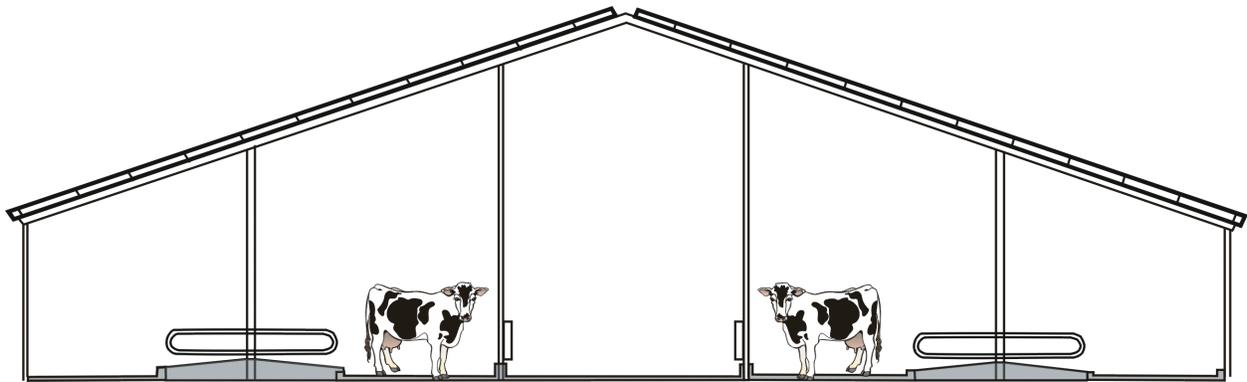


***FINAL PROGRAM  
ENVIRONMENTAL IMPACT REPORT***

***VOLUME IA  
RESPONSES TO COMMENTS***



***REVISED DRAFT DAIRY ELEMENT  
of the  
KINGS COUNTY GENERAL PLAN***

**SCH #2000111133**

***Kings County, California***

***11 March 2002***

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# CHAPTER 1.0

## INTRODUCTION

This document contains all comments received during the public review period on the Draft Program Environmental Impact Report (Draft PEIR) for the Revised Draft Dairy Element (the Element) of the Kings County General Plan (State Clearinghouse #2000111133).

The proposed project, the **Draft Dairy Element of the Kings County General Plan** (developed by the Kings County Planning Agency), presents a comprehensive set of goals, objectives, and policies to guide development, expansion, and operation of milk cow (bovine) dairies within the County. The Element and associated applicable zoning ordinance amendments (hereafter collectively referred to as the Element) is designed to accomplish two equally important major purposes. The first purpose is to ensure that the dairy industry of Kings County continues to grow and contribute to the economic health of the County. The second purpose is to ensure that the standards established in the Element protect public health and safety and the environment.

The County has determined that the best way to accomplish these combined goals is to adopt a separate General Plan element that establishes development and operational policies for the local dairy industry. The element and associated zoning ordinance amendments will replace existing regulations pertaining to dairy development presented in the current County General Plan and the Kings County Zoning Ordinance. The purpose of this Program Environmental Impact Report (PEIR) is the evaluation of the potential environmental impacts associated with implementation of the proposed Element.

The Element designates areas (Figure 3-2) within the County suitable for the development and expansion of bovine dairy facilities (Dairy Development Overlay Zones, or DDOZs) and areas suitable for application of manure and process water generated at dairy facilities (Nutrient Spreading Overlay Zones, or NSOZs). The locations of the DDOZs are controlled by objectives and policies of the Element, which would restrict dairy development within and proximal to environmental constraints, including incompatible land uses (e.g., urban residential areas, schools, and the Lemoore Naval Air Station), flood zones, designated wildlife habitat, and areas of excessive slope. The DDOZs encompass approximately 394 square miles (251,930 acres) of land currently zoned for agricultural uses. Construction of

dairy facilities and application of manure and process water to cropland would be allowed in the DDOZs.

The NSOZs encompass an additional 642 square miles (411,055 acres) for nutrient application. The combined areas of the DDOZs and NSOZs would total approximately 983 square miles (628,712 acres) for dairy facilities and nutrient spreading. On the basis of the available land within the DDOZs and NSOZs, the Element has estimated a theoretical capacity for the maximum herd size for the County under the provisions of the Element. The limiting factor for the theoretical herd size was assumed to be the rate of nutrient (nitrogen and salts) application recommended by the Central Valley Regional Water Quality Control Board (RWQCB) to be protective of water quality. The maximum theoretical milk cow herd is estimated to be 381,980 milk cows [534,772 animal units,<sup>1</sup> (AU)] and 423,998 head of support stock (335,409 AU), after considering the nutrient loading related to other livestock and biosolids reuse. Accounting for the estimated current dairy herd within the County (124,668 milk cows and approximately 138,344 head of support stock) and other existing sources of manure nutrients, the potential available remaining capacity in the County is approximately 257,312 milk cows and 285,654 head of support stock.

The Draft PEIR was distributed to various public agencies, responsible agencies, and interested individuals. Copies of the document were also made available at the public counter of the Kings County Planning Department and at each of the six Kings County Branch Libraries. The report was made available for public review and comment for a 45-day period. The public review period established by the State Clearinghouse for the Draft PEIR commenced on 7 May 2001 and expired on 21 June 2001. In response to requests from several members of the public, the public review process was extended but was closed on 10 September 2001. Public meetings were also held in front of the County Environmental Review Committee on May 10 and September 10, 2001 to solicit comments on the PEIR.

The public review process prompted changes to the Element. The revisions to the Element are presented as Appendix A of this volume. The public comments also resulted in clarification, amplification, and corrections to the Draft PEIR, which are presented as Appendix B. Chapter 2 of this document summarizes the changes made to the Draft PEIR.

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<sup>1</sup> An animal unit (AU) is a normalizing standard used to define equivalent numbers of animals managed at confined animal facilities. One animal unit is defined as one 1,000-pound mature dairy cow, specifically one Jersey cow. Support stock (e.g., heifers and calves) are smaller than milk cows and are assigned a fraction of an animal unit, depending on maturity (and weight). A mature Holstein cow is equivalent to 1.4 AU; a mature Guernsey cow is equivalent to 1.2 AU. For purposes of this EIR, all dairy cattle are conservatively considered Holstein cattle.

Chapter 3 presents a list of the commentors to the Draft PEIR; all comment letters received by the County (with numbering of each comment) are presented in Volume II. In Chapter 4, the response to each comment in the comment letters is presented. If the subject matter of one letter overlaps that of another letter, the reader may be referred to more than one group of comments and responses to review all information on a given subject. Where this occurs, cross-references are provided. A Mitigation Monitoring Plan for the project is presented as Appendix C.

## CHAPTER 2.0 SUMMARY OF CHANGES

Since publication of the Draft PEIR on May 7, 2001, changes have been made to clarify, amplify, and/or provide minor technical corrections to the first volume. New text that has been added to the PEIR is highlighted by a wavy underline and text that has been deleted is presented in strikeout format. Changes to the numbering of goals, objectives, and policies of the Element (see Appendix A) necessitated changes in the text of the Draft PEIR to provide correct referencing to the Public Hearing Draft of the Dairy Element. Therefore, Chapters 2, 3, 4, 5, and 6 are included in their entirety in Appendix B.

The text revisions to the Draft PEIR are presented in Appendix B in the order in which they appear in the EIR (i.e., by page number), and are referenced in Section 4 (Responses to Comments), where appropriate. A revised copy of Table 2-1: Summary of Impacts and Mitigation Measures is also provided in Appendix B.

Please note that, during the environmental review process, it was determined that advanced manure treatment should be required of all dairies proposing to expand, regardless of the size of the expansion. Thus, the proposed project now includes implementation of the provisions of this alternative (Alternative 4). To retain the integrity of the PEIR and to provide analysis to the public regarding the relative benefits of this alternative, however, the following alternatives discussion has been retained in its original form with regard to the discussion of Alternative 4.

# CHAPTER 3.0

## LIST OF COMMENTORS

Commentor	Letter #
Michael LaSalle, Griswold, LaSalle, Cobb, Dowd & Gin, L.L.P.	1
Michael Virden, Kings County Fire Department	2
Brian Grattidge, Governor's Office of Planning and Research	3
Keith Winkler, Kings County Division of Environmental Health Services	4
Dave Mitchell, San Joaquin Valley Unified Air Pollution Control District	5
Debbie Pilas-Treadway, Native American Heritage Commission	6
Clay Rodgers, Central Valley Regional Water Quality Control Board	7
Dave Mitchell, San Joaquin Valley Unified Air Pollution Control District	8
Jim Gregory, Verdegaal Brothers, Inc.	9
Al Dias, California Department of Transportation, District 6	10
Terry Roberts, Governor's Office of Planning and Research	11
Bruce Livingston, Livingston Dairy Consulting, Inc.	12
Kelly Deming, Kings County Farm Bureau	13
Keith Winkler, Kings County Division of Environmental Health Services	14
Gary Byde, Kings Mosquito Abatement District	15
David Eisenberg	16
Antonio Pedro, Pedro Dairy	17
Jacob de Jong, River Ranch Dairy	18

**List of Commentors - *continued***

<b>Commentor</b>	<b>Letter #</b>
Carol Collar, University of California Cooperative Extension	19
Michael Marsh, Western United Dairymen	20
Michael LaSalle, Griswold, LaSalle, Cobb, Dowd, & Gin, L.L.P.	21
Aaron Isherwood, Sierra Club	22
Chuck Draxler, Kings County Farm Bureau	23
Caroline Farrell and Brent Newell, Center for Race, Poverty and the Environment	24
Jan C. Knight, United States Fish and Wildlife Service	25

The comment letters are published in their entirety in Volume II of this Final PEIR.

# CHAPTER 4.0

## RESPONSES TO COMMENTS

This Chapter of the Final PEIR for the Dairy Element of the Kings County General Plan (hereafter referred to as “the Element”) contains the County’s responses to each specific comment made in the letters submitted to the County during the public review period for the Draft PEIR. Each specific comment is identified and numbered in Volume II of this Final PEIR. The comment numbering system reflects the number of the comment letter (see Chapter 3) and the number of the specific comment. For example, the first comment of the third letter is numbered 3-1.

In this Chapter, specific references to analyses presented in the Draft PEIR are referenced by the page number of the Draft PEIR. Likewise, specific discussion of goals, objectives, and policies of the Element are made by referencing the numbering system used in the Element. In cases where the numbers in the Element have been adjusted to reflect the comments or corrections requested by the public, the change in the number is identified parenthetically following the reference to the original number [e.g., Policy DE 6.1h (now 6.2f)].

## **LETTER 1 - Michael LaSalle, Griswold, LaSalle, Cobb, Dowd & Gin, L.L.P.**

### **Response to Comment 1-1**

The comment is noted for the record.

### **Response to Comment 1-2**

The commentor's opinion regarding the feasibility of dairy development under the provisions of the proposed Element is noted for the record. The preparers of the PEIR do not agree that new dairy development would be "financially infeasible" under the Element.

### **Response to Comment 1-3**

The commentor's opinion that anaerobic and aerobic treatment of manure and process water "remain economically unproven for dairy usage" is noted. The U.S. EPA AgSTAR program identifies that there were 31 controlled anaerobic digestion systems operating at concentrated animal feeding operations (CAFOs) (14 at dairy farms) in the U.S. There are a number of aerobic treatment systems in operation at CAFOs but the technology is implemented at many facilities to control odors. Currently, WaterPure Technology, Inc. operates aerobic treatment systems at three dairies in the San Joaquin Valley. A recently approved large dairy project (7,200 milking cows at each of two dairies) in Kern County proposes construction and operation of an aerobic treatment system.

### **Response to Comment 1-4**

Section VI of the Dairy Element has been rewritten, including elimination of **Goal DE 8** and its objective and policies. Because of the misunderstanding of the purpose of the proposed voluntary program, it has been removed and replaced with a statement that the County encourages all dairies to operate in environmentally sound ways, and recommends that they work toward certification by the California Dairy Quality Assurance Program.

### **Response to Comment 1-5**

**Policy DE 6.1f** (now **6.2e**) was included in the Element in anticipation of improved methods for sampling and testing air emissions at confined animal facilities. As indicated in the PEIR, the technologies for evaluation of air emissions are currently under development by USDA and other research groups. It is not the intention of the County to require expensive analysis of air emissions. However, it is considered prudent to leave open the option for use of practical testing procedures once they become available.

### **Response to Comment 1-6**

Although the commentor is correct in observing that “other kinds of facilities” can be constructed in 100-year flood hazard zones, the County does not consider placement of dairy facilities to be an appropriate activity in flood prone areas. Even if protected from flood waters, the potential for releases of manure in the event of failure of the protection system warrants caution in siting of dairy facilities. It is noted that the recently adopted Kings County Ordinance Regulating the Application of Sewage Sludge does not allow biosolids application within designated floodways.

Modifications to flood zones (FEMA Flood Hazard Areas) require approval from FEMA of either a Letter of Map Revision (LOMR) or Letter of Map Amendment (LOMA). These requirements are spelled out in the Kings County’s *Flood Damage Prevention Ordinance* found in Chapter 5A of the Kings County Code of Ordinances. Therefore, if a dairy is proposed in an identified Flood Hazard Area and measures are proposed to protect the facilities from flooding, those improvements will be subject to a LOMR or LOMA.

### **Response to Comment 1-7**

The Element does not prohibit double cropping at new or expanded dairy facilities. The County does not intend to dictate the types of crops or cropping patterns used by farmers. It is possible that dairy facilities would choose to double crop all or portions of the cropland within a dairy unit. However, application of nutrients to cropland would be required to be controlled under a Manure Nutrient Management Plan (**Policies DE 4.1a** and **4.1b**) to ensure that overapplication of nutrients does not occur.

### **Response to Comment 1-8**

It was not the intent of the Element to “effectively prohibit” the use of lagoons for process water management. Use of lagoons could be consistent with most types of advanced manure treatment technologies. In addition, dairy facilities are required by State regulations to provide for storage of runoff, precipitation, and process water (see page 4.3-31 of the Draft PEIR). In response to the comment, **Policy DE 4.2b** has been modified to clarify the wording of this policy.

### **Response to Comment 1-9**

The commentor’s opinion is noted for the record.

### **Response to Comment 1-10**

The commentor is correct in pointing out that the estimation of the available cropland for manure nutrient reuse described in Appendix A of the Element assumed that cropping patterns under the Element would be similar to those currently practiced in Kings County. This assumption was made because projection of future cropping practices is not possible.

In addition, an increase in water demand would need to be assumed if double cropping were to occur throughout the DDOZs and NSOZs. If double cropping were to occur throughout these areas, it is possible that overdrafting of the groundwater supplies could occur. The Element attempted to address this potential adverse impact by limiting the number of dairy cattle within the available cropland areas to balance manure generation and application with existing cropping patterns. Under the Element, if additional acreage is put into a double-crop pattern, the maximum theoretical herd could be realized on less land.

The Herd Capacity Model described in Section II and Table 5 of Appendix A of the Element considers all farmland in Kings County, not just double-cropped land. The model uses conservative assumptions, including the ratio of double-dropped land to single-cropped land reported in the Agricultural Commissioner's 1999 Annual Report.

As far as transport of manure out of Kings County, the Element specifically makes the assumption that the amount of manure transported out of Kings County is equal to the amount transported into the County. See the fourth bullet on page DE-10 of the Public Comment Draft of the Element.

### **Response to Comment 1-11**

The monitoring requirements for the Manure Treatment Management Plan (MTMP) set forth in **Policy DE 6.1f** (now **6.2e**) are considered necessary to demonstrate that the specific treatment system chosen by the individual operator is effective. The use of anaerobic and aerobic treatment for managing dairy manure is an emerging technology. It is important for the County and the dairy industry to develop data that will allow for continued improvements in the development of effective and economical treatment systems that are well suited to the topography and climate of Kings County. However, a minor text change has been made to **Policy DE 6.1f** (now **6.2e**), deleting references to daily logs, allowing the dairy operator to determine the most reasonable level of record keeping for the specific system employed at each dairy.

With response to the commentor's concern that **Policy DE 6.1g** [which requires development and monitoring of a Livestock Management Plan (LMP)] is too restrictive, this policy has been deleted. The intention of the policy was to encourage efficient and effective animal feeding and breeding, maximizing herd health while minimizing excess nutrients in manure. The policy has been deleted in recognition that these goals are inherent in economic management of dairies.

For consideration of the points made by the commentor regarding the duplication of policies contained in the Element with other regulations, the commentor is referred to Response to Comment 20-3.

**Response to Comment 1-12**

The comment is noted for the record.

**Response to Comment 1-13**

The comment is noted for the record.

## LETTER 2 - Michael Virden, Kings County Fire Department

### Response to Comment 2-1

In response to the comment, **Policy DE 3.6a** of the Element has been modified to incorporate all of the commentor's recommendations for fire protection standards for dairy developments.

## **LETTER 3 - Brian Grattidge, Office of Planning and Research**

### **Response to Comment 3-1**

The comment is noted for the record.

## **LETTER 4 - Keith Winkler, Kings County Division of Environmental Health Services**

### **Response to Comment 4-1**

The commentor's concern regarding potential releases of nitrate to groundwater is noted for the record. Additionally, the preparers of the PEIR acknowledge that the most significant public health hazard associated with nitrate contamination of drinking water sources is the potential for infants to ingest elevated nitrate concentrations, which can cause methemoglobinemia ("blue baby syndrome"). The potential for increasing nitrate levels in groundwater as the result of management of dairy manure was discussed in the Draft PEIR (pages 4.3-11 and 4.3-24). The provisions of the Element that provide controls on the potential sources of pollutant (including nitrogen) releases to groundwater are discussed on pages 4.3-27 through 4.3-39 of the Draft PEIR.

### **Response to Comment 4-2**

The potential for nutrient migration to groundwater is discussed at length in the Draft PEIR (pages 4.3-23 through 4.3-39). Throughout the discussion, policies contained in the Element that mitigate the potential for groundwater degradation are described. Under the Element, all new and expanding dairy facilities are required to implement nutrient management and irrigation management plans, line manure pits and process water lagoons, and conduct groundwater quality monitoring (including vadose zone monitoring). Specific provisions are included in the Element to ensure that a hydrogeologic sensitivity assessment is performed in any area where shallow groundwater serves as a drinking water source (**Policy DE 3.2j**).

Proper nutrient management is critical in reducing potential impacts to shallow groundwater quality. In a recent study completed by researchers at the University of California at Davis (Harter and others, 2001), groundwater quality at a dairy in the San Joaquin Valley underlain by shallow groundwater with elevated levels of nitrate was dramatically improved by reducing nutrient loading to agronomic rates. Prior to implementation of a targeted manure nutrient management program, nitrate-nitrogen concentration in groundwater at the site averaged 80 to 120 mg/L in the period 1995 through 1997. During this period, total nitrogen application was estimated to be a minimum of 1,050 pounds per acre per year on fields double cropped with corn and forage crops. Under the manure management plan, total nitrogen application was eventually reduced to 420 pounds per acre per year in 2000. Following these management changes, the average nitrate-nitrogen concentration in groundwater dropped to 50 mg/L in 2000. These results indicate that groundwater quality protection can be achieved through implementation of appropriate fertilizer and irrigation management.

The potential for existing water wells to act as conduits for contaminant migration is discussed in the analysis of Impact 4.3-8. **Policy DE 3.2i** of the Element requires that all existing wells at proposed new or modified dairy sites be inspected to ensure that appropriate well seals are in place. The California Well Standards recognize a proper well seal as the best management practice for reducing the potential for vertical migration of contaminants into wells.

### **Response to Comment 4-3**

Manure treatment technologies are described in the Draft PEIR (pages 4.2-14 through 4.2-24). The Autogenous Thermophilic Aerobic Digestion (ATAD) technology described in the comment is one of several types of effective aerobic treatment technologies. **Policy DE 5.1c** of the Element requires that new and expanding dairy facilities develop and implement a Manure Treatment Management Plan that ensures the chosen advanced manure treatment technology effectively reduces volatile solids in treated manure and process water by at least 50 percent.

### **Response to Comment 4-4**

The commentor is correct in pointing out that importation of manure into Kings County can be expected. Manure is recognized as a valuable fertilizer and soil amendment and is used on farmland supporting a wide range of crops. Although importation may continue to occur, **Policy DE 4.1a** of the Element requires that all new and expanding dairies demonstrate (through implementation of a nutrient management plan) that manure and process water are applied to land at agronomic rates. In addition, **Policy DE 4.2a** of the Element requires that all dairies develop and implement a Comprehensive Dairy Process Water Application Plan (CDPWAP) that identifies all lands to which manure generated by dairies would be applied. The Plan must include an enforceable and recordable agreement that specifies the terms of reuse of these materials between the dairy operator and any owner of land where manure and process water would be applied.

The policy specifies that “the land identified in the agreement for the use of dairy process water and manure shall not have any other dairy process water or water disposal agreement currently upon it or added in the future.” Therefore, lands receiving manure or process water from other operations (inside or outside of Kings County) could not be included as areas for reuse of materials generated by a proposed dairy. If land within the DDOZs or NSOZs is used for application of imported manure, those areas would, in effect, become unavailable for new or expanded dairy development.

The preparers of the PEIR contacted the principal author<sup>2</sup> of the Draft Manure Management Strategy Report prepared for the Santa Ana River Watershed Group, which is referenced by the commentor. The potential pilot project described in the report and the comment letter in which a landowner in Kings County would apply manure on 50,000 acres has not been brought forward. The location of the potential project could not be verified.

#### **Response to Comment 4-5**

The County concurs with the commentor's opinion that potential impacts related to air quality, water resources, and public health require thorough analysis. The analyses presented in the PEIR reflect this concern. The commentor's support of protection of the quality of life and environmental health in implementation of the Element is appreciated and noted for the record.

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<sup>2</sup> Marsh, L., 2001, Siemon, Larsen & Marsh, personal communication with Kevin O'Dea of BASELINE, 10 December.

## **LETTER 5 - Dave Mitchell, San Joaquin Valley Air Pollution Control District**

### **Response to Comment 5-1**

The County concurs with the commentor's opinion that air quality impacts are a major environmental issue that was analyzed in the PEIR (see Section 4.2). In preparation of the air quality impact analysis, the preparers of the PEIR reviewed, and in some cases prepared, previously completed air quality analyses presented in other EIRs for dairy projects in the San Joaquin Valley.

### **Response to Comment 5-2**

To the extent applicable, the preparers of the PEIR have incorporated guidance presented in the SJVUAPCD *Guide for Assessing and Mitigating Air Quality Impacts*. When necessary, the air quality impact analysis has supplemented the guidance with more comprehensive impact evaluation.

## **LETTER 6 - Debbie Pilas-Treadway, Native American Heritage Commission**

### **Response to Comment 6-1**

Section 4.11 of the draft PEIR discusses cultural resources in detail. The Element contains policies that specifically address the recommendations for evaluation of cultural resources presented by the commentor. Specifically, **Policy DE 3.1d** requires that the Technical Report prepared for dairy development applications shall include documentation of a record search conducted by the California Historical Resources Information Service (CHRIS). If the record search identifies known or suspected cultural resources, the applicant is required to have the resources evaluated by a qualified archaeologist. In response to additional recommendations made by the commentor, **Policy DE 3.1d** has been modified to include contacting the Native American Heritage Commission to determine if a proposed dairy development site contains resources identified by a Sacred Lands File Check.

