with Tulare County's General Plan Climate Action Plan or TCAG's RTP/SCS	See Mitigation Measure #3.7.1.	See Mitigation Measure #3.7.1.	See Mitigation Measure #3.7.1.	See Mitigation Measure #3.7.1.
Impact # 3.7.3: Inconsistent with the State's Ability to Achieve AB 32, <u>SB 32</u> , <u>SB 1383</u> , and Executive Order Emissions Reduction Targets	See Mitigation Measure #3.7.1.	See Mitigation Measure #3.7.1.	See Mitigation Measure #3.7.1.	See Mitigation Measure #3.7.1.

Impact	Mitigation Measures	Implementation	Monitoring	Timing
HYDROLOGY/WATER QUALITY				
Impact #3.9.1: Violation of Water Quality Standards or Waste Discharge Requirements; Otherwise Substantially Degrade Water Quality	Mitigation Measure #3.9.1: The County will require, as a component of the ACFP Annual Compliance Report, owners to submit evidence of full compliance with all pertinent CVRWQCB regulations and Waste Discharge Requirements. If there is evidence of non-compliance, the County will notify the CVRWQCB and require the owner to submit a Corrective Action Plan.	Owner/operator Tulare County Resource Management Agency	Tulare County Resource Management Agency	Annual
Impact #3.9.2: Depletion of Groundwater Supplies or Interference with Groundwater Recharge	<p>Mitigation Measure #3.9.2: Applicants for expanded and new dairy and other bovine facilities may be required to prepare a project-specific water supply analysis to evaluate the local surface and groundwater conditions relevant to the proposed project location and whether adequate water supplies are available at that specific location. From this site-specific assessment, the County will understand:</p> <ul style="list-style-type: none"> ▪ Specific water management and water use projections associated with the proposed ACFP operations, including liquid manure management, cropping plans, and facility management; ▪ Planned water sources to meet projected water needs; ▪ Local groundwater conditions and sustainable management efforts, if any, as part of the overlying Groundwater Sustainability Agency with jurisdiction; and ▪ Local surface water reliability and availability conditions in relation to projected water needs. 	Project applicant	Tulare County Resource Management Agency	Prior to project approvals for individual bovine facilities
PUBLIC AND UTILITY SERVICES				
Impact # 3.12.2: Exceedance of RWQCB Wastewater Requirements; New Wastewater Facilities	See Mitigation Measure #3.9.1.	See Mitigation Measure #3.9.1.	See Mitigation Measure #3.9.1.	See Mitigation Measure #3.9.1.

Impact	Mitigation Measures	Implementation	Monitoring	Timing
Impact #3.12.4 Sufficient Water Supplies; New Water Treatment Facilities	See Mitigation Measure #3.9.2.	See Mitigation Measure #3.9.2.	See Mitigation Measure #3.9.2.	See Mitigation Measure #3.9.2.
TRAFFIC/TRANSPORTATION				
Impact #3.14.6: Accelerated Road Deterioration	Mitigation Measure #3.14.6A: The County, through RMA, is committed in good faith through its Pavement Management System and the proposed Farm to Market Road Program to expend funds to insure that road deterioration impacts are mitigated to the extent feasible. In doing so, the County will conduct in good faith an annual review of roads that are affected by dairy traffic. Based on this annual review, the County will prioritize the expenditure of funds to mitigate road deterioration conditions to the extent feasible.	Tulare County Resource Management Agency	Tulare County Resource Management Agency	Annual
Impact #3.14.6: Accelerated Road Deterioration	Mitigation Measure #3.14.6B: In addition to the above, the County will require of each new or expanded dairy or bovine facility a pavement mitigation fee for roads servicing the dairy or facility. Such fee shall be based upon projected proportional truck loading impacts and the costs to address such impacts. Such fee shall be based on a reasonable nexus and be imposed as a condition through dairy project review. The currently-proposed county-wide traffic impact fee does not include dairies or bovine facilities. Should it be modified to do so, credit will be given the dairy or bovine facility applicant by reducing the pavement maintenance mitigation fee by the amount to be paid under a county-wide impact fee program.	Project applicant	Tulare County Resource Management Agency	Project approvals for individual bovine facilities