### **Response to Comment 6-2**

**Policy DE 3.1e** of the Element acknowledges the potential presence of unknown cultural resources and requires that, if such materials are encountered during dairy development, a qualified archaeologist shall evaluate the resources.

## **LETTER 7 - Clay Rodgers, Central Valley Regional Water Quality Control Board**

### **Response to Comment 7-1**

The County recognizes the commentor's clarification that the General Permit for Storm Water Discharges Associated with Industrial Activities is a separate permitting requirement that is required whether a dairy facility has other NPDES permitting requirements or not.

### **Response to Comment 7-2**

In response to the comment, the text on page 4.3-17 of the Draft PEIR has been modified.

### **Response to Comment 7-3**

Please refer to the Response to Comment 7-2.

### **Response to Comment 7-4**

The comment is noted for the record. The County supports ongoing research to refine the RWQCB regulation of dairy operations.

### **Response to Comment 7-5**

The comment is noted for the record. The PEIR provides the current citation of the confined animal facility regulations.

### **Response to Comment 7-6**

In response to the comment, page J-6 of Appendix J of the Element has been modified to maintain a consistent name for the Comprehensive Dairy Process Water Application Plan.

### **Response to Comment 7-7**

The estimation of the theoretical maximum dairy herd was made using the animal unit factors cited in the comment. The description of the assumptions for the herd estimate has been revised in Section II B of the Element to reflect the correct factors. The comment and this response do not affect the estimated herd size reported in the PEIR.

### **Response to Comment 7-8**

Please refer to Response to Comment 7-7. In response to this comment, the definitions in Appendix B of the Element have been modified.

## **LETTER 8 - Dave Mitchell, San Joaquin Valley Air Pollution Control District**

### **Response to Comment 8-1**

The comment is noted for the record. The commentor's support for the air quality impact analysis and proposed air emissions controls presented in the PEIR is noted.

### **Response to Comment 8-2**

The designation of the Federal ozone standards attainment status of the San Joaquin Valley Air Basin was changed from "serious" to "severe" in October 2001. It is noted for the record that this change in designation occurred after the 7 May 2001 release of the Draft PEIR. Under this designation, the San Joaquin Valley Air Basin is required to meet Federal ozone standards by 2005. Failure to meet the attainment deadline would result in substantial fee provisions for new sources (\$5,000 per ton of volatile organic compounds or oxides of nitrogen) and potential sanctions, including prohibition of approval of Federal grants for transportation improvement projects. Concerned with the potential to meet the attainment deadline, the SJVUAPCD has recently considered the possibility of requesting that the Federal government reclassify the air basin from a "severe" to an "extreme" designation. The reclassification would extend the attainment deadline to 2006. The County supports the SJVUAPCD efforts in meeting attainment goals.

### **Response to Comment 8-3**

In Response to the Comment, the text of the last paragraph on page 4.2-10 of the Draft PEIR has been modified.

## **LETTER 9 - Jim Gregory, Verdegaal Brothers, Inc.**

### **Response to Comment 9-1**

The description of the aerobic treatment system operated by the California State University, Fresno, is appreciated and noted for the record. The comment provides details regarding one type of the aerobic systems discussed on pages 4.2-17 through 4.2-19 of the Draft PEIR.

## **LETTER 10 - Al Dias, California Department of Transportation**

### **Response to Comment 10-1**

Previous submittals of comment letters from Caltrans during the development of the EIR are acknowledged. The comments are addressed in Responses to Comments 10-2 and 10-3.

### **Response to Comment 10-2**

The comment is based on the December 18, 2000 Draft PEIR, which was withdrawn, revised, and reissued on May 7, 2001. The comment was made prior to completion of the May 7, 2001 PEIR. The cumulative impacts related to transportation are evaluated on pages 5-17 and 5-18 of the May 7, 2001 Draft PEIR.

### **Response to Comment 10-3**

It is the policy of Kings County to maintain a level of service of not less than LOS D for County roadways, which is reflected in Mitigation Measure 4.9-1 of the PEIR. In response to the comment, the Mitigation Measure has been modified to reflect the intention of Caltrans to maintain LOS C on State highways.

## **LETTER 11 - Terry Roberts, Governor's Office of Planning and Research**

### **Response to Comment 11-1**

The comment is noted for the record. It is also noted that the letters attached to this letter are duplicative of Comment Letters 7 and 10. The responses to the comments in those letters were addressed above.

## **LETTER 12 - Bruce Livingston, Livingston Dairy Consulting, Inc.**

### **Response to Comment 12-1**

As stated by the commentor, the Dairy Element Review Committee met in late 1999 and early 2000. The last action by the Committee was a recommendation not to proceed with the Program EIR. The County subsequently decided to proceed with the program. Therefore, page ii, which references the Dairy Review Committee, has been replaced by the Kings County Environmental Review Committee membership.

## **LETTER 13 - Kelly Deming, Kings County Farm Bureau**

### **Response to Comment 13-1**

The commentor is referred to Response to Comment 12-1. Page ii, which references the Dairy Review Committee, has been removed from the Dairy Element.

## LETTER 14 - Keith Winkler, Kings County Division of Environmental Health Services

### Response to Comment 14-1

The commentor's opinion that the Fifty-Percent Reduced Herd Size alternative is the environmentally superior alternative is noted for the record. The estimation of the theoretical County dairy herd was developed through identification of lands suitable for dairy development and nutrient spreading throughout the County. If lands identified in the Element are used for purposes that would conflict with their use by future dairy development, the theoretical limit on dairy development would be reduced.

### Response to Comment 14-2

As described in Section II of the Element, the calculation of the "theoretical County dairy herd did account for nutrient loading associated with other confined animal facilities and land application of biosolids. As indicated on Table 5A of the Element, 95,495 acres of land within the DDOZs and NSOZs were assumed to be necessary for application of nutrients from these "non-dairy" sources. That acreage was discounted as unavailable for application of dairy manure and process water.

### Response to Comment 14-3

The commentor is referred to Response to Comment 4-4.

### Response to Comment 14-4

The commentor is referred to Responses to Comments 4-1 and 4-2.

### Response to Comment 14-5

The potential for fly infestation at proposed new and expanded dairy developments was described in the Draft PEIR (pages 4.8-8 and 4.8-9). As described in that discussion, most complaints associated with flies have been directed at dairies where drainage is a problem and facility design makes maintenance and good housekeeping practices difficult. Potential drainage problems in corrals at new and expanded dairies are addressed in **Policies DE 4.1a.B.2.g** and **4.1a.B.2.h**. **Policy DE 4.3b** of the Element requires development and implementation of a Pest and Vector Management Plan (PVMP) for all new and expanded dairies. Guidance for preparation of PVMPs is provided in Appendix J of the Element. The design and management requirements of the Element would provide effective mitigation of the potential development of fly infestations. **Policies DE 6.4a** through **6.4c** provide for a formal process to evaluate and respond to public complaints that may result from failure of operators to control pest infestations. In conjunction with the minimum setbacks presented under **Goal DE 3** of the Element, the policies discussed above provide feasible mitigation that would reduce the potential for nuisance conditions related

to flies to a less-than-significant level. Whereas it is possible that individual flies or groups of flies may travel farther than one-half mile, it is not practical to determine an average maximum distance that flies can fly or be carried by the wind.

The comment also addresses the potential impact of odors with respect to setback requirements contained in the Element. Although the SJVUAPCD indicates that odors may be significant within one mile of a dairy facility, the Element includes effective controls on odor that are not currently in place at most dairies in the San Joaquin Valley Air Basin. Most significantly, the Element requires advanced treatment of manure and process water that would dramatically reduce the formation of odorous compounds. Drainage controls would also reduce the potential for odor development.

The estimated rate of salt generation for dairy cows (1.29 pounds per day per animal unit) was obtained from the Regional Water Quality Control Board's *Instructions for Dairy Waste Load Calculations*.

#### **Response to Comment 14-6**

The comment correctly indicates that a footnote to Table 2 of the RWQCB Fact Sheet 4 indicates that the assumptions used in the table (which presents the methodology for calculating nitrogen loading) are consistent with "assumptions used by staff in Merced County." The RWQCB considers the assumptions to be based on the best science available and have adopted the cited nutrient loading factors for their guidelines for determining potential nitrogen loading. The Element acknowledges (page DE-10) that the values may be modified in the future as new information becomes available.

#### **Response to Comment 14-7**

The commentor is referred to Response to Comment 4-2.

#### **Response to Comment 14-8**

The text of **Policy DE 3.2a.A** has been modified in response to the comment.

#### **Response to Comment 14-9**

The text of **Policy DE 4.1a.B.2.g** has been modified in response to the comment.

#### **Response to Comment 14-10**

**Policy DE 5.1g** (now **5.1f**) has been modified to require that dairy developments conform with the SJVUAPCD standards for construction equipment activities.

### **Response to Comment 14-11**

The points made by the commentor regarding the fact that methane is not identified as a criteria air pollutant or a toxic air contaminant and that no quantified emissions standards exist for methane are noted for the record. However, the fact that methane emissions are not controlled by the same regulations that apply to criteria air pollutants and toxic air contaminants does not support the implied conclusion that methane emissions would not be a significant environmental impact. As pointed out in the PEIR, the U.S. EPA has identified methane emissions as a significant greenhouse gas and has prepared guidance for voluntary reduction of methane emissions. In recognition of potential adverse effects of methane emissions, the 1992 Clean Air Act Amendment (Section 603) includes provisions for the continued evaluation of methane sources and for developing control measures to stop or reduce the growth in atmospheric concentrations of methane from sources in the United States. As discussed in Response to Comment 1-1, CEQA does not exclude consideration of global environmental impacts. Additionally, the responsibility to reduce methane emissions at the project site is not negated by the possibility that the impact would occur with or without the project. The impact of methane emissions would be reduced by implementation of advanced manure treatment but cannot be eliminated. Methane generated by the digestive systems of dairy cattle (even if in good health) would remain a significant source of methane emissions.

### **Response to Comment 14-12**

The comment is noted for the record. Most of the plans cited in the comment are required to be prepared by qualified professionals, and it is not assumed that the plans would be developed by the dairy operators. However, the County does support participation by dairy operators in the Environmental Stewardship Short Course offered by U.C. Cooperative Extension. Section VI of the Element has been modified to reflect the County's desire that all dairies operate in efficient, economical, and environmentally sound ways and recommends, but does not require, that dairies work toward California Dairy Quality Assurance Program certification.

## **LETTER 15 - Gary Bye, Kings Mosquito Abatement District**

### **Response to Comment 15-1**

In response to the comment, the text of the fourth paragraph on page 4.8-8 of the Draft PEIR has been modified to provide the clarification sought by the commentor.

## LETTER 16 - David Eisenberg

### Response to Comment 16-1

Selenium (Se) is a naturally-occurring semi-metallic element that is both an essential nutrient for animals at relatively low levels and a potential environmental toxin at elevated levels. Selenium occurs in the environment in a variety of inorganic and organic forms (or species). Of the common inorganic forms, selenium oxide (SeO) is virtually insoluble in water while selenates and selenites are selenium salts that are soluble and are the typical forms found in water. Organic species of selenium include selenomethionine, which is incorporated into proteins. Volatile organic species of selenium include dimethylselenide, which is transpired by plants.

The potential toxicity of selenium to livestock has been recognized for many years. Elevated levels of selenium contained in forage crops has resulted in alkali disease and "blind staggers." Clinical signs of toxicity include lameness, sloughing of hooves, emaciation, and loss of hair. Selenium concentrations of 5 to 40 milligrams per kilogram (mg/kg) in dairy cattle can cause chronic toxicity. Acute toxicity can occur in young cattle when selenium concentrations exceed 10 mg selenium per kilogram of body weight.<sup>3</sup>

Although the toxic effect of selenium on livestock has concerned animal nutritionists for a long time, the dietary benefits of selenium were not recognized until the late 1950s when selenium became recognized as an essential micronutrient. Ruminant animals, such as dairy cows, can develop white muscle disease when deficient in selenium. This disease is manifested by leg weakness and stiffness and muscle tremors. Poor growth, unthriftiness, and diarrhea have been attributed to selenium deficiency. The best understood metabolic function of selenium is as a component of glutathione peroxidase, an enzyme that is important to the cellular antioxidant system.

Animal nutrition science has established selenium as an important dietary requirement for livestock. Selenium is one of over twenty micronutrients that are commonly recommended as necessary for proper dairy cattle health. In most areas of the United States and many parts of the world, the amount of selenium naturally contained in forage and other feedstock is less than the amount required for a healthy diet. Therefore, as with other important nutrients, selenium is commonly prescribed by nutritionists as a dietary supplement.

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<sup>3</sup> National Research Council, 2001, Nutrient Requirements of Dairy Cattle, Seventh Revised Edition, 2001, prepared by the Subcommittee on Dairy Cattle Nutrition, Committee on Animal Nutrition, Board on Agricultural and Natural Resources, National Academy Press, pp. 141-143.

Although selenium is an essential nutrient, bioaccumulation of selenium in wildlife can result in significant environmental damage. The potential problems related to elevated levels of selenium in the environment were exemplified by conditions that developed at the Kesterson Reservoir in Merced County, California. Kesterson Reservoir was a series of twelve shallow evaporation ponds constructed between 1968 and 1975 to receive subsurface agricultural drainage water from the western San Joaquin Valley. The ponds were jointly operated by the U.S. Bureau of Reclamation and the U.S. Fish and Wildlife Service to provide wetland habitat while providing for disposal of highly saline drain water. The unanticipated result of this dual function was bioaccumulation of selenium in all trophic levels within the wetland habitat. Toxic levels of selenium were manifested in significant reproductive defects and high mortality rates in waterfowl. Following recognition of the selenium contamination problems, discharge of drainage water was terminated and the ponds were pumped dry in the late 1980s.

In recognition of the toxic properties of selenium, the use of selenium as a dietary supplement is controlled by regulations developed and enforced by the U.S. Food and Drug Administration (FDA) under the Federal Food, Drug, and Cosmetic Act. The initial food additive regulation for selenium was promulgated in 1974 and restricted its addition to 0.1 part per million (ppm) for chicken feed and 0.2 ppm for turkey feed. The regulation was amended in 1987 and the allowable supplementation of selenium for cattle, sheep, chickens, ducks, and swine was set at 0.3 ppm. In 1993, the FDA acted to stay the 1987 amendments citing that the potential environmental effects related to increasing the permissible selenium supplementation had not been fully evaluated. The FDA determined that, at that time, the available data on environmental impacts “would not be sufficient to permit an adequate environmental analysis, and that the information that is necessary to do an adequate environmental analysis is unavailable.”<sup>4</sup>

The FDA found that inadequate information was available to accurately determine the concentration and forms of selenium in waste generated by animals fed supplemental selenium. In addition, insufficient data and methodologies were available to predict the environmental fate and transport of various forms of selenium under the wide range of “biogeochemical” conditions throughout the United States. In consideration of the uncertainties raised in the review of existing scientific data regarding the amounts of selenium in livestock excreta, the FDA evaluated whether it would be appropriate and meaningful to prepare an Environmental Impact Statement (EIS) in accordance with the goals and requirements of the National Environmental Quality Act (NEPA). In 1993, FDA concluded the following:

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<sup>4</sup> Food and Drug Administration (FDA), 1993, Food additives permitted in feed and drinking water of animals; stay of the 1987 amendments; final rule. Federal Register, 58(175):47961-47973.

“Preparation of an EIS without improved selenium environmental information would not be expected to yield improved decisionmaking, consistent with the National Environmental Protection Act. The information in the record demonstrates that using the current data base and making assumptions where data are missing leads to interpretations of potential environmental impact across the entire spectrum from no impacts expected to significant impacts expected. Consequently, FDA has determined that the preparation of an EIS would not be helpful at this time.”

On the basis of this conclusion, the FDA decided to stay the 1987 amendments to 21 CFR 573.920, which would allow increases in the allowable selenium supplement for livestock and poultry. The allowable selenium supplement level for cattle was revised from 0.3 ppm to 0.1 ppm.

Subsequent to the FDA’s stay of the decision to increase allowable dietary supplements of selenium from 0.1 to 0.3 ppm, various agricultural industry groups lobbied Congress to overturn the FDA’s ruling. These groups argued that higher levels of selenium supplementation were critical for animal health and productivity. In 1994, the Council for Agricultural Science and Technology<sup>5</sup> submitted additional information regarding selenium generated by supplemented animals and its environmental fate. Following further consideration of the risks and benefits of selenium as an essential dietary supplement for domestic animals and the potential environmental risks associated with its use, the U.S. Congress passed legislation in 1994 that set allowable selenium supplementation at 0.3 ppm.

In the years following that legislation, considerable additional research has been conducted in California investigating the forms and environmental fate of selenium related to animal waste. In 1995, the University of California at Davis presented a symposium on selenium in the environment.<sup>6</sup> The symposium presented five technical papers and seventeen abstracts summarizing the results of investigations of the effects of selenium on the environment. With respect to selenium issues related to cattle, research presented at the symposium included:

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<sup>5</sup> Council for Agricultural Science and Technology (CAST), 1994, *Risks and benefits of selenium in agriculture*, Issue Paper No. 3 Supplement, Council for Agricultural Science and Technology, Ames, Iowa, 35 p.

<sup>6</sup> University of California, 1995, *Selenium in the Environment: Essential Nutrient, Potential Toxicant*, Proceedings of a National Symposium, 68 p.

- Evaluation of analytical methodologies for determining forms of selenium in soil, water, and plants;<sup>7</sup>
- A general review of the geochemistry and biogeochemistry of selenium to its deficiency and toxicity in animals;<sup>8</sup>
- A “bench-test” evaluation of the mineralization and speciation of organic selenium compounds applied to soil from the Central Valley of California;<sup>9</sup>
- A “bench-test” evaluation of the yield and selenium concentration in forage crops fertilized with excreta from cattle supplemented with selenium and unsupplemented cattle;<sup>10</sup>
- A “bench-test” evaluation of the selenium speciation in plant residues with high selenium content (seleniferous) applied to Central Valley soils;<sup>11</sup>
- A field study of the effects of selenium supplementation on selenium blood levels in pastured beef cattle in Oregon and selenium levels in pasture soils;<sup>12</sup>
- A field study of selenium levels in surface water, algae, and fish samples collected from streams at upstream and downstream locations relative to four California beef

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<sup>7</sup> Palmer, I.S., 1995, Water, soil and plant selenium: analytical methodology, in *Selenium in the Environment: Essential Nutrient, Potential Toxicant*, Proceedings of a National Symposium, University of California-Davis, pp. 20-37.

<sup>8</sup> Meyer, R.D. and Burau, R.G., 1995, The geochemistry and biogeochemistry of selenium to its deficiency and toxicity in animals, in *Selenium in the Environment: Essential Nutrient, Potential Toxicant*, Proceedings of a National Symposium, University of California-Davis, pp. 38-44.

<sup>9</sup> Martens, D.A. and Suarez, D.L., 1995, Mineralization and speciation of sulfur and selenoamino acids applied to soil, in *Selenium in the Environment: Essential Nutrient, Potential Toxicant*, Proceedings of a National Symposium, University of California-Davis, p. 45.

<sup>10</sup> Drake, D.J., Norman, B.B., and Carlson, H., 1995, Selenium content of plants grown in excreta from selenium supplemented and unsupplemented cattle, in *Selenium in the Environment: Essential Nutrient, Potential Toxicant*, Proceedings of a National Symposium, University of California-Davis, p. 49.

<sup>11</sup> Martens, D.A. and Suarez, D.L., 1995, Mineralization and Se speciation of seleniferous plant residues added to soil, in *Selenium in the Environment: Essential Nutrient, Potential Toxicant*, Proceedings of a National Symposium, University of California-Davis, p. 55.

<sup>12</sup> Hatheway, R.L. and Hill, D.R., 1995, Supplementation of selenium to beef cattle, in *Selenium in the Environment: Essential Nutrient, Potential Toxicant*, Proceedings of a National Symposium, University of California-Davis, p. 56.

cattle ranches where selenium-supplemented cattle were pastured for a minimum of three years.<sup>13</sup>

Some of the research reported at the symposium had been considered by the FDA in 1993 and refuted as being inadequate or inconclusive. Notably, adequacy of the field study conducted on the effects of pastured, selenium-supplemented beef cattle on aquatic ecosystems was challenged by the FDA. The FDA concluded that interpretations of the results of this study “to yield a general understanding of selenium dynamics in pasture settings is inappropriate, due to limited experimental design.” Specifically, FDA found the study to be inadequate because of the manner of selenium supplementation, lack of data on the forms of selenium in the excreta and environmental samples, incomplete soil characterization, and the possibility that background selenium levels in the environment may have obscured selenium introductions from the cattle.

Continuing research is further evaluating the complex biogeochemistry of selenium in the environment. The University of California Cooperative Extension is completing a three-year field and laboratory study evaluating the effects of selenium supplementation to cattle on pasture crops. The study investigated three different forms of selenium supplementation (bolus, injection, and pasture treatment with seleniferous fertilizer). Total selenium concentrations in cattle blood, excreta, pasture soil, and pasture crops from the three variously supplemented cattle herds were compared to a control (unsupplemented) herd. Limited surface water runoff sampling was performed. However, recent research has not directly addressed all of the data deficiencies identified by the FDA in 1993. Specifically, data are not available to determine the distribution of forms and fate of selenium in aerobic agricultural soils, the selenium uptake rates for all common agricultural crops, or the forms of selenium in dairy cattle manure and fate of those forms in the environment.

### **Response to Comment 16-2**

The commentor’s estimates of the amount of selenium that may be released to the environment following implementation of the Element are noted for the record. The assumption presented in the comment that all of the estimated selenium contained in supplemented cattle feed would be “leached” during one heavy rainfall does not acknowledge scientific research that would support a substantial decrease in the estimate of available selenium. Although not fully understood at present, dairy cattle would metabolize a portion of the supplemented selenium that would be incorporated into milk and muscle tissue. Available research suggests that between 30 and 60 percent of dietary

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<sup>13</sup> Norman, B., Nader, G., Oliver, M., Delmas, Drake, D., and George, H., 1995, Effects of selenium supplementation in cattle on aquatic ecosystems in Northern California, in Selenium in the Environment: Essential Nutrient, Potential Toxicant, Proceedings of a National Symposium, University of California-Davis, p. 59.

selenium is digested by ruminant animals.<sup>14</sup> Not all of the selenium contained in dairy cattle excreta would be present in soluble (“leachable”) forms. Some of the selenium contained in manure and process water as fertilizer and irrigation supply would be taken up by agricultural crops. The preparers of the PEIR concede that insufficient data are available at this time to accurately estimate the amount of selenium that could be released in bioavailable forms after cattle digestion and agricultural crop uptake. However, the assumption that all supplemented selenium would be released is not supported by available scientific data.

The comment references potential releases of selenium to “lakes.” Under the Element, there is no reason to assume that runoff from dairy operations would be released to lakes. **Policy DE 4.1b.C** of the Element requires dairy operators to prepare and implement an Irrigation Management Program, which ensures that irrigation water and runoff from fields at each dairy unit would not be allowed to migrate away from the project site or into surface water features.

### **Response to Comment 16-3**

An accurate assessment of the fate of selenium contained in manure and process water cannot be made at this time. Following a thorough review of available data and research on the environmental fate of selenium contained in animal manure, the preparers of the PEIR conclude that the basis of the 1993 FDA determination that environmental effects of selenium cannot be determined remains unchanged. Substantial additional basic research is necessary before all aspects of selenium metabolism and fate in the environment can be fully understood. Section 15145 of the CEQA Guidelines provides guidance for the determination of the significance of a potential environmental impact when thorough investigation is unable to resolve an environmental issue. After careful review of available scientific information, the Kings County Planning Agency has determined that definitive understanding of all forms and transformation of selenium is not possible at present. A determination of the significance of potential adverse environmental effects associated with this nutrient would be speculative.

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<sup>14</sup> NRC, 2001, Nutrient Requirements of Dairy Cattle, Seventh Revised Edition, 2001, prepared by the Subcommittee on Dairy Cattle Nutrition, Committee on Animal Nutrition, Board on Agricultural and Natural Resources, National Academy Press, p. 142.

## **LETTER 17 - Antonio Pedro, Pedro Dairy**

### **Response to Comment 17-1**

The comment is noted for the record. Although the County considers the goals, objectives, and policies contained in the Element to be necessary to protect public and environmental health, it is recognized that implementation of the Element will present some additional economic burden on the dairy operators.

## LETTER 18 - Jacob de Jong

### Response to Comment 18-1

The commentor's concerns regarding changes in dairy regulation within Kings County that would occur under the proposed Element are noted for the record. It is pointed out that the two stated objectives of the Element are to 1) "ensure that the dairy industry of Kings County continues to grow and contribute to the economic health of the County" and 2) "to ensure that the standards established in the *Dairy Element* protect public health and safety and the environment." The County has determined that adoption of standardized procedures for the permitting of dairies is appropriate to facilitate the achievement of these objectives.

The commentor contends that many of the requirements and performance standards for dairy operations presented in the Element are not implemented at dairies operated at universities. The comment is not specific as to which provisions of the PEIR are not implemented at the university dairies. However, the university dairies are not subject to regulation by Kings County and the activities at those dairies have not been subject to the requirements of CEQA.

### Response to Comment 18-2

The commentor is correct in asserting that the PEIR acknowledges that a complete understanding of air emissions from dairy operations is not possible at this time. However, the PEIR presents a concise and thorough discussion of the currently available emissions factors and methodologies for estimating the air emissions from dairies. The County considers that the discussion of air quality impacts presented in the PEIR provides the decision makers and the public with an appropriate level of information to understand the magnitude and significance of these impacts.

### Response to Comment 18-3

The commentor indicates that few advanced manure treatment facilities are operating in the country and that a "good success rate" has not been established. The U.S. EPA AgSTAR program identifies that there were 31 controlled anaerobic digestion systems operating at concentrated animal feeding operations (CAFOs) (14 at dairy farms) in the U.S. The number of aerobic treatment systems in operation at CAFOs is not known, but the technology is implemented at many facilities to control odors. Currently, WaterPure Technology, Inc. operates aerobic treatment systems at three dairies in the San Joaquin Valley. A recently approved large dairy project (7,200 milking cows at each of two dairies) in Kern County proposes construction and operation of an aerobic treatment system.

The commentor expresses concern that the Element contains provisions that are more appropriate for “east coast areas rather than our arid west coast environment.” The commentor specifically questions the appropriateness of consideration of “phosphorous concerns,” an impact not specifically identified as significant in the PEIR; the proposal to divert clean water from roofs, a State regulation, unless lagoons are designed to accommodate runoff volumes; and land management practices, such as filter strips, provisions not specifically required by the Element or the PEIR.

#### **Response to Comment 18-4**

The County concurs with the commentor’s opinion that the dairy industry is a very important component of the County and regional economy. The importance and the economic value of the dairy industry is described in Section I of the Element and an economic analysis of the industry is presented in Section VII. The County recognizes that the provisions of the Element will add environmental costs for the dairy operators. However, the environmental safeguards presented in the Element primarily address existing regulations for protection of public health and the environment.

#### **Response to Comment 18-5**

The commentor is correct in assuming that salt loading is typically the limiting factor for determining the amount of land needed for the application of manure and dairy process water. This condition is reflected in the estimation of the theoretical County dairy herd presented in the Element. The estimation of the theoretical herd assumed a nitrogen loss from process water of fifty percent on the basis of guidelines presented in the RWQCB *Fact Sheet 4* for liquid manure stored for over 60 days. This assumption is based on the best available data and consideration that dairy operations are required to have storage capacity for 120 days of liquid manure (manure and process water).

#### **Response to Comment 18-6**

The results of evaluations of confined animal facility process water storage presented in the comment were considered during the preparation of the PEIR. The formation of an organic mat at the bottom and sides of anaerobic lagoons was acknowledged on page 4.3-32 of the Draft PEIR. Although evidence described in the comment suggests that infiltration from lagoons is significantly limited by the formation of the mat, long term seepage is not fully addressed in the research. Estimates of the infiltration rates through the “manure seal” are in the range of  $10^{-6}$  centimeters per second (cm/sec). The infiltration rate decreases to this level with time. The preparers of the PEIR consider that the potential infiltration losses during the period the seal is forming could be significant depending on the size of the newly constructed lagoons, the hydraulic head (i.e., depth of water), and the texture of the underlying soils.

The preparers also considered that organic mats in anaerobic lagoons could be disturbed during the periodic solids removal required to maintain lagoon capacity. Additionally, the Element requires that advanced manure treatment be performed at new and expanded dairies. Some dairy facilities may determine that aerobic treatment is the best option for meeting this requirement. It is uncertain whether effective organic mats are maintained under aerobic treatment. However, regardless of whether an anaerobic or aerobic system is chosen, the lagoon design would be required to meet all requirements for liners presented in **Policy DE 4.1a.B.2**.

#### **Response to Comment 18-7**

Please refer to Response to Comment 18-6.

#### **Response to Comment 18-8**

The commentor's opinion that NRCS guidelines for manure storage lagoons are conservative is noted for the record. However, the County considers a conservative approach to groundwater protection to be a high priority given the hydrogeologic conditions within the designated DDOZs and NSOZs. In most of these areas, uppermost groundwater is encountered at relatively shallow depths (typically less than 100 feet). Although the County does not imply that current and past practices at dairy operations were "irresponsible," it is necessary to set specific performance standards for dairy design and maintenance to allow verification of environmental protection during the permit review process.

In response to the commentor's request regarding citation of the source of information regarding pollutant migration at dairies in Merced and Stanislaus counties, the text of page 4.3-31 and the bibliography in Section 7 of the Draft PEIR have been modified.

#### **Response to Comment 18-9**

The PEIR is not able to cite an emission factor for PM<sub>10</sub> that has been adopted by State, Federal, or local air quality regulators. However, the PEIR discusses the recommendations of the USDA Agricultural Air Quality Task Force that the emissions factor for dairies should be considered to be approximately 20 percent of the cattle feedlot PM<sub>10</sub> emission factor developed for feedlots by Texas A&M University. The estimates of PM<sub>10</sub> emissions presented in the PEIR adjusted the available emissions factors to account for San Joaquin Valley precipitation and typical livestock management in dairy corrals. The County considers these estimated emissions factors to be the best available information for estimating PM<sub>10</sub> emissions from unpaved corrals. Although there is variability in the emissions factors, it is incumbent on the County to present this information to the decision makers and the public.

### **Response to Comment 18-10**

For a discussion of the most recent information on global warming, the commentor is referred to Responses to Comments 21-2 through 21-17. The comment accurately estimates the contribution of methane generated by dairy cattle to the total anthropogenic methane production in the U.S. on the basis of information presented in the PEIR. Although uncertainties remain regarding accurate estimation of the impact of methane generated at dairies, the potential impact of increasing this “greenhouse gas” is an environmental issue that CEQA requires be presented to the decision makers and the public.

### **Response to Comment 18-11**

The commentor’s conclusion that the reactive organic gas (ROG) emissions factor presented in the PEIR was developed using data collected over ten years ago and is based on “limited available data” is noted for the record. The preparers of the PEIR confirmed with CARB that these data are the most reliable data available from which to make estimates of ROG emissions.

**Policy DE 5.1c** of the Element requires applicants for new and expanded dairies to develop and implement a Manure Treatment Management Plan that specifies an advanced treatment technology. The policy recognizes controlled anaerobic digestion, aerobic treatment, and combined aerobic and controlled anaerobic treatment as effective advanced manure treatment technologies. Neither the Element nor the PEIR “tout” anaerobic digesters as “the primary advanced treatment measure to be considered” as indicated by the commentor. The PEIR discusses the advantages and disadvantages of aerobic and anaerobic treatment of manure. The County considers it important to allow dairy operators to choose the most appropriate technology for their specific operation.

Anaerobic digesters would collect biogas, which includes ROG and methane as components. Both ROG and methane are combustible and complete combustion of these gases would release heat, carbon dioxide, and water. Assuming that combustion would not be complete, some organic gases could be released. However, the combustion of the biogas would reduce the ROG content of the biogas, reducing the ROG emitted from the decomposition of manure generated at the dairies at which anaerobic treatment technologies are implemented.

### **Response to Comment 18-12**

The comment is noted for the record. As discussed on page 4.2-71 of the Draft PEIR, ammonia emissions are regulated under the California Air Toxics “Hot Spots” Information and Assessment Act (AB2588).

### **Response to Comment 18-13**

The comment is noted for the record and is generally consistent with information presented in the PEIR. However, as discussed on page 4.2-73 of the Draft PEIR, hydrogen sulfide emissions are regulated under the California Air Toxics “Hot Spots” Information and Assessment Act (AB2588).

### **Response to Comment 18-14**

Aerobic and controlled anaerobic treatment of animal manure are technologies proven to be capable of significantly reducing air emissions and pollutants contained in effluent. These technologies have been successfully implemented for the treatment of organic wastes, including sewage, food processing wastes, and livestock manure. With regard to anaerobic digestion, the PEIR provided information on the Haubenschild dairy digestion system as an example of a well-documented analysis of the feasibility of this treatment technology. As noted in Response to Comment 18-3, U.S. EPA identifies 31 anaerobic digestion systems in operation in 2000 in the United States. The implementation of these advanced treatment technologies are considered to be appropriate and feasible at the present time.

### **Response to Comment 18-15**

The comment expresses concerns regarding implementation of several provisions of the proposed Element. If water spray is used for dust suppression in corrals, the operator would be responsible for maintaining a moisture content that effectively suppresses dust generation. It is not necessary to saturate the soil (a condition favorable for fly and mosquito breeding) to control dust generation. **Policy DE 5.1g** (now **5.1f**) of the Element requires that the owner/operator comply with guidelines set by the SJVUAPCD for air emissions from heavy equipment. For the most part, these guidelines call for proper management and maintenance of equipment and use of standard emissions controls for modern equipment. The use of temporary windbreaks is one of many potential controls recommended by the provisions of the Regulation VIII rules adopted by the SJVUAPCD. Some but not all of the recommended provisions of the regulation would be applicable to individual dairy construction projects. The SJVUAPCD has authority to determine which of the provisions would be required. The removal of manure in a manner that minimizes dust generation is not inconsistent with the recommendation to minimize disturbance of the manure seal in corrals. The seal would be located at the top of the soil profile and disturbance of the seal would suggest that scraping procedures were unnecessarily disturbing the soil profile. Manure removal should be performed to effectively remove solid manure while avoiding disturbance of the soil profile.

### **Response to Comment 18-16**

**Policy DE 4.2a** of the Element has been modified to specify that an agreement would be required for application of process water at a location not included within the permitted dairy site only if the reuse would occur on another landowner's property.

### **Response to Comment 18-17**

The comment is noted for the record. **Policy DE 3.3a** specifically requires biological surveys for proposed dairy development projects on properties that 1) contain pasture, rangeland, or natural vegetation, 2) have natural waterways or other wetland features, 3) are located within one mile of an established reserve, or 4) are native areas. These conditions do not include actively farmed cropland.

### **Response to Comment 18-18**

Please refer to Response to Comment 1-4.

### **Response to Comment 18-19**

The goal, objectives, and policies are now combined into **Goal DE 6**. **Goal DE 6** has been modified to include the subject matter of **Goal DE 7**. **Objective DE 7.1** was moved to a new **Objective DE 6.1** along with its attendant policy statements. **Objective DE 7.2** was moved to a new **Objective DE 6.4** along with its attendant policy statements. The monitoring of mitigation measures contained in the Element is required by CEQA.

## **LETTER 19 - Carol Collar, University of California Cooperative Extension**

### **Response to Comment 19-1**

The comment is noted for the record. The County appreciates the input that the commentor has provided throughout development of the Element and the PEIR.

### **Response to Comment 19-2**

Estimation of emissions to the atmosphere presented in the Draft PEIR were developed on the basis of adapted standard methodologies referenced by the San Joaquin Valley Unified Air Pollution Control Board. For many of the wide range of activities that could occur during implementation of the proposed Element, standard methodologies have been developed by U.S. EPA, CARB, SJVUAPCD, and other regulatory agencies. Some of these activities include vehicle operation on paved and unpaved roads, operation of heavy equipment during construction, vehicle operation, and cultivation of cropland. These outdoor activities, which occur over relatively wide and variable areas, are typically considered “nonpoint” sources of air emissions; as compared to “point sources,” which are localized activities with distinct emission discharge points. Most standard air emission estimation methodologies are based on emission rates developed by the regulatory agencies and the scientific community. Emission rates for nonpoint sources are usually based on empirical data gathered during long-term environmental monitoring programs. Significant variability in the natural environment, including seasonal and diurnal climate changes, changes in soil conditions, and variable topography, presents a complex set of conditions affecting the emission of air pollutants. In addition, the atmosphere is an environment of turbulent fluid flow and dynamic chemistry that is difficult to sample and characterize. The emission rates are estimates of the rate of discharge of gases, vapors, and particulates into the atmosphere under typical or average conditions. Although the emission rates are inherently uncertain, they are established and used as the best reasonable estimates.

Considerable research has been and continues to be undertaken to develop emission rates. Long-term monitoring is performed under controlled research conditions as well as at uncontrolled sites. In some cases, air quality modeling is used in the development of the emission rate. This research is time-consuming and expensive. In most cases, the emission rates are developed by the U.S. EPA and adopted by CARB and local air districts largely because of the expense and technical expertise required to develop these estimates. Even after emission rates are established, continued research is performed to evaluate the accuracy of these estimates and in consideration of developments in control technologies. It is not uncommon for emissions rates to be revised on the basis of new research.

As discussed in the PEIR, there is current debate on the accuracy and appropriateness of existing rates for particulate matter emissions from cattle feedlots. Difficulties in

establishing accurate emissions rates for that activity are described in detail in the July 2000 “white paper” prepared by the Confined Livestock Air Quality Committee of the USDA Agricultural Air Quality Task Force (ACDF, 2000) and summarized in the Draft PEIR (page 4.2-30). In light of the controversy related to the current emissions rate for particulate matter, the preparers of the PEIR presented a range of potential particulate matter emissions using different emissions factors. In addition, the emissions rates were adjusted to account for local conditions in Kings County and assumptions regarding the differences between beef feedlot conditions and dairy corrals. The County considers that this approach provides the public and the decision makers with a full disclosure of the potential particulate matter emissions from dairy operations.

### **Response to Comment 19-3**

**Policy DE 1.2d** has been modified to include the following phrase: "..., or the expansion of existing dairies, ...". This will include the expansion of existing dairies in this policy as intended. Other changes to this policy have also been made.

### **Response to Comment 19-4**

**Policy DE 2.1f** has been modified to include the following phrase: "..., or the expansion of existing dairies, ...". This will include the expansion of existing dairies in this policy as intended. Other changes to this policy have also been made.

### **Response to Comment 19-5**

**Policy DE 2.2a** describes an informal service the Kings County Planning Agency will provide for existing dairy operations. The information provided to the operator will be based on an evaluation of the site's conformity with the RWQCB's Fact Sheet No. 4. Some of the information required in the components of the Technical Report will be required to complete the evaluation. Principally, the review is concerned with an operations ability to handle manure and process water, and Fact Sheet No. 4 provides the necessary calculations for that. Should any dairy expand its herd beyond the established capacity of the dairy site, that dairy owner or operator, will be required to obtain a conditional use permit from the Planning Commission pursuant to **Policy DE 2.1g**. Additional environmental review will be required. Any dairy that is found to have more cows than the established capacity determined by the Dairy Monitoring Office will be required to either reduce the herd size consistent with the calculated capacity of the dairy site, or make modifications to accommodate the herd. These modifications must be made pursuant to an SPR that is consistent with the Element to bring the dairy up to standard.

### **Response to Comment 19-6**

**Goal DE 4** is concerned with environmentally sound dairy design and operation. Based on this comment, and others, references to “comprehensive nutrient management plan” are

changed to “manure nutrient management plan.” The manure nutrient management plan will include several components outlined in **Policy DE 4.1a**. The County recognizes that development of standardized manure management guidelines may be developed by State or Federal agencies and that the standards are likely to be developed over time. However, protection of the environment against overapplication of nutrients contained in manure can only be provided if dairy facilities develop and implement site-specific procedures outlined in **Policies DE 4.1a** through **4.1c** for appropriate storage and application of manure and process water.

### **Response to Comment 19-7**

In response to the comment, **Policy DE 3.2e** has been modified to read as follows:

“**Policy DE 3.2e:** Each dairy shall apply dairy process water to crops at agronomic rates, and ensure even distribution of nutrients over the entire crop area so excessive amounts of nutrients do not cause ‘hot spots,’ where excessive amounts of the nutrients cause crop damage and migrate below the root zone where they cannot be used by the crops.”

This policy will be addressed in the Technical Report as part of the dairy's management program. The specific procedures for meeting the requirements of this policy will depend on site-specific conditions, including the topography and hydrology of the cropland, the type of crops grown, the method of irrigation, and the nutrient content of treated manure and process water.

### **Response to Comment 19-8**

In response to the comment, **Policy DE 4.1a.B.4** has been changed to read:

“4. *Manure Management* – Manure shall be managed to reduce the loss of nutrients to the atmosphere during storage, to make the managed manure a more stable fertilizer when land applied, and to reduce pathogens, vector attraction and odors, in compliance with Policy 5.1c.”

**Policy DE 5.1c** of the Element requires that new and expanded dairies develop and implement an advanced treatment technology and demonstrate that the system meets the performance standard of a fifty percent reduction in the volatile solids content in treated manure and process water. The policy recognizes anaerobic digestion, aerobic treatment, or combined aerobic and anaerobic treatment as effective and proven technologies for the treatment of organic materials, including animal manure. The effectiveness of these technologies was described on pages 4.2-21 through 4.2-24 of the Draft PEIR. The Draft PEIR (pages 4.2-24 through 4.2-27) also acknowledges that additional research is underway to further evaluate aspects of manure treatment. The potential for these technologies to

reduce significant impacts identified in the PEIR and the fact that these technologies have been used for decades to treat other organic materials promotes inclusion of the policies of the Element that require their implementation.

#### **Response to Comment 19-9**

In response to the comment, **Policy DE 4.2b** has been modified to read: "...may be diverted...". **Policy DE 4.1a.B.1** has also been modified to allow, but not require, the diversion of clean water.

#### **Response to Comment 19-10**

**Policy DE 5.1e** has been modified to simply require effective stabilization. Water may be used, but is not required. It is important to note that, if water is used as a dust suppressant, it is not necessary to apply the water at rates that would result in saturation of the soil and potential surface water ponding (i.e., conditions that could promote odors, excess humidity, breeding of flies or other nuisances). Effective suppression would only require moisture content in the soil to be raised to 10 percent or less.

#### **Response to Comment 19-11**

All projects, for which an EIR is prepared that includes mitigation measures, must be accompanied by a Monitoring and Reporting Program (CEQA Guidelines Section 15097). This is "...to ensure that the mitigation measures and project revisions identified in the EIR ... are implemented ...". The proposed Dairy Monitoring Office is a subsection of the Code Compliance Section of the Kings County Planning Agency, and it will be directed by the Director of Planning and Building Inspection who is also the zoning administrator and responsible for the Code Compliance section. The Dairy Monitoring Office will carry out the monitoring that is required by CEQA for the dairy program. To do the monitoring, operators of new and expanded dairies must keep a written record of their efforts to implement their activities to operate the dairy within the Dairy Element standards and demonstrate their compliance.

#### **Response to Comment 19-12**

The Element establishes the minimum regulations, mitigation requirements, standards, and the like for the Kings County dairy program. Standards of other regulatory agencies must be met based on the regulatory requirements of those agencies, but enforcement and monitoring by other agencies is in addition to this program.

#### **Response to Comment 19-13**

The commentor's opinion regarding the appropriateness of the requirement of groundwater monitoring wells at new and expanded dairies is noted for the record. The Element contains several policies specifically directed at the protection of groundwater

quality and analyzed in the Draft PEIR (pages 4.3-23 through 4.3-38). Although implementation of these policies would significantly reduce the potential for infiltration of pollutants into the subsurface, it is appropriate for the County to confirm the success of these measures through periodic long-term groundwater quality monitoring.

The County is committed to ensuring that the goals, objectives, and policies of the Element are successfully implemented. The establishment of the Dairy Monitoring Office is considered essential to ensure that the provisions of the Element, the CEQA monitoring and reporting requirements, are abided by and documented. Dairy Monitoring Office staff will work with those other agencies so that duplication of efforts does not occur. On-site monitoring will be random for compliance with Dairy Element standards, as well as on a complaint basis.

#### **Response to Comment 19-14**

The term “legally established” comes from Article 17 of the Kings County Zoning Ordinance that deals with nonconforming uses of land and structures. Specifically Section 1709 A states in part:

*“A non conforming use is a use of a structure or land which was lawfully established and maintained prior to the adoption of this ordinance but which, under this ordinance, does not conform with the use regulations for the district in which it is located. This section is intended to limit the number, extent, and duration of non conforming uses and to serve their gradual elimination by prohibiting their enlargement and their re-establishment after abandonment and by prohibiting the alteration of the structure they occupy and their restoration after destruction.” (emphasis added)*

All dairies established prior to the changes in the ordinance in 1979, which began the regulation of dairies under the zoning ordinance, were “legally established” but nonconforming. After 1979, any dairy that enlarged (expanded its herd size or enlarged the “footprint” of the dairy facility) was required to first obtain a zoning permit for those changes. Any dairy that has expanded without first obtaining the required zoning permit may have expanded illegally.

#### **Response to Comment 19-15**

**Goal DE 8** has been deleted, and Section VI has been completely rewritten to simply state that Kings County encourages all dairies in the County to operate in efficient and economically and environmentally sound ways and recommends that all dairies work toward certification under the California Dairy Quality Assurance Program.

### **Response to Comment 19-16**

The stated purpose of the Economic Analysis presented in Section VII (and Appendix F) of the Element is to consider:

*"... the economic impact and job creation potential of the dairy industry, including the multiplier effect attributable to the creation of "spin off" industries that will occur as a result of a strong dairy industry."*

The analysis was never intended to evaluate the cost to the individual dairy for meeting the standards of the Element. Because of the various ways available to meet each standard it would be speculative to try to determine this cost.

### **Response to Comment 19-17**

The Element and the PEIR address the requirements for changing the Kings County Zoning Ordinance to streamline the processing of applications for new and expanding dairies and comply with the requirement of CEQA to accomplish the program change. Monitoring the effects of the change is required by CEQA. The entire dairy program process hinges around the Technical Report required for every new or expanding dairy. The Technical Report provides the basis for demonstrating that the project is consistent with the policies of the general plan which are the mitigation measures of the PEIR. Once approved the monitoring program is the method for ensuring the policies (mitigation) are being carried out. Where possible, reports from other regulatory agencies, such as the RWQCB, will be used instead of requiring a duplicate report.

## LETTER 20 - Michael Marsh, Western United Dairymen

### Response to Comment 20-1

The comment is noted for the record.

### Response to Comment 20-2

The comment is noted for the record. The commentor's support of and contribution to the development of the Element are appreciated.

### Response to Comment 20-3

The Element reviewed by the PEIR includes numerous policies that serve as performance standards for future dairy development projects in Kings County. These policies were developed, in part, in response to the analysis of potential significant environmental impacts related to the construction and operation of dairies. Some of the impacts are mitigated partially or fully by enforcement of existing laws and regulations enforced by local, State, and Federal regulatory agencies. The Element and the PEIR considered and discussed existing regulations in the evaluation of each environmental impact. As part of the evaluation, consideration was given to whether the existing regulations and their enforcement would reduce the impacts within Kings County to a less-than-significant level. If additional feasible mitigation was identified to reduce or eliminate impacts, then additional policies providing specific performance standards were developed and included in the PEIR.

For example, the Regional Water Quality Control Board is responsible for regulating potential sources of surface or subsurface water quality degradation. Specific to bovine dairies, the RWQCB is required to enforce the requirements of Subchapter 2 ("Confined Animals") of The California Code of Regulations Title 27, Division 2, Subdivision 1, Chapter 7. These requirements are discussed in Section 4.3 ("Water Resources") of the PEIR. Policies contained in the Element incorporate [**Policy DE 3.2k (now 3.2j)**] and expand upon these requirements to ensure that, at a minimum, dairy projects in the County conform with these requirements. Additional policies (e.g., **Policies DE 3.2a, 3.2b, 3.2c, 3.2h, and 3.2i**) are included in the Element that relate to the specific hydrologic and water quality conditions in the County. The environmental analysis performed in the development of the Element and the PEIR determined these policies to be necessary to ensure the protection of water resources in the County.

Other aspects of dairy development and operation are regulated by other State and Federal agencies. Dairy design and construction are regulated by the California Department of Food and Agriculture under Title 3 of the California Code of Regulations. These regulations include provisions for milk processing, packaging, and handling, sterilization,

and product inspection. In addition, the regulations (Article 22) address the design of dairy facilities. Dairies are required to submit design plans to the DFA Milk and Dairy Foods Control Branch for review and approval. It is the responsibility of the DFA to determine if the dairy design meets the requirements of these regulations. The Element (**Policy DE 4.1aB.2**) and PEIR (Impact 4.3-7) acknowledge the applicability of some of the regulations in reducing environmental impacts (i.e., potential water quality degradation). In conformance with Article 21, the dairies are inspected by the Tulare County Environmental Health Department, a licensed milk inspection agency under contract with Kings County. However, these regulations alone would not reduce the identified impacts to less than significant.

#### **Response to Comment 20-4**

The commentor is referred to Responses to Comments 20-5 through 20-57.

#### **Response to Comment 20-5**

**Policies DE 1.2a** and **1.2b** have been modified to reflect this comment. In the case of an existing dairy that is expanding, the policies of the Element only apply to the expansion area, not to the previously existing facility.

#### **Response to Comment 20-6**

Please refer to Responses to Comments 1-6, 23-8, and 23-9.

#### **Response to Comment 20-7**

Please refer to Response to Comment 23-11.

#### **Response to Comment 20-8**

**Policy DE 1.2g** has been modified to allow for an application of a conditional use permit for further reduction by expansion of an existing dairy into the buffer zone around schools. For additional discussion, the commentor is referred to Response to Comment 23-12.

#### **Response to Comment 20-9**

Please refer to Response to Comment 23-13.

#### **Response to Comment 20-10**

In response to the comment, **Policy DE 1.2h** has been modified to allow for an application of a conditional use permit for a dairy expansion that encroaches into the one-half mile buffer between residential zones and existing dairies.

### **Response to Comment 20-11**

The comment is noted for the record. Please refer to Response to Comment 23-14.

### **Response to Comment 20-12**

The text of **Objective DE 2.1** has been modified in response to the commentor's suggested edits.

### **Response to Comment 20-13**

The text of **Policy DE 2.1b** has been modified in response to the comment.

### **Response to Comment 20-14**

**Policies DE 2.1c** and **2.1d** have been edited in response to the commentor's requested revisions to clarify that only the new portions of a dairy expansion project would be subject to site plan review.

### **Response to Comment 20-15**

The text of **Objective DE 2.2** has been modified in response to the commentor's suggested edits.

### **Response to Comment 20-16**

The comment is noted for the record. Please refer to Response to Comment 23-20.

### **Response to Comment 20-17**

The comment is noted for the record. However, the text of **Policy DE 3.1b** has not been modified in response to the comment as the change would not affect the intent of the policy.

### **Response to Comment 20-18**

In response to the comment, **Policy DE 3.1c** has been modified to provide the option to an expanding dairy that cannot meet the requirements of the policy to submit a conditional use permit.

### **Response to Comment 20-19**

**Policy DE 3.1e** has been modified in response to the commentor's suggestion.

### **Response to Comment 20-20**

The commentor's suggestion to revise the minimum setback from 150 feet to 100 feet between manured areas at dairy facilities and wells is noted for the record. The recommended setback exceeds the setback required by the California Well Standards. The setback for dairy facilities is similar to that required by the Kings County Division of Environmental Health Services for the setback of open cesspools from domestic wells. By increasing the minimum setback of dairy facilities from wells, additional protection of human health is provided. The preparers of the PEIR consider it important to not differentiate between domestic and agricultural water supply wells. In part, the setback is intended to provide protection against the potential for either type of well to act as a conduit for vertical migration of contaminants.

**Policy DE 3.2c** has been added to address the commentor's concerns regarding setback of manured areas from water bodies. The new policy requires that dairy facilities be designed and constructed to ensure that no runoff from manured areas flows into water bodies. The policy acknowledges that construction of barriers (e.g., dikes or berms) can be implemented to achieve the goal of the policy. It is important to note that **Policy DE 4.1b.C** requires that operators of new or expanded dairies submit an irrigation management program that "ensures that irrigation water and runoff from fields at each dairy unit would not be allowed to migrate away from the site or into surface water features.

### **Response to Comment 20-21**

The text of **Policy DE 3.2h** has been edited to provide the clarification sought by the commentor.

### **Response to Comment 20-22**

The text of **Policy DE 3.2i** has been edited to provide the clarification sought by the commentor.

### **Response to Comment 20-23**

The comment is noted for the record, as is the commentor's suggestion that the Natural Resource Conservation Service (NRCS) is the appropriate agency for conducting biological assessments for new and expanded dairy projects. Although NRCS employs scientists capable of conducting such surveys, the County cannot assume that that agency would be willing or have the authority to conduct the assessments. However, **Policy DE 3.3a** has been modified to clarify that, if biological assessments at a proposed dairy facility identify impacts on biologic resources, the proposed dairy would be required to apply for a conditional use permit.

#### **Response to Comment 20-24**

The comment is noted for the record. **Policy DE 6.1h** (now **6.2f**) has been modified to indicate that water quality monitoring shall comply with all requirements and orders of the RWQCB. It is noted that the State regulations for dairies enforced by the RWQCB are minimum statewide standards. The policies of the Element regarding water quality protection were developed to address the specific hydrogeologic conditions in Kings County and to establish feasible and specific mitigation measures required by CEQA to reduce or eliminate to the extent possible all significant adverse impacts.

#### **Response to Comment 20-25**

The comment submits into the record the Partnership Agreement entitled *Dairy Waste Management: An Integrated Approach to Education and Compliance*. The preparers of the PEIR acknowledge the benefit and merit of this document and the associated U.C. Cooperative Extension program in providing guidance to California dairy operators for the management of "dairy waste." However, the voluntary participation by dairy operators in the California Dairy Quality Assurance Program cannot serve as a mitigation measure for all of the potential significant impacts identified in the PEIR. The guidance does not provide performance standards that the County could use to verify that participating operators are in compliance.

In response to the comment, the text of **Goal DE 4** has been modified to strike the word "system."

#### **Response to Comment 20-26**

The term "Comprehensive Nutrient Management Plan" referred to in the Element has been changed to "Manure Nutrient Management Plan," as suggested in the comment.

#### **Response to Comment 20-27**

The changes suggested by the comment have been made to **Policy DE 4.1a**.

#### **Response to Comment 20-28**

The text of **Policy DE 4.1a.B.1** has been modified in response to the comment.

#### **Response to Comment 20-29**

The change suggested by the comment is noted for the record. The County cannot assume that NRCS technicians are licensed professionals or that NRCS is willing to assume responsibility for lagoon design and inspection.

### **Response to Comment 20-30**

Please refer to Response to Comment 20-20.

### **Response to Comment 20-31**

Please refer to Response to Comment 20-28.

### **Response to Comment 20-32**

The edit proposed by the comment is noted, and although treatment technologies are evolving, it is necessary under CEQA to present a specific performance standard for the required manure treatment. For clarification, **Policy DE 4.1a.B.4** has been modified to ensure compliance with **Policy DE 5.1c**.

### **Response to Comment 20-33**

The text of **Policy DE 4.1b.B** was not changed as proposed by the comment. Spray irrigation will increase the potential for volatilization of residual ammonia in treated process water.

### **Response to Comment 20-34**

The comment is noted for the record. The purpose of **Policy DE 4.1c** is to promote agricultural practices that would reduce the potential for soil erosion on cropland. The PEIR acknowledges that the storage capacity of process water collection systems must be adequate to contain the 25-year storm runoff, precipitation, and process water generated during winter months. Larger events could result in runoff from the dairy facilities.

### **Response to Comment 20-35**

It is important to retain the requirement for a Dead Animals Management Plan. Operators shall be required to identify the specific method for dead animal removal as part of the dairy permit application process. However, **Policy DE 4.1d** has been modified to be consistent with the 72-hour mandate for carcass removal.

### **Response to Comment 20-36**

The comment is noted for the record. The “Comprehensive Dairy Process Water Application Plan” (CDPWAP) referenced in **Objective DE 4.2** provides options to dairy operators for on- or off-site application of manure and process water. However, staff does not agree with the commentor’s position that the requirements of the CDPWAP are duplicative of the requirements of the Manure Nutrient Management Plan (MNMP). The CDPWAP is included to provide for tracking of on- and off-site applications of manure and process water.

### **Response to Comment 20-37**

In response to the comment, the text of **Policy DE 4.2a** has been modified for clarification. Specifically, the policy has been modified to better distinguish the requirements for documentation of on-site and off-site application of manure and process water. The requirement of the policy for the dairy operators to provide documentation of agreements for off-site application of manure and process water is retained. It is important for the County to have access to records of where and when these materials are applied to cropland to ensure mitigation monitoring.

### **Response to Comment 20-38**

The commentator's opinion that **Policy DE 4.2a.A.2** should be eliminated is noted. Without an accounting of the amount and location of reuse of the nutrients, it would not be possible to determine if the applications were consistent with requirements for applying the nutrients at agronomic rates. Requiring documentation of reuse of manure and treated process water would not appear to present a serious disincentive for off-site use of nutrients. Furthermore, no evidence is presented in the comment that documentation of the reuse of dairy process water at off-site locations would "cast a cloud on title to the property." Therefore, the policy has been edited and reorganized to provide clarification.

### **Response to Comment 20-39**

The commentator is correct in stating that Best Available Control Measures (BACM) for air emissions at dairies have not been fully developed or adopted by any regulatory agency to date. Therefore, **Policy DE 4.2b** has been modified to replace the term Best Available Control Measures with "advanced manure treatment technology, as required by **Policy DE 5.1c**." Feasible measures for reducing air emissions from dairies were discussed at length in the PEIR.

With respect to the commentator's suggestion regarding lagoon capacity and "clean" runoff diversion, please refer to Response to Comment 20-28.

### **Response to Comment 20-40**

The text of **Policy DE 4.3b** has been modified in response to the commentator's suggestion.

### **Response to Comment 20-41**

The comment is noted for the record.

### **Response to Comment 20-42**

The comment is noted for the record. As indicated in the Draft PEIR (page 4.2-33), the estimation of ROG emissions was based on the 1988 *Selected Uninventoried Sources in the*

*State of California* prepared for CARB by Radian Corporation. It was noted in the PEIR that the emission factor was based on limited available information. However, the emission factor has been adopted by CARB and is included in CARB's Emission Inventory Procedural Manual. Although future research will likely refine the ROG emission factor for livestock waste, the County considered it important to estimate ROG emissions using the best available information.

### **Response to Comment 20-43**

The comment is noted for the record. It is uncertain whether the SJVUAPCD or CARB will develop regulations regarding air emissions from confined animal facilities. If such regulations are developed, it is uncertain as to when they would be developed, adopted, and implemented. The analysis presented in the PEIR demonstrates that air emissions related to dairy development are significant adverse environmental impacts. It is the County's responsibility under CEQA to develop and implement feasible mitigation measures to reduce or eliminate these adverse effects. It is not justifiable to defer mitigation until such time that new air regulations are put in place.

### **Response to Comment 20-44**

The comment is noted for the record. As discussed in Response to Comment 20-43, the SJVUAPCD has not yet developed regulations for control of air emissions from dairy facilities. Therefore, the mitigation measures presented in the PEIR are not redundant relative to existing regulations. The mitigation measures are not "based on uncertain anecdotal information." Considerable scientific research has been completed concerning air emissions from confined animal facilities and this information was used in the analysis of impacts and the development of mitigation measures. The preparers of the PEIR acknowledge that additional research will refine the ability to more accurately characterize the magnitude of the impacts due to air emissions. However, CEQA requires that significant impacts be mitigated to the extent feasible.

### **Response to Comment 20-45**

**Policies DE 5.1a** and **5.1b** have been retained. These policies were developed to provide specific mitigation for significant impacts identified in the PEIR: odor, ROG, ammonia, hydrogen sulfide, and methane emissions. The mitigation provided by the policies is feasible and effective in substantially reducing the air emissions. The policies were developed, as suggested by the commentor, with consideration of "holistic standpoint." In fact, the Odor Management Plan (**Policy DE 5.1b**) and Manure Treatment Management Plan (**Policy DE 5.1c**) complement each other; control of emissions of ammonia, hydrogen sulfide, and reactive organic gases promotes odor control. The treatment of organic wastes (including livestock manure) for odor control has been practiced for many years. The

comment suggests potential water quality impacts that may result from implementation of the policies but does not identify what those impacts would be.

**Response to Comment 20-46**

Please refer to Response to Comment 23-49.

**Response to Comment 20-47**

The commentor is correct in pointing out that SJVUAPCD's Regulation VIII does not specifically address particulate matter generated in unpaved corrals. However, this aspect of dairy management was identified in the PEIR as the most significant source of fugitive dust emissions. CEQA requires that the particulate matter emissions be controlled to the extent feasible. The requirements of **Policy DE 5.1e** are necessary and feasible mitigation for particulate matter emissions from unpaved corrals.

**Response to Comment 20-48**

Please refer to Response to Comment 23-51.

**Response to Comment 20-49**

Please refer to Response to Comment 23-52.

**Response to Comment 20-50**

Deletion of **Policy DE 5.1h** (now **5.1g**) is not recommended since it includes a necessary and appropriate approach to reducing particulate matter emissions. As discussed in Response to Comment 20-47, Regulation VIII does not cover all potential sources of particulate matter emissions from dairy operations. The policy allows individual dairy operators to develop a particulate matter management plan that best suits their facility.

**Response to Comment 20-51**

In response to the comment, the text of **Policy DE 5.1i** (now **5.1h**) has been modified.

**Response to Comment 20-52**

Please refer to Response to Comment 23-56.

**Response to Comment 20-53**

Please refer to Response to Comment 23-57.

**Response to Comment 20-54**

Please refer to Response to Comment 23-57.

**Response to Comment 20-55**

Please refer to Responses to Comments 23-57 and 23-58.

**Response to Comment 20-56**

The Dairy Conformance Program has been eliminated from the Element.

**Response to Comment 20-57**

The Dairy Conformance Program has been eliminated from the Element.

## **LETTER 21 - Michael LaSalle, Griswold, LaSalle, Cobb, Dowd, & Gin, L.L.P.**

### **Response to Comment 21-1**

The comment is noted for the record. For specific responses to the commentor's concerns regarding air and water quality impacts, the commentor is referred to Responses to Comments 21-2 through 21-34.

### **Response to Comment 21-2**

The commentor's general opinions regarding the significance of methane emissions are noted for the record. The preparers of the PEIR disagree that the discussion in the PEIR of methane as an air pollutant gives the impression that issues related to methane production and its contribution to the accumulation of greenhouse gases and potentially to global warming are well understood at this point. Atmospheric science in general is a very complex discipline and global climatology is extremely complicated. The commentor is referred to Responses to Comments 21-3 through 21-17 for further discussion of the current understanding of methane impacts.

### **Response to Comment 21-3**

The commentor asserts that global warming may not actually be occurring because, as it is stated in the comment, "the majority of all surface air temperatures have been taken at urban sites, such as airports and in cities" and that temperature data collected near urban centers may be biased upward. The commentor does not provide substantiation that the data collected for use in climate change analyses have been collected at urban locations.

The National Research Council<sup>15</sup> indicates that a "diverse array of evidence points to a warming of global surface air temperatures. Instrumental records from land stations and ships indicate that global mean surface temperature warmed by about 0.4 to 0.8 C during the 20<sup>th</sup> century. The warming trend is spatially widespread and is consistent with the global retreat of mountain glaciers, reduction in snow cover extent, the early spring melting of ice on rivers and lakes, [and] the accelerated rate of rise of sea level during the 20<sup>th</sup> century..."

### **Response to Comment 21-4**

The commentor refers to a single researcher who has apparently asserted that sea level has increased approximately 0.1 mm since 1900. These data are in sharp contrast to the general consensus of the scientific community. The U.S. EPA reports that sea level has risen worldwide approximately 15 to 20 cm (six to eight inches) in the past century, and at even

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<sup>15</sup> National Research Council, 2001, Climate Change Science, An Analysis of Some Key Questions, National Academy Press.

greater rates (25 to 30 cm in the past century) in the United States.<sup>16</sup> The National Oceanic and Atmospheric Administration (NOAA) also indicates that a one to two mm per year average rate of sea level rise over the past 100 years has been documented.<sup>17</sup>

### **Response to Comment 21-5**

The commentor questions whether human activity is responsible for the observed and documented increase in global temperatures. It is an accepted fact in the scientific community that global temperatures have varied considerably throughout geologic time (prior to human influence), as evidenced by the recurring ice ages. However, it is the consensus of the scientific community that human activity has resulted in a rapid increase in the *rate* of change. It remains the current thinking of the scientific community that most of the observed warming of the last 50 years is likely to have been due to the increase in greenhouse gas concentrations in the atmosphere.<sup>18</sup>

### **Response to Comment 21-6**

Refer to Response to Comment 21-5.

### **Response to Comment 21-7**

The commentor is correct that warmer temperatures tend to increase precipitation. Some climate models indicate that precipitation as snowfall on the polar land masses and ice sheets could offset the increased rates of melting of the ice sheets that would be caused by the warmer conditions.<sup>19</sup> However, this is far from a certainty. More importantly, the thermal expansion of the water in the world's oceans as a result of warming will cause a substantial rise in sea level (which is already rising at 2.5 to 3.0 mm/yr).<sup>20</sup>

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<sup>16</sup> U.S. Environmental Protection Agency, 2001, Global Warming Trends; Sea Level, EPA website: <http://www.epa.gov/globalwarming/climate/trends/sealevel.html>

<sup>17</sup> National Oceanic and Atmospheric Administration, 1999, Global Warming; Frequently Asked Questions, NOAA website: <http://lwf.ncdc.noaa.gov/oa/climate/globalwarming.html>.

<sup>18</sup> National Research Council, 2001, Climate Change Science, An Analysis of Some Key Questions, National Academy Press.

<sup>19</sup> U.S. Environmental Protection Agency, 1995, The Probability of Sea Level Rise, EPA 230-R-95-008, October.

<sup>20</sup> Ibid.

### **Response to Comment 21-8**

The commentor correctly indicates that changes in carbon dioxide (CO<sub>2</sub>) concentrations in the atmosphere have been studied extensively during research on global climate change. CO<sub>2</sub> is the most important greenhouse gas and anthropogenic sources of increased CO<sub>2</sub> emissions have been the source of much scientific debate. However, it is well documented that CO<sub>2</sub> concentrations have increased dramatically since the start of the Industrial Revolution. In general, the increased CO<sub>2</sub> levels are typically linked to the burning of fossil fuels. Prior to the industrial age, CO<sub>2</sub> concentrations during interglacial periods (as recorded in ice cores) averaged approximately 280 ppmv. By 1958, the average concentration had increased to 315 ppmv and are currently 370 ppmv. The rate is increasing by approximately 1.5 ppmv per year.

The determination of the cause and effect relationship between CO<sub>2</sub> and changes in global temperatures is very complex. The atmospheric CO<sub>2</sub> increase over the past few decades is less than the estimated input from human activities because a fraction of the added CO<sub>2</sub> is removed by oceanic and terrestrial processes. The carbon in CO<sub>2</sub> is absorbed by plants and soil detritus (i.e., "sequestered") and released through complicated chemical and biological processes. Climate variations affect vegetation and soil chemistry, effecting a "feedback" loop (e.g., in some regions, increased temperatures may promote vegetative growth and in others cause drought) that adds to the complexities of carbon sequestration. Therefore, linking the changes in CO<sub>2</sub> concentration with climate change requires continued research.

### **Response to Comment 21-9**

The commentor is correct in observing that wetland environments are an important contributor to methane production. Although the Element promotes the protection of existing wetlands, the Element does not provide for increased wetland development. The County does not attempt to distinguish between "politically correct and incorrect" sources of greenhouse gases. However, existing biological resources are considered important for reasons (e.g., habitat value, protection of special-status species, and aesthetics) other than control of methane production.

### **Response to Comment 21-10**

The preparers of the PEIR recognize that quantification of the significance of increased methane production is not possible at this time. Identification of the impact of increased methane production was included in the PEIR to provide the public and decision makers with information related to potential adverse effects related to implementation of the proposed Element.

### **Response to Comment 21-11**

The estimate presented by the commentor of the average percentage of methane in the atmosphere (0.2 ppmv) is noted for the record as is the “baseballs in a boxcar” analogy. It is important to note that, although methane is present in relatively small percentages in the atmosphere, it is the physiochemical properties of this compound that have attracted the interest and concern of the scientific community.

### **Response to Comment 21-12**

Refer to Response to Comment 21-8.

### **Response to Comment 21-13**

The comment is noted for the record.

### **Response to Comment 21-14**

The information presented by the commentor on global climate change is noted for the record. The preparers of the PEIR concur that interpretation of the benefits or detriment of natural changes in global climate is subjective. Please refer to Response to Comment 21-9 for a discussion of the environmental significance of the impacts of increased methane generation.

### **Response to Comment 21-15**

The mainstream scientific community (including the National Research Council, which was directed by President George W. Bush to evaluate the science associated with global warming) recognizes that human-induced global warming is occurring. The PEIR merely requires mitigation of an identified impact with potentially wide-ranging and long-term cumulative effects; it would be inappropriate not to require mitigation of such a widely recognized environmental impact.

### **Response to Comment 21-16**

The legal opinion presented in the comment is noted for the record. The potential adverse effects of increased methane generation were described in the Draft PEIR (pages 4.2-3 and 4.2-4; 4.2-73 through 4.2-75) and discussed in Responses to Comments 21-2 through 21-15. The preparers of the PEIR consider that the position of U.S. EPA regarding the need to control greenhouse gases, including methane, and recent information provided in the responses to comments, warrant the recognition of the release of large amounts of methane from the project as a significant environmental impact.

### **Response to Comment 21-17**

It is correct that the area used for a dairy facility (not the support cropland) would be expected to consume less water per acre than other irrigated cropland in the County (as described on page 4.3-22 of the Draft PEIR). However, evaporative losses at the dairy facility (which include large shallow lagoons) are likely to be greater than those that would be expected at an irrigated field. Irrigation water is divided between deep infiltration (aquifer recharge), plant tissue nourishment, and evaporation/evapotranspiration (only the latter would contribute substantial water vapor to the atmosphere). At the dairy facility, a relatively small amount of water is used to nourish the cattle while the remainder is used in washing and is stored in open lagoons that are subject to substantial and continuous evaporative losses throughout the year.

Any small difference in the rate of evaporation (whether it is an increase or decrease) at the dairy facility would not have a significant effect on global warming. As correctly stated by the commentor, the amount of water vapor in the air is vast relative to other heat-trapping substances. The amount of water vapor in the air is largely controlled by earth and atmospheric air temperature. Therefore, without a climate forcing,<sup>21</sup> the amount of water vapor in the air would be maintained at a relative constant.

Release of greenhouse gases to the environment, to which cattle raising has been identified as one of the primary contributors, represents a human-induced forcing. The contribution of methane and other greenhouse gases from a new large dairy would represent a substantial new input to the atmosphere. Human-induced forcings, such as increased releases of methane, tend to be magnified because they result in direct and feedback effects. Water vapor feedback (the additional greenhouse effect accruing from increasing concentrations of atmospheric water vapor as the atmosphere warms) is the most important feedback phenomena. It is estimated that the feedback effect magnifies the temperature response associated with increased greenhouse gases by a factor of 2.5.<sup>22</sup>

### **Response to Comment 21-18**

It is common knowledge that reactive organic gases (ROG) are among the most common ozone precursors. According to the California Air Resources Control Board's Air Pollution Glossary, ozone precursors consist of chemicals such as non-methane hydrocarbons (ROG is defined as reactive chemical gas composed of hydrocarbons), occurring either naturally or as a result of human activities, which contribute to the formation of ozone.

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<sup>21</sup> A "forcing" is defined as an imposed perturbation of the Earth's energy balance.

<sup>22</sup> National Research Council, 2001, Climate Change Science, An Analysis of Some Key Questions, National Academy Press.

Furthermore, the San Joaquin Valley Air Pollution Control District's Guide for Assessing and Mitigating Air Quality Impacts Technical Document dated 20 August 1998 indicates that ozone is a photochemical pollutant that is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between reactive organic gases as well as other gases, oxides of nitrogen, and sunlight.

#### **Response to Comment 21-19**

The comment is noted for the record.

#### **Response to Comment 21-20**

The commentor should be aware that there are only three Kings County monitoring stations operated by the California Air Resources Board: 1) South Irwin Street Station in Hanford; 2) Van Dorsten Station in Corcoran; and 3) Patterson Station in Corcoran. The last three years (1998 through 2000) of ambient air quality data available for these monitoring stations have already been summarized in Table 4.2-3 of the PEIR. The commentor should further be informed that ozone is only monitored at the South Irwin Street Station in Hanford, as indicated in Table 4.2-3 of the PEIR.

All the Kings County monitoring stations referenced in the PEIR are operated by SJVUAPCD. Furthermore, the data presented in the PEIR reflect data published by the California Air Resources Board. Data collected from these monitoring stations are subject to rigorous quality assurance conducted by the California Air Resources Board to ensure that data collected are in compliance with procedures and regulations set forth by the U.S. EPA and can be considered good quality data and data-for-record. Quality assurance is an integrated system of management activities involving planning, implementation, assessment, and corrective action. The objectives of quality assurance are to provide accurate and precise data, minimize the loss of air quality data due to malfunctions, and to assess the quality of the air monitoring data to provide representative and comparable data of known precision and accuracy. Criteria for the accuracy, precision, completeness, and sensitivity of the measurement have been met and documented.

#### **Response to Comment 21-21**

The commentor is inaccurate in stating that reactive organic gases that would be generated in process water lagoons would be completely transformed into other products prior to becoming atmospheric emissions. There is a distinct difference between anaerobic lagoons and controlled manure anaerobic digestion. One main difference between these two processes is the generation and emission of reactive organic gases into the atmosphere. It is true that, in anaerobic lagoons, organic acids formed during the intermediate stage are converted into methane and carbon dioxide. Because of the uncovered design of this

system, however, the organic acids are not completely converted into methane and carbon dioxide. These acids are also converted into reactive organic gases.

However, under controlled anaerobic digestion of manure, reactive organic gases are trapped in the enclosed digestion system. These gases are then allowed to remain in the liquid phase, due to the nature of the system, and are eventually consumed by bacteria used to generate the end gases, which consist mainly of methane and carbon dioxide.

While process water lagoons are widely used in the dairy industry, covered lagoons are not. Therefore, release of reactive organic gases would not necessarily be eliminated from dairy facilities due solely from the implementation of process water lagoons.

### **Response to Comment 21-22**

The commentor should be aware that the preparers of the PEIR acknowledged the validity of the emission factor currently published in CARB's Emission Inventory Procedural Manual, Methods for Assessing Area Source Emissions. The Draft PEIR (page 4.2-33) indicates that the ROG emission factor was developed more than ten years ago and was based on limited available data. However, because of the lack of more recent ROG emission factors from CARB or other research agencies, the preparers of the PEIR were limited to using CARB's published reactive organic gas emission factors in calculating reactive organic gas emissions from manure decomposition.

The types of dairy manure treatment systems currently being used in Kings County do not typically include mechanisms to capture or reduce reactive organic gases. As of the preparation of the PEIR, only one facility in Kings County was known to have used an aerobic treatment system (six month pilot study, as discussed in the PEIR). Therefore, the assumption in the PEIR calculation of reactive organic gas emissions for existing conditions that none of the dairy facilities is currently treating manure to reduce reactive organic gas emissions is considered to be appropriate.

As discussed in Response to Comment 21-18, it is common knowledge that reactive organic gases are an ozone precursor. Contrary to the commentor's remark, the PEIR does indicate that reactive organic gases are transformed to ozone through photochemical reactions.

The commentor further indicates that the PEIR fails to identify the quantity of ozone emissions that would result from reactive organic gas reactions. The commentor is accurate in stating that the PEIR did not quantify ozone emissions from dairy operations. Instead, the PEIR estimated ROG emissions from dairy-related activities. According to the San Joaquin Valley Unified Air Pollution Control District's Guide for Assessing and Mitigating Air Quality Impacts dated August 20, 1998, the setback acknowledges that current atmospheric ozone models "are only sensitive enough to register changes caused

by the largest projects.” The setback further indicates that project-related ozone impacts are to be evaluated by comparing the setback’s established threshold levels with the project’s ozone precursor emissions (i.e., reactive organic gases), rather than ozone emissions. The PEIR’s ozone impact analysis was conducted in accordance with the San Joaquin Valley Unified Air Pollution Control District’s guidelines.

#### **Response to Comment 21-23**

As indicated on page 4.2-73 of the Draft PEIR, hydrogen sulfide is included as a contaminant under the California Air Toxics “Hot Spots” Information and Assessment Act. Currently, estimation of emissions of hydrogen sulfide, required by the Act, cannot be accurately performed for dairy operations. In addition, the emission of hydrogen sulfide contributes to potential odor emissions from dairy operations. Finally, the significance of the potential for exceedance of the California ambient air quality standard for hydrogen sulfide cannot be accurately determined but any additional emission could impact future attainment of air quality standards. The significance of the emission of this compound, which is known to occur during decomposition of manure, is appropriately assumed to be significant.

#### **Response to Comment 21-24**

Emissions of ammonia from dairy facilities that could be developed under the Element are significant or potentially significant for at least three reasons. Ammonia emissions contribute to the potential for adverse odors. The emission of ammonia also presents the potential for the formation of ammonium nitrate particles, which would result in an increase in the fine fraction of PM<sub>10</sub>, an air pollutant for which the San Joaquin Valley Air Basin is not in attainment. In addition, ammonia emissions at livestock facilities, if not controlled, could result in long-term exposure of workers and potential health impacts that cannot be determined on the basis of existing data. The commentor is correct in pointing out that worker exposure to ammonia is under the jurisdiction of Cal OSHA, an indication of the potential health impacts associated with this air pollutant.

#### **Response to Comment 21-25**

The comment is noted for the record. The Draft PEIR (pages 4.2-72 and 4.2-74) acknowledges that ammonia emissions may be reduced under aerobic conditions. Under uncontrolled anaerobic conditions that could occur in stacked solid manure or anaerobic lagoons, ammonia emissions would occur. Although ammonia emissions would be limited during appropriate land application of manure, emission of ammonia could occur in flood irrigation unless appropriate controls are in place.

#### **Response to Comment 21-26**

The comment is noted for the record.

### **Response to Comment 21-27**

**Policy DE 5.1** (now **5.1i**) requires the estimation of NO<sub>x</sub> emissions because this air pollutant (which is an ozone precursor) is generated by the operation of combustion engines. The development of dairies would increase these emissions through operation of heavy equipment at dairies and the increased vehicular traffic generated by dairy operation.

### **Response to Comment 21-28**

The PEIR discusses the impacts associated with odors from cattle manure. The preparers of the PEIR do not have evidence of other major odor sources associated with dairy operations.

### **Response to Comment 21-29**

The commentor's general opinion is noted for the record. Please refer to Responses to Comments 21-16, 21-18 through 21-28, 21-30, and 21-31.

### **Response to Comment 21-30**

The opinion expressed by the commentor is noted for the record but is not supported by quantitative evidence. The document presents reasonable and substantial evidence to support the air quality mitigations proposed by the Element. Proper application of water as a dust suppressant is a standard method of controlling particulate matter emissions. Application of water by sprinklers would not necessarily require additional combustion engines. Indeed, this methodology is acknowledged as feasible and appropriate mitigation for unpaved areas by the newly adopted performance standards in the most recent SJVUAPCD's Regulation VIII. The emissions from equipment required to implement the advanced manure treatment requirements proposed by the Element cannot be accurately estimated as the options for meeting the requirements at individual dairies developed under the Element are not known. However, **Policy DE 5.1j** (now **5.1i**) of the Element requires the applicants for new or expanded dairy developments to present estimates of air emissions from proposed dairies, which would include emissions from all dairy operation equipment. There is no information in the comment to support the assumption that emissions from implementation of mitigation measures proposed by the Element would result in emissions in excess of uncontrolled impacts. Any emissions caused by operating equipment for mitigation would not outweigh the benefit of the mitigation.

### **Response to Comment 21-31**

CEQA does not require the economic costs of all mitigation measures to be presented in an EIR. However, CEQA does require that proposed mitigation measures be feasible. Section 15364 of the CEQA Guidelines defines the term feasible as meaning "capable of being accomplished in a successful manner in a reasonable period of time, taking into account

economic, environmental, legal, social, and technological factors.” It is noted for the record that many of the mitigation measures cited in the comment are currently implemented at dairy facilities in California, the U.S., and the world. The most expensive of the mitigations, such as lagoon covers or digestion systems, are most typically implemented at facilities that are attempting to correct a problem, such as odor control. Required implementation of the most costly mitigation measures (e.g., advanced manure treatment and lagoon liners) proposed by the Element and analyzed in the PEIR are directed toward control of known significant environmental impacts, such as severe air quality conditions and potential water quality problems affecting the San Joaquin Valley.

### **Response to Comment 21-32**

The commentator’s opinion regarding the RWQCB’s responsibility for protecting water quality is noted for the record. The County fully appreciates and supports the RWQCB’s efforts in minimizing the potential for water quality degradation resulting from the management of dairy manure and process water. The RWQCB permitting process was described in the PEIR. **Policy DE 3.2k** (now **3.2j**) of the Element requires compliance with RWQCB Waste Discharge Requirements. Although the RWQCB has the primary responsibility for protection of water quality, the County is also responsible for the protection of human and environmental health within the County. The standards presented in the Element which relate to water quality protection have been included following review of minimum State requirements and potential residual impacts that could result following implementation of those requirements. It is noted for the record that the RWQCB has submitted comments on the PEIR (Comment Letter 7) and those comments do not express concern with the adaptation of Element’s proposed policies or mitigation measures.

### **Response to Comment 21-33**

The County concurs with the commentator’s opinion that the dairy industry provides important economic opportunities for Kings County. One of the stated primary objectives of the Element is to ensure that the dairy industry of Kings County continues to grow and contribute to the economic health of the County.

### **Response to Comment 21-34**

The comment is noted for the record. During the public review process, the Planning Commission and Board of Supervisors will consider making findings of overriding consideration for environmental impacts described in the PEIR.

## **LETTER 22 - Aaron Isherwood, Sierra Club**

### **Response to Comment 22-1**

The comment is noted for the record.

### **Response to Comment 22-2**

The comment is noted for the record. The commentor is referred to Responses to Comments 22-3 through 22-85 for specific discussion of comments.

### **Response to Comment 22-3**

The comment is noted for the record. The comment indicates that “many states ... have enacted various types of moratoria on” confined animal facilities. California has not enacted such a moratorium. It is not the intention of the County to prevent development of dairies or other livestock operations within the County. However, it is the intention of the County to adopt an Element that establishes and implements effective and feasible controls on potential environmental impacts related to dairy development.

### **Response to Comment 22-4**

The comment is noted for the record. The commentor is referred to Responses to Comments 22-6 through 22-85 for specific discussion of comments.

### **Response to Comment 22-5**

The comment is noted for the record. The County does not agree with the commentor’s assertion that the Element is inconsistent with the General Plan. The commentor is referred to Responses to Comments 22-70 through 22-84 for specific discussion of comments regarding the consistency of the Element with other elements of the Kings County General Plan.

### **Response to Comment 22-6**

The Element proposes an approach whereby dairies meeting certain criteria would be subject to a site plan review, a ministerial approval. This approach does not thwart the goals of CEQA as suggested by the commentor for two reasons. First, environmental review of the Element is occurring at the program level; and second, because the approval is ministerial, the Zoning Administrator cannot shape projects in a way that would respond to concerns raised in further environmental review. Further environmental review would, therefore, be futile. (See *Mountain Lion Foundation v. Fish and Game Commission* (1997) 16 Cal.4th 105, 117.) In addition, projects not meeting the standards of the Element would be required to conduct additional site-specific environmental review under the conditional

use process. The comment that site plan review approvals would not be ministerial is addressed below in Response to Comment 22-10.

### **Response to Comment 22-7**

The Kings County General Plan identifies sensitive area and habitat in the Biological Resources Survey (Hansen Report) referred to on page RC-5, Section V. Paragraph A. **Policy DE 3.1a.I.** (now **3.1a.H**) and **Policy DE 3.3a** address this issue.

There is no support for the comment that “[i]n several areas of the PEIR, the County announces that it has not addressed particular impacts of the Dairy Element, stating instead that it is deferring such analysis until specific dairy projects are proposed.” The County’s wetlands and sensitive species resources are discussed in the Biological Resources section of the Draft PEIR, pages 4.4-1 to 4.4-7. Impact 4.4-1 recognized the possibility that dairy development could result in conversion of existing vegetative cover and associated wildlife habitat, including habitat for special-status species or sensitive natural communities. Impact 4.4-2 recognized the potential for the loss and modification of wetlands. **Policy DE 1.2e** of the Element prohibits the locating of new dairies on wetlands and undisturbed wildlife habitat. **Policy DE 3.3a** has been modified, and requires that biological and wetlands surveys be conducted in compliance with U.S. Fish and Wildlife Service, California Department of Fish and Game, and U.S. Army Corps of Engineers guidelines before issuance of a site plan review. If the surveys identify impacts on biological or wetland resources, then the applicant will not be eligible to obtain site plan review approval by the Zoning Administrator and will instead complete the conditional use permit process, which will in itself require additional environmental review. If there are possible impacts to biological resources or wetlands that are not discussed in the PEIR, a conditional use permit will be required. Therefore, there is no deferred discussion of impacts to wetlands or sensitive species.

The County is not attempting to “side step” any legal obligations. The approval of dairies under the site plan review process is a ministerial act because the Element requires the Zoning Administrator to act on site plan review applications according to the standards of the Element and does not allow the Zoning Administrator to use his personal judgment or discretion. CEQA, therefore, does not apply to those approvals (CEQA Guidelines, section 15002, subd. (i)(1)).

### **Response to Comment 22-8**

The comment is noted for the record. It should also be noted that the citation to the “fair argument” standard is inapplicable to projects approved under the site plan review process, as those approvals are ministerial and, therefore, CEQA would not apply (Pub. Resources Code, § 21801, subd. (b)(1)).

### **Response to Comment 22-9**

The nature of the approvals for new or expanded dairies under the Element (whether they are ministerial or discretionary approvals) is discussed below in Response to Comment 22-10. In response to the assertion that CEQA review would be required for future approvals because it would be “the only point at which the environmental impact of the project may be publicly considered,” it should be noted that one of the purposes of this PEIR is to provide the public with an opportunity to consider and comment on the environmental impacts of dairy approvals in the County.

### **Response to Comment 22-10**

The requirements for adequate technical reports are detailed in Appendix J of the Dairy Element. The Zoning Administrator’s role in approving dairies under the site plan review process is limited to ensuring that the required reports are complete and the standards in Appendix J are satisfied. In approving a dairy under the site plan review process, the Zoning Administrator cannot use personal or subjective judgment in deciding whether or how the project should be carried out. The approval is therefore ministerial (CEQA Guidelines, §15369).

### **Response to Comment 22-11**

The text of Appendix J of the Element has been modified in response to the comment.

### **Response to Comment 22-12**

In approving a dairy project under the site plan review process, the Zoning Administrator applies only fixed standards and objective measurements. The Zoning Administrator cannot apply personal or subjective judgment in determining whether or not a particular project should be approved. The decision of the Zoning Administrator is therefore ministerial (CEQA Guidelines, § 15369). Each of the specific policies cited in the comment has been changed. **Policy DE 3.2a** now states:

The Technical Report shall address water issues in the Groundwater Evaluation ..., including:

- A. Minimum separation from the bottom of all lagoons, manure and feed storage areas, and corrals and the groundwater level shall be at least five (5) feet at all times.
- B. The source of potable water for the Dairy Facility and nearby properties, and the safeguards to protect that water source must be identified.

- C. Identify adjacent watercourses and the improvements to protect those watercourses from discharges from a dairy into watercourses or water bodies.

In the event there is a variance between these standards and the RWQCB requirements, the more restrictive requirement shall prevail, unless RWQCB specifies a lesser standard in a Waste Discharge Requirement (WDR). In the latter case, the RWQCB standard will prevail.

**Policy DE 3.2b** now states:

The Geotechnical Report ... shall:

- A. Demonstrate the soil type's capacity at the dairy site to assimilate the various nutrients in the dairy process water and manure produced on the dairy for crop production.
- B. Demonstrate the agronomic rates for crop production needs for the nutrients for the various crops that are grown on cropland irrigated with dairy process water and fertilized with solid manure generated by the dairy, with consideration for the soil types and depth to groundwater.

**Policy DE 3.2e** now states:

Each dairy shall apply dairy process water to crops at agronomic rates, and ensure even distribution of nutrients over the entire crop area so excessive amounts of nutrients do not cause "hot spots," where excessive amounts of the nutrients cause crop damage and migrate below the root zone where they cannot be used by the crops.

### **Response to Comment 22-13**

The comment that the County "would essentially be rubber-stamping every dairy application" it receives is inaccurate. Project applicants must meet the standards required in the technical reports for dairies to be approved under the site plan review process. The reports required by the Element serve to ensure that certain standards will be met to protect the public health and safety and the environment. The Zoning Administrator's role is to ensure that the provisions of the Element are met and that manure treatment technologies meet the performance standards and are operated as indicated in the Technical Report.

**Response to Comment 22-14**

The County has not relied on CEQA Guidelines, §§ 15064 (h), 15064 (i)(3), 15152 (f)(2) nor 15152 (f)(3)(C) in developing the Element or the PEIR.

**Response to Comment 22-15**

The commentator's opinion is noted for the record.

**Response to Comment 22-16**

The County elected to use the guidelines set by the RWQCB as the basis for determining the "theoretical maximum daily herd" because this guideline is the most commonly applied methodology for determining the amount of land required for conventional reuse of manure and process water. This methodology allows for an approximation of how much land within the DDOZs and NSOZs would be needed for this critical aspect of dairy management. The methodology allows a linking of available land and dairy cow populations. No such linkage is available if one were to attempt to define the herd on the basis of air emissions. There are no existing regulations or regulatory guidelines established by CARB or U.S. EPA or any other agency for limiting the cattle population to control air emissions. Therefore, the County established the maximum herd on the basis of available land and nutrient spreading to determine the maximum number of animals that the DDOZs and NSOZs could accommodate. Following this reasonable approach, the Element and PEIR analyzed potential impacts of the "buildout" of the theoretical herd for all environmental aspects, including air quality. Upon identification of impacts, the Element and PEIR developed feasible mitigation to reduce potential impacts.

**Response to Comment 22-17**

The comment is noted for the record. The commentator is referred to Responses to Comments 24-26 through 24-32, which explain the rationale for not quantifying construction emissions.

**Response to Comment 22-18**

The comment is noted for the record. The commentator is referred to Responses to Comments 24-27 through 24-32.

**Response to Comment 22-19**

As indicated in Response to Comment 24-47, the PEIR acknowledges that ammonium nitrate particles in the PM<sub>2.5</sub> range could result from reactions between ammonia and nitric acid. The PEIR also provides an estimate of the potential ammonia emissions that could result from proposed dairy operations. As indicated in Response to Comment 24-47, an

estimate of PM<sub>2.5</sub> emissions that could result from ammonia emissions have been included in the PEIR.

### **Response to Comment 22-20**

The PEIR quantifies exhaust emissions from agricultural and dairy equipment for a 5,000-milk cow dairy facility within a 100 acre area. Providing a reasonable quantification of the total potential exhaust emissions from all dairies subject to the Element cannot be accurately estimated because of the variable site-specific factors involved. However, for a general estimate, it can be assumed that dairy development under the Element could allow for operation of 52 additional 5,000 cow dairies to accommodate buildout of the remaining available capacity (257,312 milk cows) for the proposed theoretical herd. In response to the comment, Impacts 4.2-4 and 4.2-10 have been removed from the PEIR and the analysis of exhaust emissions has been incorporated into Impacts 4.2-3 and 4.2-6 (now Impact 4.2-5). Estimates of ROG, NO<sub>x</sub>, and PM<sub>10</sub> from equipment and vehicular traffic have been made as suggested by the commentor. Tables 4.2-5a, 4.2-5b, and 4.2-5c have also been amended to reflect these estimates.

### **Response to Comment 22-21**

Please refer to Response to Comment 24-54.

### **Response to Comment 22-22**

The comment is noted for the record. The commentor is referred to Responses to Comments 22-17 through 22-21.

### **Response to Comment 22-23**

The Draft PEIR (pages 4.2-53 through 4.2-60) describes which policies contained in the Element serve as mitigation for the generation of fugitive dust and how the policies minimize fugitive dust emission. The comment asserts that the impact discussion “consists exclusively of a list of Dairy Element policies.” The comment does not acknowledge the analysis of the policies presented in the PEIR. The analysis of the policies leads to the determination that the policies present the most appropriate and feasible mitigation measures.

The commentor indicates that the construction of freestall barns for housing support stock should be included as a mitigation measure for the control of particulate matter emissions. The use of unpaved corrals for raising dairy support stock is a practice that is standard to the dairy industry throughout California and the United States. The requirement to build such facilities is not imposed by any land use or regulatory authority in California. The construction of freestall barns for support stock would essentially double the cost of constructing support stock housing at dairy facilities. Considering that the support stock

herd is expected to be approximately as large as the milk cow herd, the overall cost of constructing the dairy cattle housing could increase by more than 40 percent. This additional cost would be an economic burden that would threaten the opportunity for the County to achieve the goal of attracting dairy development and its economic benefits to the County.

Housing support stock in freestalls would also increase operational costs, energy use, and water use. It is questionable whether young cattle could adapt to a freestall setting. Unlike milk cows, younger cattle are less sedentary. Running on paved surfaces would likely result in increased injuries. Construction of freestall barns for housing support stock is therefore considered an impractical and economically infeasible mitigation.

#### **Response to Comment 22-24**

The efficiency of volatile solids removal under various advanced treatment facilities is described on pages 4.2-21 through 4.2-24 of the Draft PEIR. As noted (Draft PEIR, pages 4.2-23 and 4.2-24), the efficiency of anaerobic digestion in removing volatile solids from dairy manure is expected to be lower than that achieved for swine manure. The commentor states Colorado requires a 60 percent reduction of volatile solids but fails to point out, as noted in the PEIR, that this standard applies to swine manure treatment. The preparers of the PEIR consulted with experts at U.S. EPA's AgSTAR program to determine the expected feasible standard for dairy manure. The basis for choosing the 50 percent volatile solids reduction was clearly supported in the PEIR, but that basis is not acknowledged by the comment.

#### **Response to Comment 22-25**

The commentor suggests that Mr. Alan Gay presents "scientific methods" for "establishment of gas reduction standards"... However, the comments presented by Mr. Gay only identify methods for measurement of gas concentration and do not address setting standards. In fact, Mr. Gay comments that "(A)ctually, quantification is not necessary to determine whether air pollutants are emitted from treated manure" and that "it is relatively easy to detect and distinguish trace amounts of ammonia, hydrogen sulfide, and ROG" by their odor threshold. The County does not concur with the commentor's assertion that more detailed individual air emissions analysis would be beneficial or necessary.

#### **Response to Comment 22-26**

The County considers that the expansion of an existing dairy to the existing herd capacity to be a currently permitted right. The County chose to set the herd limit on the basis of SJVUAPCD reactive organic gases because a regulatory emission threshold has been set for

these compounds. The only other emission for which a threshold has been set is particulate matter (PM<sub>10</sub>). It was determined that ROG threshold was the limiting factor.

### **Response to Comment 22-27**

The comment refers to recommended odor control techniques suggested by Mr. Alan Gay, which include:

- apply manure only during periods of low wind speeds;
- minimize spreading or agitating manure when the wind is blowing toward populated areas;
- apply treated manure during periods of low humidity;
- plant wind breaks to enhance a chimney effect so that odors rise and dissipate before reaching residential areas;
- apply manure to fields at agronomic rates.

Recommended measures 1 through 3 are reasonable practices that are typically followed by dairy farmers and could be incorporated into the Odor Management Plans required by **Policy DE 5.1b**. Control measure 5 is already required by **Policy DE 3.2b**. The planting of windbreaks would not be necessary because all manure would be treated by either aerobic, controlled anaerobic, or combined aerobic/anaerobic treatment systems, which are proven technologies for significantly reducing odor from manure management.

### **Response to Comment 22-28**

The PEIR does not, as the commentor asserts, defer development of mitigation. **Policy DE 5.1c** requires dairy operators to install advanced manure treatment systems that demonstrate that the performance standard of 50 percent volatile solids is being achieved. The efficacy of manure treatment systems is discussed in the PEIR. It is not possible at the present time to accurately estimate the emission of all gases that could be potentially released during or after advanced treatment.

### **Response to Comment 22-29**

Please refer to Response to Comment 24-60 for a discussion of background surface water information.

### **Response to Comment 22-30**

Please refer to Response to Comment 24-57.

### **Response to Comment 22-31**

The potential impacts on water resources during dairy construction were discussed in the Draft PEIR (pages 4.3-14 and 4.3-15). Storm water discharges from construction sites could

potentially contain industrial chemicals and sediment. Control of such discharges are addressed by the General Permit for Storm Water Discharges Associated with Construction Activity. The permit requires implementation of best management practices for the control of runoff. Quantification of the potential impact (i.e., estimation of pollutant loading associated with accidental spills of hazardous materials or suspended sediment) cannot be performed without knowing specific information associated with the location and timing of the construction activities. However, the required best management practices would minimize the potential discharges to the extent feasible.

### **Response to Comment 22-32**

The comment incorrectly states that the PEIR does not identify or discuss potential impacts associated with alteration of drainage patterns. In the discussion of Impact 4.3-2, the PEIR identifies potential impacts, such as alteration of drainage patterns in flood prone areas, potential redirection of runoff onto adjacent properties, discharge of runoff into receiving water bodies, and topographic modification in areas of excessive slope. The commentor suggests that “quantification” of the impact is required but does not indicate what can or needs to be quantified. The preparers of the PEIR believe that the impact has been adequately described and cannot identify any aspect of the impact that could be reasonably quantified.

### **Response to Comment 22-33**

The County established the setback between manured areas and wells or surface water bodies on the basis of guidance provided in the California Well Standards and the RWQCB *Guidelines for Waste Disposal from Land Developments*. It is noted for the record that the setback is equivalent to or exceeds State standards for minimum confined animal facility setbacks from private wells set by Arizona, Colorado, Delaware, Iowa, Michigan, Minnesota, New Mexico, North Carolina, Oregon, Pennsylvania, Texas, Vermont, and Virginia.

### **Response to Comment 22-34**

The meaning or concept of “unanticipated flooding” introduced by the comment is not clear to the preparers of the PEIR. The potential for flooding is generally described as a probability. For example, a 100-year flood has a one percent probability of occurring; the probability of a 25-year flood is four percent. The Element requires that manure not be spread in floodplains during flooding or threat of flooding. Flooding conditions are obvious to the agriculturalist and the threat of flooding can be determined from readily available weather and stream flow information. The potential impact of spreading manure under such conditions (i.e., potential water quality degradation related to the release of nutrients and microorganisms to surface or ground water) is described on page 4.3-18 of the Draft PEIR.

### **Response to Comment 22-35**

The potential impact on water quality related to atmospheric fallout of nutrients was discussed on pages 4.3-20 and 4.3-21 of the Draft PEIR. Nitrogen-containing fertilizers are applied to crops at rates on the order of tens to hundreds of pounds per acre per year in the San Joaquin Valley. Current rates of atmospheric fallout of nitrogen are on the order of three to four pounds per acre per year. It is reasonable for the PEIR to deduce that atmospheric fallout of nitrogen would be beneficial (i.e., as a nitrogen source) to crop growth. Recent air quality modeling prepared for two 7,200 milk cow dairies in Kern County indicates that the maximum ammonia concentrations in air would be 30 µg/m<sup>3</sup> and would be reduced to less than 10 µg/m<sup>3</sup> within approximately two miles of the dairies.

### **Response to Comment 22-36**

The comment does not present any information that atmospheric fallout of nutrients is causing or contributing significantly to surface water quality degradation in the San Joaquin Valley Air Basin. The fact that the air quality analysis identifies ammonia emissions as a significant air quality impact does not lead to the conclusion that these emissions are a significant water quality impact.

### **Response to Comment 22-37**

The comment correctly indicates that the “PEIR relies in part on **Policy DE 4.1b**” to provide mitigation of potential impacts on surface water quality. The commentor, however, does not acknowledge all of the other policies discussed in the Draft PEIR (pages 4.3-20 to 4.3-22) that provide mitigation for the potential degradation of surface water quality. These mitigating policies include siting requirements, provisions for adequate storage of process water and runoff, advanced treatment of manure and process water, land management to minimize erosion, and control of runoff from irrigated fields. The combined effect of these controls prompted the PEIR preparers to determine that the potential impact of dairy development under the Element would be a less-than-significant impact on surface water quality.

The comment is incorrect in its assertion that neither the Element nor the PEIR identifies any guidelines or standards for the Manure Nutrient Management Plan required by **Policy DE 4.1b**. The commentor is referred to Appendix J of the Element (pages J-4 through J-6), which provides guidelines for the preparation of the plans.

### **Response to Comment 22-38**

Implementation of the Element would result in continued agricultural use within the designated DDOZs and NSOZs. As discussed in the Draft PEIR (pages 4.3-22 and 4.3-23), water demand at dairy facilities would typically be less than demand for irrigated cropland, the predominant existing and probable future use in these areas. Whereas it is

possible that the water supply may be reduced during drought conditions, the Element would not exacerbate this potential problem.

### **Response to Comment 22-39**

The commentor suggests that implementation of the Element would result in depletion of water resources because an increase in the acreage that is double-cropped (relative to the acreage that is double-cropped under existing conditions) would increase. The preparers of the PEIR agree that, in general, total water demand for double-cropping generally exceeds the requirements for single-cropping (depending on the types of crops). Under current conditions, there are no regulations or limitations (other than economic) that dictate how much acreage a grower can single- or double-crop.

The Element was designed so that no new incentives would be created to increase double-cropping acreage relative to existing conditions. The size of the theoretical herd (the total number of cows allowed in the County) under the Element was determined based on the acreage available for application of dairy manure (at rates specified as acceptable to the RWQCB). The total manure application rate for the theoretical herd is based on the assimilative capacity of the land under the current cropping patterns (i.e., the current ratio of single- to double-cropped land). Since the number of cows is limited by the ability of the support cropland to accommodate the manure based on current cropping patterns, there would be no new incentives to increase the countywide acreage that is double-cropped.

In addition, the acreage associated with each dairy facility (not the support cropland) would be taken out of agricultural production and no longer irrigated. As described on page 4.3-22 of the Draft PEIR, the actual water consumption at a dairy facility is, in general, considerably less (on an acre-for-acre basis) than for irrigated cropland.

In summary, since there would be no new incentives created under the Element to increase double-cropping (and the associated increase in water use) and substantially less water would be used at the dairy facilities (on an acre-for-acre basis relative to irrigated cropland that a dairy facility is likely to replace), implementation of the Element would likely result in a minor *decrease* in countywide water use.

### **Response to Comment 22-40**

An extensive analysis of the potential impact of dairy development under the Element on groundwater quality was presented in the Draft PEIR (pages 4.3-23 to 4.3-39). The comment does not specifically address the analysis presented in the PEIR. The comment refers to water quality problems that have affected the Chino Basin area but does not present a comparison of the topography, climate, waste management practices, or availability of land for reuse of manure nutrients to conditions within Kings County. Dairy development in the Chino Basin and related environmental impacts occurred under

significantly different conditions and without many of the controls proposed by the Element.

### **Response to Comment 22-41**

The comment is noted for the record. The Element presents a set of performance standards (**Policy DE 4.1a.B.2.a through 4.1a.B.2.f**) that specify minimum requirements for the design, construction, inspection, and maintenance of liners for process water lagoons and manure separation pits. The liners are required to meet the minimum design standards recommended by the Natural Resource Conservation Service (NRCS). Those standards recommend that the hydraulic conductivity of the liner material (not specified as soil or geomembrane) not exceed  $1 \times 10^{-5}$  cm/sec but also set the maximum seepage velocity (actual rate of seepage) at  $1 \times 10^{-6}$  cm/sec. The volume of seepage estimated by the comment is therefore overestimating the expected seepage through a liner meeting the standard by 10 times. This error increases the nitrogen loading estimated by the commentor by 10 times. Using the commentor's method of estimating seepage and assuming the NRCS seepage velocity standard of  $1 \times 10^{-6}$  cm/sec, the seepage would be 924 gallons per acre of lagoon area per day and 23 pounds of nitrogen per day. This assumption implies that all nitrogen contained in the treated waste would eventually reach groundwater and be in a form that is detrimental to the beneficial uses of the groundwater. It is very important to realize that the commentor's estimate of nitrogen infiltration to groundwater does not account for an adsorption of nitrogen onto clay particles or the immobilization of nitrogen by microorganisms in soils in the unsaturated zone. Ammonium-nitrogen (a common form of nitrogen in anaerobic lagoon water) is readily adsorbed to clay particles in the unsaturated zone. Investigation at lagoons operated for confined animal facilities indicates that ammonium-nitrogen levels in soils beneath anaerobic lagoons used for storage of wastewater from cattle operations decreased to nondetectable levels within three to five feet below the surface.<sup>23</sup>

The comment suggests that the number of acres of process water lagoons and manure separation pits could be estimated by simply projecting lagoon design from an individual dairy design throughout the area of the Element. This is a difficult assumption to make given the fact that the policies of the Element require new and expanded dairy facilities to implement advanced manure treatment by either aerobic or controlled anaerobic treatment. The size of the lagoons would vary dramatically, depending on the proposed advanced treatment technology. For instance, aerobic treatment would promote the design of shallow and larger lagoons whereas liquid storage would be minimized by a plug-flow anaerobic treatment design. In addition, it is noted that the ruling of the Kern County superior court is not binding on this Kings County document.

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<sup>23</sup>Ham, J.M. and DeSutter, T.M., 2000, Toward Site-Specific Design Standards for Animal Waste Lagoons: Protecting Ground Water Quality, journal of Environmental Quality, Vol. 29, pp. 1721-1732.

### Response to Comment 22-42

**Policy DE 4.1a** of the Element does not preclude the use of synthetic liners. The effective seepage velocity for soil liners meeting the NRCS guidelines is  $1 \times 10^{-6}$  cm/sec while the estimated seepage from a synthetic liner would be approximately  $1 \times 10^{-9}$  cm/sec. The preparers of the PEIR consider adoption of the NRCS liner guidelines to provide a feasible and effective control on seepage from dairy lagoons. Although seepage from the lined lagoons would be expected, the seepage would be reduced to a rate that would be less than the rate of seepage allowed for domestic septic tank/leach fields.

Single family three bedroom homes with on-site sewage disposal are required to have leach field systems are capable of managing a peak flow of 1,000 gallons per day of septage. Therefore, a single home would need to dispose of 365,000 gallons of septage per year. Assuming an infiltration of approximately 924 gallons of treated manure and/or process water per acre of lined lagoon area per year (see Response to Comment 22-41) approximately 395 acres of lined lagoons would generate an amount of seepage similar to one three-bedroom home.

### Response to Comment 22-43

Please note that **Policy DE 6.2a** is now **Policy DE 6.3a**. **Policy DE 7.1b** is now **Policy DE 6.4d**. **Policy DE 8.1c** has been eliminated.

The comment raises two issues: 1) whether the PEIR imposes adequate safeguards to warrant a finding of less than significant impact on groundwater quality, and 2) whether the PEIR contains adequate treatment methods in the event dairy development in the County under the PEIR pollutes groundwater.

As explained in the Draft PEIR (pages 4.3-23 to 4.3-39), numerous policies in the Element provide protections to groundwater quality warranting the finding of a less than significant impact. Those safeguards include: restriction of dairy facilities from Special Flood Hazard Areas (**Policy DE 1.2c**), restriction of dairy facilities from shallow or perched groundwater areas (**Policy DE 1.2d**), requirement of a Hydrologic Sensitivity Assessment prepared by a qualified Certified Hydrogeologist or Professional Engineer (**Policy DE 3.2h**), implementation of a groundwater monitoring program (**Policy DE 6.2f**), the preparation of a Manure Nutrient Management Plan (**Objective DE 4.1**), which requires appropriate reuse of the manure and process water on or off site (**Policy DE 4.1b** and **Policy DE 4.2a**), requirement of adequate storage of manure and process water (**Policy DE 4.1a.B.3**), required management of runoff from manured areas (**Policy DE 4.1a.B.1**), 150 foot minimum setback from surface waters, recharge basins, and floodplains (**Policy DE 3.2c**), requirement of construction of manure separation pits, process water lagoons, and corrals to prevent infiltration of process water to groundwater (**Policy DE 4.1a.B.2**), and

monitoring of groundwater quality on an individual dairy basis (**Policy DE 6.2f**) and on a regional basis.

Furthermore, the Element complies with the Tulare Lake Basin Plan. The County is adopting compliance with the Basin Plan as a threshold of significance for impacts on groundwater quality in conjunction with adoption of the Element. (See CEQA Guidelines, § 15064.7; see also **Policy DE 4.4a** and Draft PEIR page 5-17.)

The second part of the comment refers to the provision of treatment methods in the event of a significant increase in salinity. Under the monitoring required by the Element (**Policy DE 6.3a**), information gathering on a dairy by dairy and on a regional basis will occur. Under the County's police powers, it may act to abate nuisances and other threats to public health and safety, such as groundwater contamination. More specifically, violations of the requirements of the Element may result in revocation of a dairy's zoning permit (see **Policy DE 6.3a** and **Policy DE 4.2d**). The RWQCB, however, is the primary regulator of activities that may affect groundwater quality. As described below in Response to Comment 22-44, the RWQCB has extensive enforcement authority over dairies to protect groundwater quality and to order clean up in specific cases. Thus, it is beyond the scope of this PEIR to prescribe treatment methods for specific problems that may or may not occur in the future.

The Draft PEIR (page 4.3-38) has been modified to reference **Policies DE 4.2d** and **6.3a**, which demonstrate that the Zoning Administrator has the authority to modify and the Planning Commission has the authority to revoke a dairy's zoning permit (Zoning Ordinance Section 2106) if necessary. The PEIR also references the enforcement authority of the RWQCB.

#### **Response to Comment 22-44**

The comment expresses that funding for potential groundwater contamination resulting from dairy operations should be ensured by the policies of the Element. The preparers of the PEIR do not agree with this position. The California Water Code ("Water Code") provides the mechanisms for ensuring that parties responsible for discharges of pollutants to water resources are held liable for clean up costs.

Although the proposed policies of the Element described in the PEIR will minimize the potential for groundwater quality degradation, the Element requires new and expanded dairies to install a groundwater monitoring system to ensure early detection of any groundwater quality degradation (see Response to Comment 22-43). Under the Element, annual sampling and analysis of groundwater wells (saturated zone monitoring) and lysimeters (unsaturated zone monitoring) will be performed. The results of the sampling events will be submitted to the RWQCB and the KCPA for review.

If the monitoring indicates that water quality at the site is being degraded, the RWQCB has the responsibility and authority under the Water Code to require further investigation and/or corrective action (i.e., remediation). The Water Code is State law developed to protect the quality of waters in the State, create a structure for controlling potential discharge of wastes that could affect water quality, and remediate water quality problems. The Water Code establishes the issuance and enforcement of waste discharge requirements by the State's regional water quality control boards as the mechanism for controlling potential releases of waste.

Dairy project applicants are required to file a Notice of Intent to comply with the requirements of the General Waste Discharge Requirements for Milk Cow Dairies (Order No. 96-270) or apply for individual Waste Discharge Requirements. Article 1 of Chapter 5 of the Water Code describes the authority of the RWQCB to force corrective action in the event that a discharge of waste is taking place, or threatening to take place, that violates waste discharge requirements. Initially, the RWQCB may issue a cease and desist order to prevent continued discharge of waste. Under such an order, the responsible party is required (Section 13301) to demonstrate how the project would come back into compliance with the waste discharge requirements, present a schedule for returning to compliance, and, in the event of a threatened violation, take appropriate remedial or preventive action. Water Code Section 13301.1 commits the RWQCB to providing available current information on successful and economical water quality control programs and information and assistance in applying for Federal and State funds necessary to comply with the cease and desist order. If the responsible party fails to comply with the order, the State Attorney General can petition the superior court to issue a temporary or permanent injunction restraining the responsible party from continuing the discharge in violation of the order. At the proposed dairy facilities, these laws could result in a court-ordered shutdown of operation of the dairies.

In effect, the process provides an opportunity for the responsible party to develop and implement a remedy for the consequences of a release of waste that threatens water quality. In the case of the proposed dairies, water quality degradation by excessive loading of nitrate or total dissolved solids would be the most likely type of potential "waste discharge." The most reasonable and economical remedy for correcting elevated nitrate or TDS levels in groundwater (if such conditions are indicated by monitoring) would be to identify the practices that are causing infiltration of these compounds. Investigation of the problem could require installation of additional monitoring wells and intensification of sampling. Such additional investigation could cost tens of thousands of dollars. If investigation determines that the source of the problem is seepage from dairy wastewater lagoons at the site, several corrective action options would be available. The water level in the lagoons could be reduced to reduce seepage; concentrations of nitrate or TDS could be reduced by dilution with more fresh water; liners could be inspected and repaired or

replaced, if necessary; precipitation of salts within the lagoons or conversion of nitrate to other forms of nitrogen could be caused by adjusting the chemistry of the wastewater.

If the investigation determines that the water quality degradation is the result of application of manure and wastewater for fertilization and irrigation of cropland, changes in application rates may be the most effective corrective action. Modifications in application of manure and wastewater could include reducing the rate of dry manure application (and transporting excess manure off-site); further dilution of wastewater with fresh water; and adjustment of wastewater chemistry in storage lagoons. In a recent study completed by University of California - Davis researchers (Harter and others, 2001), groundwater quality at a San Joaquin Valley dairy underlain by shallow groundwater with elevated levels of nitrate was dramatically improved by reducing nutrient loading to agronomic rates. Prior to implementation of a targeted manure nutrient management program, nitrate-nitrogen concentration in groundwater at the site averaged 80 to 120 mg/L in the period 1995 through 1997. During this period, total nitrogen applications were estimated to be a minimum of 1,050 pounds per acre per year on fields double cropped with corn and forage crops. Under the manure management plan, the total nitrogen application was eventually reduced to 420 pounds per acre per year in 2000. Following these management changes, the average nitrate-nitrogen concentration in groundwater dropped to 50 mg/L in 2000. These results indicate that successful remediation of nitrate contamination is possible through implementation of appropriate fertilizer/irrigation management, which is required by the Element.

If the RWQCB were to determine that the monitoring results for the dairy projects indicate that groundwater degradation was occurring and that the discharge of waste at the site creates, or threatened to create, "a condition of pollution or nuisance," the RWQCB has the authority to order clean up or abatement of the affected waters (Water Code Section 13304.(a)). If the responsible party fails to comply with a clean up and abatement order, the State Attorney General can petition the superior court to issue an injunction requiring the party to comply with the order. If necessary, the RWQCB may expend available moneys (e.g., State Water Pollution Cleanup and Abatement Account) to perform clean up, abatement, and remediation of a contaminated site (Water Code Section 13304.(b)). The party responsible for the waste discharge is liable to the government for all reasonable costs expended for the clean up (Water Code Section 13304.(c)). Therefore, the operators of dairies would be liable for the costs of clean up (if required) whether the clean up was performed by them or by a government agency. If the pollution problem exists at the site of a nonoperating business, a lien against the property can be recorded. If a discharge has occurred and a clean up and abatement order has been issued, the responsible party is civilly liable in an amount that shall not exceed \$15,000 for each day in which the discharge occurs and for each day that the clean up and abatement order is violated (Water Code Section 13350.(d)(2)).

Although it is not common, clean up and abatement orders have been issued for dairies in the San Joaquin Valley. Most dairies in the region do not operate under waste discharge requirements and, therefore, are not subject to the provisions of the law described above. However, proposed projects under the Element would be required to comply with RWQCB waste discharge requirements. Therefore, the dairies developed under the Element would be subject to the water quality laws that apply to all types of business operations that discharge waste to land in California. Waste discharge requirements issued by the RWQCB are conditioned on the basis of the potential for the discharge of waste to result in impairment of water quality.

As explained above, the cost of remediation would be the responsibility of the dairy causing the problem. The cost of remediation would vary depending on the extent of the contamination, individual site characteristics, and other factors, thus making it infeasible for this PEIR to provide a meaningful estimate of potential remediation costs. Furthermore, the determination of impact significance is not causally related to the cost of remediation. The fact that Kern County was required to discuss the costs of remediation in a supplemental environmental review ordered by a Kern County court for an individual dairy project is not binding on this Kings County document.

#### **Response to Comment 22-45**

As discussed in Response to Comment 22-43, the County has the authority to revoke or modify a dairy's zoning permit under its police powers and under the specific authority in the Element (see **Policy DE 6.3a**, **Policy DE 6.4d**, and **Policy DE 4.2d**). The commentor is referred to minor changes to the Draft PEIR on page 4.3-38 reflecting the County's enforcement authority and referencing the role of the RWQCB. The text of the first full paragraph on page 4.3-38 of the Draft PEIR has been modified to provide clarification.

#### **Response to Comment 22-46**

The setback (150 feet) of wells from manured areas and wells or surface water bodies required by **Policy DE 3.2c** was considered appropriate by the preparers of the PEIR because it exceeds the minimum setback requirements for animal facilities (100 feet) presented in the California Well Standards as set by the State Water Resources Control Board. Compliance with the well standards has not resulted in known groundwater or surface water degradation in Kings County.

#### **Response to Comment 22-47**

The comment implies that all wells within the DDOZs and NSOZs designated in the Element can and should be inspected prior to adoption or implementation of the Element. This suggestion would be impractical and unwarranted. The location of manured areas for dairies developed under the Element cannot be known *a priori*. Property owners within the

DDOZs and NSOZs have no reason or responsibility to have their existing wells inspected. The inspection would only be necessary if a dairy project were proposed. The County does not have the legal right to review well driller logs, which are confidential under California law.

**Policy DE 3.2i** of the Element requires that all wells at a proposed dairy development site be inspected by a qualified professional (and repaired if necessary) prior to dairy development. The commentator's opinion that the policy "precludes informed decision-making and public participation" is noted for the record, but is not supported. The professional inspection of wells is the appropriate approach to ensuring integrity of the well seal.

### **Response to Comment 22-48**

The Draft PEIR (pages 4.3-8 through 4.3-11) presented a discussion of groundwater quality within the southern San Joaquin Valley. The discussion specifically described the distribution of total dissolved solids and trace elements. The discussion also presented information regarding surface water quality for the Tulare Lake Drainage District. Specific water quality problems were described in the discussion. The preparers of the PEIR used this information to frame the discussion of the potential impact of implementation of the Element on surface and subsurface water quality.

### **Response to Comment 22-49**

The commentator's opinion that biological surveys are necessary prior to the adoption of the Element is noted. Section 4.3 of the PEIR summarized and discussed the wildlife habitat within Kings County and information (including mapping) on known sensitive habitat areas and occurrences of special-status plant and animal species. This map was developed from the Department of Fish and Game's 2000 California Natural Diversity Data Base. **Policy DE 1.2e** of the Element does not allow dairy development on wetlands and undisturbed wildlife habitat. Most of the land within the DDOZs and NSOZs designated by the Element is currently used for extensive agriculture, which provides limited habitat for wildlife. Conducting field surveys prior to knowing where specific dairy development would occur would not be appropriate. In addition, biological resources are dynamic and the timing of surveys would be most appropriate at the time the dairy development is proposed.

### **Response to Comment 22-50**

The comment presents several nonspecific concerns regarding the completeness of the regional biological resource discussion in the PEIR. The PEIR described the regional biological conditions of Kings County, inclusive of the local areas (DDOZs and NSOZs) that would be directly affected by implementation of the Element. Mapping of sensitive

habitat (based on the 2000 California Natural Diversity Data Base) was extended to areas outside but adjacent to the boundaries of the County. The commentor characterizes the information presented in the PEIR as “severely limited” and “outdated and incomplete” but does not indicate any specific additional pertinent biological resource data that should have been included in the document.

### **Response to Comment 22-51**

The Draft PEIR (pages 4.4-2 through 4.4-6) presents a discussion of special-status species known to occur in Kings County. The location of known occurrences of these animals and plants was presented on Figure 4.4-1. Wetlands within Kings County are also discussed in the Draft PEIR (page 4.4-6). **Policy DE 3.3a** of the Element requires that site-specific biological and wetlands surveys be conducted at each proposed dairy development site. If proposed dairy sites contain wetlands or undisturbed wildlife areas, **Policy DE 1.2e** of the Element would require further environmental review prior to development of dairy facilities in those areas. Therefore, the requirement for site-specific surveys for all proposed dairy development sites and the prohibition of dairy development on wetlands reduce the potential impact on wetlands to a less-than-significant level. It is not necessary or practical to conduct wetland surveys prior to knowing the location of dairies that would be developed under the Element.

### **Response to Comment 22-52**

The commentor is referred to Responses to Comments 22-49, 22-50, and 22-51 regarding the appropriate timing of the biological survey. The requirement for a site-specific biological survey at the time of dairy development is proposed, in part, to effectively address the habitat and activities of the San Joaquin kit fox. Changes in vegetative cover and availability of prey over time result in adjustments in the kit fox’s movements. The kit fox’s mobility and foraging habits result in changes in the location of its dens. Therefore, the most appropriate time to evaluate an individual dairy site is at the time of proposed development.

### **Response to Comment 22-53**

Typical active agricultural practices conducted in the San Joaquin Valley limit the habitat value of agricultural fields. Under active agriculture, available cover for animals changes throughout the year. Development of natural vegetation is generally prevented in the fields and restricted to the margins of fields. Vegetative cover for animals is limited. Crop rotation is a common practice in Kings County. Under rotation, some fields are left out of production for a growing season or longer. These are fields that the County considers “temporarily fallow” as they are expected to be disturbed by agricultural activities in the near future.

### **Response to Comment 22-54**

In response to the comment, additional text has been added to the sentence on page 4.4-8 of the Draft PEIR referenced in the comment.

### **Response to Comment 22-55**

The commentor's opinion of the conclusions regarding the significance of human health impacts presented in the PEIR is noted for the record. The commentor is referred to Responses to Comments 22-56 through 22-63 for further discussion.

### **Response to Comment 22-56**

The commentor incorrectly assumed that regulations regarding protection of worker health and safety do not apply to the dairy industry. There are no exemptions in the California General Safety Orders for dairy operations. The comment presents no evidence that compliance with existing State and Federal laws and regulations regarding the management of hazardous materials or general worker health and safety would not reduce the potential human health impacts to a less than significant level. The PEIR explains the enforcement authority and responsibilities of agencies that regulate hazardous materials management and worker health and safety.

### **Response to Comment 22-57**

Appendix J of the Element presents additional general guidance for the scope and contents of pest management plans required by **Policy DE 4.3b**. The preparers of the PEIR reviewed the guidelines and requirements of the Kings Mosquito Abatement District and found them to be appropriate. These requirements, in conjunction with the requirements of **Policy DE 4.3b**, provide feasible mitigation for potential impacts related to insect pest management at dairies. The comment suggests that some sort of "projection" of the potential increase in vector infestation should have been included in the PEIR. The preparers of the PEIR have not identified any known methodology for developing such a projection and no methodology was presented in the comment.

### **Response to Comment 22-58**

The potential impact related to public exposure to pathogens was discussed on pages 4.8-10 and 4.8-11 of the Draft PEIR. The discussion identifies the most significant pathogens associated with dairy cattle and manure. The pathways of human exposure and fate of pathogens in the environment are also discussed. The commentor is correct in pointing out that the fate of pathogens in the environment is affected by site-specific conditions, including physical and chemical properties, climate, plant cover, and surface and subsurface hydrology. The Element contains numerous requirements that reduce the potential for public exposure to pathogens, including containment and treatment of manure and process water and control of runoff from agricultural cropland. In addition,

there are no drinking water supplies within Kings County that rely on surface water sources. Therefore, even if pathogens were released to surface waters, they would not be consumed by people.

Several environmental factors in the DDOZs and NSOZs designated by the Element inhibit the migration of pathogens. The warm, arid, sunny climate promotes the drying of applied manure and process water and enhances the bactericidal effect of ultraviolet radiation of sunlight. The surface soils are predominantly fine grained (sandy loams to clay loams) and subsurface horizons are even finer (silt loam to clay). The fine-grained texture reduces the rate of infiltration and increases the potential for adsorption of bacteria and viruses onto soil particles. In addition, most of the surface soils are alkaline, a condition that promotes adsorption.

### **Response to Comment 22-59**

The potential health effects of cryptosporidium were discussed on page 4.8-10 of the Draft PEIR. Some dairy workers (depending on duties) could have an increased risk of exposure to pathogens. Workers who have sustained contact with calves would probably have the highest risk. Some evidence suggests that the potential for infection increases with increasing age. However, when basic sanitation practices are followed, the risk of infection by pathogens would be minimized. It is noted for the record that there have not been any documented cases of cryptosporidiosis in Kings County during the period from 1998 to the present.<sup>24</sup>

### **Response to Comment 22-60**

The proposed minimum setback for wells applies only to dairy sites and not to nutrient spreading areas within the designated Nutrient Spreading Overlay Zones. The manure and process water generated at dairies would undergo advanced aerobic or anaerobic treatment, reducing the risk of significant exposure during nutrient spreading.

### **Response to Comment 22-61**

Antibiotics (also referred to as antimicrobials) are considered vital medicines for the treatment of bacterial infections in humans and animals. The use of these medicines is also recognized as important for sustainable livestock production as well as for the control of animal infections that could be passed on to humans. The development of resistance of organisms to antimicrobial medicines is controlled by genetic changes (acquired through mutation or transfer of genetic material) and subsequent selection processes. Therefore, resistance can develop with or without the use of antimicrobials. However, overuse of

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<sup>24</sup> Winkler, Keith, 2002, Director, Kings County Environmental Health Services, personal communication with Kevin O'Dea of BASELINE, 12 February.

antimicrobials can promote the selective success of pathogens that are resistant to the antimicrobials by suppressing susceptible organisms and promoting the growth of resistant mutants. Food-borne microbes that develop a resistance to similar antibiotics used for treatment of human infection can potentially increase the risk of human infection. The use of antibiotics as medicines for human and animal health management is controlled by the Federal Food and Drug Administration (FDA). Judicious use of the antimicrobials is the responsibility of licensed veterinarians.

The commentor is correct in suggesting that residual concentrations of antimicrobials can be released into the environment during treatment and reuse of manure and process water. There is only limited information regarding the release and persistence of antimicrobials at confined animal facilities. In 1998, the Federal Centers for Disease Control and Prevention (CDCP) conducted sampling<sup>25</sup> of liquid manure storage lagoons at large swine facilities in Iowa and nearby wells and streams for the presence of four common antimicrobials. One antimicrobial (tetracycline) was detected in all seven lagoons tested at concentrations ranging from 11 to 540 micrograms per liter. One of the antimicrobials (sulfonamide) was detected in one monitoring well; none of the compounds was detected in two agricultural drainage wells, two drainage ditches, three monitoring wells, a private well, or six drainage tile outlets.

The CDCP recommended that further studies should be conducted. The preparers of the PEIR are not aware of any investigation of antimicrobials in the environment at or proximal to dairy operations. Nearly all attention regarding antimicrobials at confined animal facilities has been targeted at swine facilities. Due to the lack of available studies, the preparers consider that determination of the significance of the environmental impact on the use of antimicrobials at dairy facilities would be speculative. However, the controls on the potential for pollutant releases to surface waters and groundwater included in the Element would also minimize the potential for water quality degradation by the release of antimicrobials.

### **Response to Comment 22-62**

The commentor is incorrect in assuming that the PEIR “relies on an MTMP as a basis for its finding that exposure to residual manure is a less than significant impact.” Advanced treatment of manure required by the Element (**Policy DE 5.1c**) would reduce the levels of many pollutants, including pathogens. The treatment would reduce human exposure to pollutants in residual manure. However, the PEIR also considered the provisions of **Policy DE 5.1k** (now **5.1j**), which requires that all dairy operators confirm that residual manure

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<sup>25</sup> Centers for Disease Control and Prevention, 1998, Report to the State of Iowa Department of Public Health on the Investigation of the Chemical and Microbial Constituents of Ground and Surface Water Proximal to Large Scale Swine Operations, October-December.

and process water have been removed prior to conversion of the dairy facility to other uses. The comment does not acknowledge this important mitigation, which was considered in the finding that residual manure would be a less than significant impact.

### **Response to Comment 22-63**

The commentor is referred to Responses to Comments 22-38 and 22-39.

### **Response to Comment 22-64**

Contrary to the statement in the comment, the scope of the cumulative impacts analysis is *not* limited to Kings County. Additionally, the comment that the PEIR ignored air quality impacts from related projects outside of Kings County is incorrect. The PEIR considered cumulative air impacts for the entire San Joaquin Valley Air Basin (Draft PEIR, page 5-8).

The cumulative impacts of air emissions from bovine dairies in the San Joaquin Valley Air Basin were estimated semi-quantitatively on the basis of information from the California Department of Food and Agriculture (“CDF&A”) and similar assumptions made for estimating emissions presented in Section 4.2 of the PEIR. Estimates of the number of dairies and herd sizes throughout the air basin were provided by CDF&A (Draft PEIR, page 5-8). An estimation of air emissions must also include support stock as well as milk cows. The distribution and number of support stock were estimated using the same assumptions presented in the proposed Element (Table 5 of the Element) (Draft PEIR, page 5-9). The estimated 1999 dairy herd size for each county in the air basin is presented in Table 5-4, and the projected future dairy herds are presented in Table 5-5.

Emissions from the cumulative present and future herds were then estimated using the same assumptions as for the Element. Table 5-6 presents the estimated emissions of ROG, PM<sub>10</sub>, ammonia, and methane for future cumulative herds in the entire San Joaquin Valley Air Basin (Draft PEIR, page 5-13).

Given the scope of the PEIR’s cumulative impacts analysis, the reference to *Kings County Farm Bureau v. City of Hanford* (1990 ) 221 Cal.App.3d 692, is inappropriate.

### **Response to Comment 22-65**

The comment is noted for the record. The implication that the County omitted data “because it feels it would be too expensive to collect” is unjustified. The preparers of the PEIR went to great lengths to collect all the available information concerning existing and future dairies throughout the San Joaquin Valley Air Basin. The information was then used to estimate emissions and to relate the cumulative air impacts of the dairies throughout the air basin.

### **Response to Comment 22-66**

The comment is noted for the record. Please see Responses to Comments 22-64 through 22-65 and 24-102.

### **Response to Comment 22-67**

The commentator's opinion that the range of alternatives and the analysis of the alternatives presented in the PEIR is "inadequate" is noted for the record. Please refer to Responses to Comments 22-68 and 22-69. With regard to the third issue raised in the comment, the PEIR is not required to speculate on which alternative for the proposed project would be adopted by the Kings County Board of Supervisors.

### **Response to Comment 22-68**

The commentator's opinion that the PEIR "fails to properly analyze alternatives that would actually reduce the adverse unavoidable impacts" is noted. All the alternatives would reduce the unavoidable impacts identified in the PEIR. The preparers of the PEIR do not agree with the commentator's statement that the PEIR deems the ten percent reduction in herd size to be of "minimal environmental benefit." The Ten Percent Reduced Herd Size alternative would result in substantial reductions in air emissions and other significant impacts as shown on Table 6-2 of the PEIR. The Draft PEIR simply states (page 6-12) that neither the Reduced County Herd Size nor the Increased Manure Treatment alternatives would reduce air emission impacts to a less than significant level. It is important to note that the Reduced County Herd Size alternatives incorporate all the mitigating goals, objectives, and policies of the proposed Element. These provisions would substantially reduce the environmental impacts of dairy development relative to the environmental safeguards that are currently in place.

The commentator suggests that "a broader range of environmentally beneficial alternatives should be evaluated." The comment does not suggest feasible alternatives that should have been considered in the PEIR. The alternatives cover the range from no change in dairy development permitting (No Project) to consideration of up to ninety percent of the development that could be allowed under the proposed Element (Ten Percent Reduced County Herd alternative).

### **Response to Comment 22-69**

The commentator's opinion that the PEIR discussion of the comparative effects of the alternatives is "very truncated" is noted for the record. In accordance with CEQA, the PEIR has compared the effect of each of the alternatives in reducing impacts for all the environmental topic areas (e.g., Air Quality, Noise, Water Resources, etc.) evaluated for the proposed project.

### **Response to Comment 22-70**

The comment is noted for the record.

### **Response to Comment 22-71**

The comment is noted for the record.

### **Response to Comment 22-72**

The comment is noted for the record. Please refer to Responses to Comments 22-73 through 22-84, which address specific comments regarding the consistency of the Element with the General Plan.

### **Response to Comment 22-73**

The statements in the General Plan Introduction do not exclude the Element's goals, nor will the Element's policies exclude the effort by the County to produce more retail and service jobs. An increase in dairy production will increase the opportunities in the new job areas mentioned in the Introduction. This includes any of the dairy "spin-off" jobs that may be created in the County.

### **Response to Comment 22-74**

In response to the comment, the following goal will be added to the Land Use Element of the Kings County General Plan:

**GOAL 9A:** Restrict the locations where dairies may be located to those areas of the County where they are most compatible with surrounding uses and activities and environmental constraints as presented in the *Dairy Element*.

Objective 9A.1: Use specific standards to avoid potential land use conflicts through the site plan review (SPR) streamlined review process when approving new dairies and expansion of existing dairies.

Policy 9A.1a: Proposed new dairies and expansions of existing dairies, and associated dairy stock replacement facilities, may be approved through the SPR process if they meet all of the standards in the *Dairy Element* concerning siting, design, operation, monitoring and reporting.

In addition, Land Use Program 2 will be updated to address the changes associated with the County's detailed evaluation of dairies through the Element and associated Program EIR effort. Because of this detailed effort, dairies can be addressed through the administrative review process instead of the conditional use permit process. The following

amendments to Land Use Program 2 in the Land Use Element will be included with the adoption of the Dairy Element:

**Land Use Program 2 (2002 Update):**

Bring the Zoning Ordinance into conformance with General Plan policies, as follows:

A. Consider changing zone district boundaries, or relying more heavily on administrative review rather than on the conditional use permit process, in order to streamline the planning process. Retain the opportunity for public review and comment on potentially significant projects.

*Amend the Zoning Ordinance to include new zone districts "AG-20," "AG-40," and "Public Facilities." Rename the former "Light Agriculture" zone "Limited Agriculture." Eliminate the zone district formerly known as "Exclusive Agriculture."*

B. Continue to apply ~~Apply~~ the "General Agriculture" (AG) zone to areas so designated on the General Plan map, with minimum parcel size as indicated (e.g., AG-20 and AG-40). Permit, or permit subject to administrative action, all agricultural uses in the AG zone. Require Conditional Use permits of all ~~livestock concentration activities~~, agricultural service industries, agricultural airports, and other commercial operations which are now permitted, or are permitted subject to administrative approval, in agricultural zone districts.

New and expanding dairies, and dairy replacement stock facilities activities, shall be reviewed and processed as site plan reviews or conditional use permit process consistent with the policies found in the Dairy Element.

C. Apply the "Limited Agriculture" (AL) zone to areas so designated on the General Plan map, with a ten-acre minimum parcel size. Permit new non-intensive, temporary agricultural service activities and uses, such as kennels and veterinary hospitals, to locate in the AL zone. Do not approve uses for new livestock animal concentrations or ~~nuisance-producing~~ agricultural service industries in new permanent structures and facilities within areas designated "Limited Agriculture."

*Specify the criteria for permitting the division of property for nonagricultural use in areas designated AG and AL. Consider minimum parcel size, length of property ownership, and required degree of consanguinity for recipients of gift parcels for homesites and life estates. Require environmental and agricultural evaluation of the proposed division.*

*Amend the Zoning Ordinance to eliminate the zoning permit granted by Administrative Approval. Process permits for these uses as either Site Plan Reviews or Conditional Use*

~~Permits, based on whether the particular use is subject to review pursuant to CEQA. Generally, those uses which do not require CEQA review should be processed as Site Plan Reviews, and those uses requiring CEQA review should be processed as Conditional Use Permits.~~

~~Define "residences or farm employee housing incidental to an agricultural use" as those units occupied by households deriving at least one-half of their gross income from agricultural sales or labor.~~

~~Remove airports and heliports from the list of permitted uses.~~

~~The minimum parcel size in the "Rural Residential Agricultural" zone district shall be 20,000 square feet although a larger minimum site area may be required to comply with environmental concerns, building codes, or improvement standards. However, the site shall be not less than one acre in size if both individual water supply and individual sewage waste disposal systems are to be utilized on the site.~~

~~However, retain the provision for smaller lot sizes of the existing "Rural Residential Estate" zone district for application to rural residential subdivisions employing a public water system.~~

~~Eliminate the existing "Urban Reserve" zone district and apply specific zoning that is consistent with the Land Use Element, but initiate more stringent review of development proposals to ensure compatibility of existing and proposed uses and conformance with adopted policies.~~

### **Response to Comment 22-75**

See Response to Comment 22-74. In addition, the Element adoption process along with the PEIR provide the public review and comment for the dairy issue that was not available when the General Plan was updated in 1993 when Land Use Program 2 was first adopted.

### **Response to Comment 22-76**

**Policy DE 1.2a** specifically prohibits new dairies from locating in AL-10 zone districts, but allows existing dairies to apply for a CUP to expand their operation. **Policy DE 2.1g** has been added to clarify the rights of existing dairies, and includes language to ensure that the prohibition of new dairies remains in effect in the AL-10 zone district.

### **Response to Comment 22-77**

Land Use Program 2 has been amended to reflect the new Dairy Element program that includes the Program EIR as the environmental review that analyzes the environmental issues of the entire program.

### Response to Comment 22-78

Land Use Program 11 has been amended as follows to reflect the implementation of the Dairy Element and remove from the program the Agricultural Element. Kings County has determined that the dairy issue focus is more timely.

#### **Land Use Program 11 (2002Update):**

~~Prepare an Agriculture Implement the Dairy Element to be integrated with the contents of the Land Use, Open Space, and Resource Conservation Elements.~~

### Response to Comment 22-79

The “Kings County Flood Hazard Areas” map (General Plan Figure 11) and “Dairy Development Areas for Kings County” map (DE Figure 2) are both based on the National Flood Insurance Rate Map (FIRM) for Kings County (Community No. 060086). Therefore, there is consistency between General Plan Figure 11 and the Dairy Element. In addition, there is no current or proposed prohibition for using manure as a fertilizer/soil amendment on any farmland regardless of whether it is in a floodplain [Nutrient Spreading Overlay Zones (NSOZ)] or not. The Dairy Element further protects the environment by not allowing dairy facilities to be constructed on floodplains (**Policies DE 1.2c, 3.2d, and 3.2g**). These policies prohibit spreading of manure and dairy process water on floodplains during periods of flooding or threat of flooding. The Program EIR discusses potential impacts to surface water quality in Impacts 4.3-17 to 4.3-19.

### Response to Comment 22-80

**Policy DE 3.1a.I** (now **3.1a.H**) requires that biological resources be addressed in the applicant's Technical Report. **Policy DE 3.2c.B** requires setbacks or barriers between dairy facilities and surface water. **Policy DE 3.3a** requires surveys of any sensitive biological or wetlands resources prior to issuing a Site Plan Review. Surveys will be conducted on a case by case basis as required by United States Fish and Wildlife Service, California Department of Fish and Game, and the U.S. Army Corps of Engineers guidelines. If these agencies identify potential impacts to biological or wetland resources, then the applicant will not be eligible to obtain an SPR approval by the zoning administrator and will instead complete the CUP application process with additional environmental review under CEQA.

### Response to Comment 22-81

Policy 17a of the Resource Conservation Element requires that State or Federal guidelines be followed to protect wetlands. Accordingly, **Policy DE 3.3a** requires applicants to clear the wetlands issues with United States Fish and Wildlife Service, California Department of Fish and Game, and the U.S. Army Corps of Engineers before submitting an application for a new dairy or the expansion of an existing dairy. If, after conducting the required

surveys, these agencies determine that there are wetlands impacts, then the applicant will instead complete the CUP application process with additional environmental review under CEQA. Thus, it is not necessary for the County to further assess wetlands resources in the PEIR.

### **Response to Comment 22-82**

As described in Responses to Comments 22-80 and 22-81, these concerns are addressed in the PEIR. The main purpose of the Element is to analyze environmental impacts of dairy projects in areas designated for use by dairies (DDOZ) where agricultural uses are already established and there is little likelihood of impacts on affected species or natural areas. In the event a proposed project will have impacts on affected species or natural areas, additional environmental review beyond the PEIR will be undertaken. Thus, those types of projects will be subject to the public review and comment process. It would not be feasible for the County to assess all potential impacts on affected species or natural areas at the program level stage of environmental review of the Element.

### **Response to Comment 22-83**

A comparison of General Plan Figure 12 with Element Figure 2, Dairy Development Areas for Kings County, makes it clear that the dairy development areas do not “infringe” on the scenic areas along the Kings River. These scenic areas are between the river levees, which are, in turn, inside the floodplains. Dairy Development Overlay Zone-West stops at the edge of the Kings River flood zone, which averages about one-half mile west of the river. Dairy Development Overlay Zone-1 also stops at the edge of the Kings River and Cross Creek floodplains. No Dairy Development Overlay Zones are located within four miles of the Tule River.

### **Response to Comment 22-84**

Without exception, the areas along the Kings River and Cross Creek are excluded from dairy development areas where new dairies may locate. In addition, all of the Dairy Development Overlay Zones east of Interstate-5 are located on land that is already used as farmland (however, some land may lay idle occasionally). The land in the Kettleman Plain and Sunflower Valley is either farmed or used for grazing cattle. Thus, riparian environments are adequately protected by the Element.

### **Response to Comment 22-85**

The opinions presented in the comment are noted for the record.

### **Response to Comment 22-86**

The comment is noted for the record. **Policy DE 4.1a.B.2.d** requires that the design and construction of lagoon liners be certified by a Professional Engineer or Certified

Engineering Geologist. Furthermore, **Policy DE 4.1a.B.2.f** requires that the construction be inspected to ensure that site-specific geologic heterogeneities are properly mitigated.

#### **Response to Comment 22-87**

The performance standard required by **Policy DE 4.1a.B.2.c** of the Element requires that liners for manure separation pits and process water lagoons meet the standards set by the NRCS. Those standards require that soil liners have a specific discharge that does not exceed  $10^{-5}$  cm/sec and assume an additional order of magnitude decrease in seepage attributed to the seal formed by manure solids; the resulting specific discharge is  $10^{-6}$  cm/sec. The County's intention was to require liners that have maximum specific discharge of  $10^{-6}$  cm/sec. The commentor does not recognize that the performance standard of the NRCS guidelines is a specific discharge of  $10^{-6}$  cm/sec. To clarify the County's intention, **Policy DE 4.1a.B.2.c** has been modified to specify the maximum seepage velocity for lagoon liners rather than the permeability of the liner.

#### **Response to Comment 22-88**

Please refer to Responses to Comments 22-89 through 22-101. The commentor's opinion regarding the volatile solids removal performance standard is addressed in Response to Comment 22-92.

#### **Response to Comment 22-89**

Please refer to Response to Comment 22-23 for a discussion of the commentor's suggestion that construction of enclosed freestall barns for support stock should be required as mitigation for particulate matter emissions. The commentor also suggests that dust suppression by stabilization of unpaved corral surfaces should be required at existing dairies. The proposed project, i.e., the Dairy Element, does not include additional regulation for existing dairies that are not expanding. The County considers  $PM_{10}$  emissions from existing dairies to be an existing condition. Therefore, imposing additional requirements regarding the use of stabilizer at existing dairies is beyond the scope of the project. Eventually, the SJVUAPCD may require stabilization of unpaved areas at existing dairies via Regulation VIII. The imposition of these additional controls could eventually reduce  $PM_{10}$  emissions from existing dairies.

#### **Response to Comment 22-90**

The preparers of the PEIR agree that there are scientific methods available to quantify organic gases emitted from treated manure, which are discussed by the commentor. These methods and similar methods of analysis are used by U.S. EPA to develop emission rates. The preparers of the PEIR also agree with the commentor's opinion that "quantification is not necessary to determine whether residual air pollutants are emitted from treated

manure.” The Element and PEIR acknowledge that emissions will occur and the PEIR (Sections 4 and 5) presents estimates of emissions based on available emission rates.

### **Response to Comment 22-91**

**Policy DE 4.1b** of the Element presents limitations on land application of manure and process water, which generally address suggested controls presented in the comment. The policy requires that the dairy byproducts be applied at agronomic rates. The text of the policy has been modified for clarification. The County is located in an arid region and humidity is low throughout most of the year, including the periods when fertilization and irrigation of crops occur. The policy has been amended to incorporate the commentor’s suggestion that manure be applied during periods of low wind speeds and when winds are not directed toward populated areas within one-half mile of the application areas. Hundreds of miles of windbreaks would be required. Tree species suitable for windbreaks would require significant amounts of irrigation to survive in the climate of Kings County. The planting of windbreaks around all potential manure application areas is considered by the preparers of the PEIR to be impractical and infeasible.

### **Response to Comment 22-92**

The preparers of the PEIR consider the performance standard of 50 percent volatile solids (VS) removal to be a standard that could be feasibly met by both aerobic and controlled anaerobic treatment of dairy manure. The standard was established following consultation with researchers at the U.S. EPA AgSTAR program who have extensive knowledge regarding the performance of anaerobic treatment technologies. The rationale for the 50 percent VS removal goal was discussed in the Draft PEIR (pages 4.2-23 and 4.2-24). The volatile solids removal (reported as 64 percent) at the Langerwerf Dairy described in the comment is noted for the record. However, it is noted that the results presented reflect only one dairy facility.

The preparers of the PEIR agree with the commentor’s conclusion that “review of the treatment efficacy of a proposed dairy waste management system must be site specific.” It is for this reason that the Element requires that each new and expanding dairy application include a site-specific Manure Treatment Management Plan that demonstrates the potential to meet the volatile solids removal performance standard. Please refer to Response to Comment 22-98 for a discussion of public participation.

### **Response to Comment 22-93**

In response to the comment, **Policy DE 5.1c** has been amended to remove the exemption for proposed new or expanding dairies from the requirement for advanced manure treatment, which demonstrates that reactive organic gas emissions would not exceed

SJVUAPCD threshold values for stationary sources. Advanced treatment will be required for all new dairies and the expansion portion of existing dairies.

#### **Response to Comment 22-94**

The potential for the generation of electricity from biogas collected in controlled anaerobic manure treatment systems is discussed on pages 4.2-19 through 4.2-21 of the Draft PEIR. The commentor is correct in identifying the potential production of electricity as an option of this type of treatment. However, the preparers of the PEIR consider it important for the public to understand that both aerobic and anaerobic treatment systems are feasible methods for reducing the emissions from manure during and after treatment. As indicated in the comment, aerobic treatment has the advantage over anaerobic treatment in that these systems are generally more efficient in reducing volatile solids. This advantage is influenced by several factors but it is the main reason that most municipal sewage is treated aerobically.

#### **Response to Comment 22-95**

The comment is noted for the record. The Element did not use air emissions as the limiting factor for determining the basis of defining the theoretical County dairy herd for a number of reasons. First, accurate information on air emissions is still under development and regulatory thresholds for emissions have not been adopted by regulatory agencies for confined animal facilities. Secondly, limiting the herd size on an emission (i.e., PM<sub>10</sub>) for which the air basin is in nonattainment would completely restrict development of conventional dairies within Kings County and defeat the County objective to benefit from the economic development associated with the dairy industry. Thus, it is infeasible to use air quality as the limiting factor.

#### **Response to Comment 22-96**

The comment implies that presenting a summarized impact statement at the beginning of an in-depth impact analysis is in some way inappropriate. The preparers of the PEIR disagree with this implication. The structure of impact identification and analysis was consistent throughout the PEIR and is commonly used in CEQA documents. The commentor's assessment of the reduction of salt loading resulting from the installation of "impermeable membrane liners" is noted for the record. The expected seepage rate associated with synthetic liners is 10<sup>-9</sup> cm/sec, which is 1,000 times lower than the seepage rate (10<sup>-6</sup> cm/sec) required by revised **Policy DE 4.1a.B.2.c**. The performance standard set by **Policy DE 4.1a** reduces the impact of infiltration to a less-than-significant level.

#### **Response to Comment 22-97**

**Policy DE 4.4a** of the Element would effect the adoption of the water quality objectives of the Central Valley Regional Water Quality Control Board's Water Quality Control Plan for

the Tulare Lake Basin (“Basin Plan”). Through this action, the County adopts the water quality objectives of the Basin Plan as thresholds of significance for dairy projects. The “safeguards” that are suggested in the comment are contained in the water quality objectives.

#### **Response to Comment 22-98**

The comment is noted for the record. The commentor suggests that the public would be excluded from providing beneficial “non-technical input” or “anecdotal information” regarding dairy development projects proposed under the Element. Such public input has been sought and received through the CEQA process for this PEIR. New and expanded dairies would be required to comply with all provisions of the Element, which is the subject of this PEIR. Dairy projects that cannot conform or choose not to conform with the Element would be required to obtain a Conditional Use Permit and undergo further environmental review under CEQA, which requires public participation. In addition, the public will have the opportunity to interface with the Dairy Monitoring Office that would be established by the Element and present any concerns through the complaint process developed by **Policy DE 7.1a** (now **6.1a.A**).

#### **Response to Comment 22-99**

The preparers of the PEIR do not agree with the suggestion made in the comment. The Element requires that all dairy operations meet the liner standards presented in **Policy DE 4.1a.B.2**. Any dairy development project has the option to elect to meet the standard by proposing installation of a synthetic liner. Please also refer to Response to Comment 22-96.

#### **Response to Comment 22-100**

Please refer to Response to Comment 22-87.

#### **Response to Comment 22-101**

**Policy DE 3.1a.C** requires that air quality, including ammonia emissions, be addressed in the Technical Report prepared for new and expanded dairy development projects. The policy has been amended to list required components of the Technical Report, including a Manure Treatment Management Plan, Air Quality Assessment, and Odor Management Plan. All of these required plans would address ammonia emissions and their control. The commentor is correct in pointing out the need to control odorless gases, such as methane and oxides of nitrogen. But the comment does not acknowledge the controls (i.e., advanced treatment of manure) that will reduce the emission of the gases required by the Element. The commentor’s opinion regarding the need for additional provisions to ensure that dairy development projects demonstrate compliance with California Air Resources Board standards and goals for concentrations of atmospheric gases is noted for the record. As discussed in the PEIR, dairy operations are not currently regulated by CARB or the San

Joaquin Valley Unified Air Pollution Control District. Therefore, these regulatory agencies have not developed performance standards or goals for dairy operations.

Without exception, the areas along the Kings River and Cross Creek are excluded from dairy development areas where new dairies may locate. In addition, all of the Dairy Development Overlay Zones east of Interstate-5 are located on land that is already used as farmland (however some land may lay idle occasionally). The land in the Kettleman Plain and Sunflower Valley is either farmed or used for grazing cattle. Thus, riparian environments are adequately protected by the Element.

## **LETTER 23 - Chuck Draxler, Kings County Farm Bureau**

### **Response to Comment 23-1**

In 2000, the crop value for Kings County was just over \$885 million, not \$900,000 million. Milk represented approximately \$293.3 million, not \$300,000 million (Kings County Agricultural Commissioner's 2000 Crop Report).

Employment from jobs derived directly and indirectly from the dairy industry represents approximately 4,000 jobs in 2000. Currently there are less than 30,000 private sector jobs in the County. The potential buildout if this Dairy Element is implemented in its entirety is approximately 15,000 jobs, a 3.75-fold increase (Economic Analysis Table 5, page 14).

### **Response to Comment 23-2**

All projects for which an EIR is prepared that includes mitigation measures must be accompanied by a Monitoring and Reporting Program (CEQA Guidelines Section 15097). This is "...to ensure that the mitigation measure and project revision identified in the EIR ... are implemented ...". The proposed Dairy Monitoring Office is a subsection of the Code Compliance Section of the Kings County Planning Agency, and not a stand-alone agency of the County. The Dairy Monitoring Office will be directed by the Director of Planning and Building Inspection who is also the zoning administrator and responsible for the Code Compliance section.

### **Response to Comment 23-3**

The comment is noted for the record. The PEIR acknowledges that the regulatory and scientific communities are continuing to refine the understanding of air quality conditions in the San Joaquin Valley Air Basin and the potential impacts on air quality related to the construction and operation of dairy facilities. However, it is the County's responsibility under CEQA to disclose available information on air quality conditions, estimate the magnitude and determine the significance of adverse impacts, and to develop feasible mitigation measures. The preparers of the PEIR consider that these goals have been achieved. The commentator is referred to Responses to Comments 23-44 through 23-55 for further discussion and clarification of air quality impacts.

### **Response to Comment 23-4**

The purpose of the Economic Study is to evaluate the economic effect buildout of the Dairy Element would have on the overall county economy. It was never intended to evaluate the cost of Dairy Element policies on the individual dairyman. No effort has been made to evaluate that cost in this project. While the preparers of the PEIR do not dispute the Farm Bureau's estimate of what those individual costs are, the Bureau did not provide any documentation to support those cost estimates.

### **Response to Comment 23-5**

The comment is noted for the record. However, if this Element is not adopted, the current zoning ordinance requirements for a CUP and environmental review will continue on an individual dairy-by-dairy approach.

### **Response to Comment 23-6**

Section V of the Element has been changed to support the California Dairy Quality Assurance Program, but that program is not a substitute for either conditional use permit or site plan review requirements of the Kings County Zoning Ordinance.

### **Response to Comment 23-7**

**Policies DE 1.2a** and **1.2b** have been modified to reflect this comment. In the case of an existing dairy that is expanding, the policies of the Element only apply to the expansion area, not to the entire previously existing facility.

### **Response to Comment 23-8**

**Policy DE 1.2c** is included to address the National Flood Insurance Program as well as Regional Water Quality Control Board regulations. Therefore, language is added to this policy to reflect both the "latest adopted" Flood insurance Rate Maps and RWQCB regulations found in Title 27, Section 2562 of the California Code of Regulations.

### **Response to Comment 23-9**

In addition to complying with RWQCB requirements, Kings County must ensure that the National Flood Insurance Program requirements are met. This includes a requirement for a Letter of Map Amendment (LOMA) or Letter of Map Revision (LOMR) for the Flood Insurance Rate Map (FIRM) any time the identified flood zones are altered. Kings County adopted a Flood Damage Protection Ordinance in 1989 (Ordinance No. 474). **Policy DE 1.2c** is directed primarily at this program.

### **Response to Comment 23-10**

**Policy DE 1.2d** has been changed in response to the comment.

### **Response to Comment 23-11**

**Policy DE 1.2f** refers to areas of the County where the land naturally slopes more than 5 percent. The only land with greater than 5 percent slope is in the Kettleman Hills and Coast Ranges. The inter-range valleys allow applications for new dairies.

### **Response to Comment 23-12**

**Policy DE 1.2g** has been modified to allow expansion of an existing dairy into the buffer zone around school zones only after approval of a conditional use permit for further reduction of the buffer zone. The Planning Commission may consider various factors, such as distance, wind direction, intervening uses, and the like, before deciding whether to approve such an expansion. In land use decisions, which use came first is only a minor consideration. The fact that a school exists is the principal concern. The policy calls for a one-half mile buffer around schools, not three miles as the comment indicates.

### **Response to Comment 23-13**

The suggestion made by the commentor concerning **Policy DE 1.2h** would require the zoning administrator to make a discretionary decision. Therefore, the policy has been modified to allow the application of a CUP for such a proposal. As with **Policy DE 1.2g**, the Planning Commission may consider any pertinent information before rendering its decision. Please note, the policy calls for a one-quarter mile buffer between dairy facilities, not three miles as the comment indicates.

### **Response to Comment 23-14**

**Policy DE 1.2j** discusses the expansion of the “compatibility zone” around cities in the future. Population projection for Kings County estimates a population of 240,000 people by the year 2030. This includes an estimated 31,000 in Corcoran, 95,000 in Hanford, and 49,000 in Lemoore. These cities will grow out to accommodate this population. State law requires cities and counties to plan for that growth. The planning process includes resolving incompatible land use issues that occur because of growth. Since there are existing dairies in the path of expected growth, policies must be established now so that the dairy owners/operators can decide whether investments in existing dairies are justified. The “compatibility zone,” which is represented by the extension of the AL-10 zone district, is the warning mechanism.

### **Response to Comment 23-15**

**Objective DE 2.1** has been modified to reflect that the Site Plan Review (SPR) for the expansion of an existing dairy applies only to that portion of the dairy that is expanded, not to the unchanged parts of the existing portion.

### **Response to Comment 23-16**

**Policy DE 2.1a** has been modified to reference the RWQCB's Fact Sheet No. 4 as the basis for animal unit calculation. The policy also includes a statement that, if the RWQCB adopts another method for estimating the land required for application of manure, the new method will be used.

### **Response to Comment 23-17**

In response to the comment, **Policy DE 2.1b** has been modified to substitute the phrase “up to” for the word “below.”

### **Response to Comment 23-18**

The changes, concerning the application of these policies to only the portion of an existing dairy facility that is the subject of a zoning action, that have been made to **Objective DE 2.1** have also been made to **Policies DE 2.1c** and **2.1d**. See Response to Comment 23-15 above.

### **Response to Comment 23-19**

The suggested change to **Objective DE 2.2** has been made to reflect that only the expanded part of the dairy is subject to the SPR.

### **Response to Comment 23-20**

In **Policy DE 2.2a**, the date of July 1, 1998, was selected because that was about the time when dairy issues prompted the development of this Element. Therefore, credit could be given for all land under the control of an existing dairy operator as of that date. This includes land that is owned or leased, rented, or used for application of dairy process water from the dairy. No change has been made.

### **Response to Comment 23-21**

For **Policy DE 3.1a**, dust generation and control are a zoning ordinance issue. One of the findings that the zoning administrator must make is that, among other things, dust generated by the activity is not substantially injurious to people, property, or livestock in the vicinity (Section 2102.C.6.). Therefore, “dust control” standards are a required component of the Element.

### **Response to Comment 23-22**

Dust control is regulated by the zoning ordinance. The generation of dust can adversely affect the quality of life for neighbors, including damage to crops and devaluation of property.

### **Response to Comment 23-23**

Dust control is regulated by the zoning ordinance. As discussed in Response to Comment 23-22, the generation of dust can adversely affect the quality of life for neighbors, including damage to crops and devaluation of property. In addition, the policy requires a one-half mile buffer, not the two-mile buffer stated in the comment.

### **Response to Comment 23-24**

The commentor is referred to Responses to Comments 22-21 and 22-23

### **Response to Comment 23-25**

Comment noted but no change is proposed to **Policy DE 3.1d**. This policy provides specific information about projects that are subject to CEQA, which must consider potential impacts to cultural resources. To change the General Plan and Zoning Ordinance to allow SPRs for dairy projects, the PEIR must provide for the potential of disturbance of cultural resources. Therefore, each application under this program must include within the Technical Report measures to identify cultural resources when discovered and how to handle them. This is mitigation for the program, and it applies to every application reviewed under the program. This policy provides information about where that information can be obtained.

### **Response to Comment 23-26**

**Policy DE 3.1e** has been modified in response to the comment.

### **Response to Comment 23-27**

The commentor is referred to Response to Comment 23-25.

### **Response to Comment 23-28**

**Policy DE 3.2a** requires a Technical Report with certain components and shall include them. To use the word “should” would make the components optional, which they are not since they are requirements for implementing the dairy development program.

**Policy DE 3.2a.A** has been reworded, however, this is a RWQCB requirement. Those requirements will supersede any differences with the Element.

**Policy DE 3.2a.B** has not been changed as recommended by the comment since the policy would not change with the requested wording. **Policy DE 3.2a.C** has been deleted in response to the comment as it duplicates **3.2a.A** above. **Policy DE 3.2a.D** has been renumbered to **3.2a.C** and reworded as requested.

### **Response to Comment 23-29**

**Policy DE 3.2b** has been modified to address the commentor’s concerns.

### **Response to Comment 23-30**

**Policy DE 3.2d** has been modified to distinguish between discharges to surface waters and floodplains. Discharge to floodplains is only prohibited during flood events; otherwise the cropland within floodplains may be irrigated with dairy process water and fertilized with manure.

### **Response to Comment 23-31**

**Policy DE 3.2f** has been modified and relies on **Goal DE 6** (monitoring and reporting) for the necessary details.

### **Response to Comment 23-32**

**Policy DE 3.2g.B** (now **3.2g.C**) has been changed to replace “levees” with “berms” as requested by the commentor. However, the last sentence of the policy has not been removed as suggested. Whether the sentence is removed or not, all required permits must be obtained for dairy developments.

### **Response to Comment 23-33**

**Policy DE 3.2g.C** (now **3.2g.A**) cannot be omitted as requested. Development in floodplains must still comply with the Flood Damage Prevention Ordinance adopted by the County pursuant to the National Flood Insurance Program. This requirement is in addition to the RWQCB regulations found in Title 27, Division 2, Subdivision 1, Chapter 15, Section 2562 of the California Code of Regulations. The regulations associated with the National Flood Insurance Program are designed to keep development from causing new flooding elsewhere due to new barriers built into the existing floodplains. Please refer to Response to Comment 23-9.

### **Response to Comment 23-34**

**Policy DE 3.2h** requires a Hydrologic Sensitivity Assessment (HSA) as part of the Technical Report requirements. Its purpose is to assess the potential for contaminating groundwater and evaluating methods to mitigate potential situations where contamination could occur.

### **Response to Comment 23-35**

Regardless of whether **Policy DE 3.2i** is removed as requested by the commentor or not, both the California Well Standards and the RWQCB standards must be met. In addition, this policy is concerned with wells that are properly sealed against contamination from the surface. No reference to “downhole camera” inspection is in the policy.

### **Response to Comment 23-36**

**Policy DE 3.3a** has been modified to require a CUP if the survey identifies impacts on biological or wetland resources.

### **Response to Comment 23-37**

**Policy DE 3.6a** has been modified to include the standards requested by the Kings County Fire Department.

### **Response to Comment 23-38**

**Policy DE 3.6b** has been deleted in response to the comment.

### **Response to Comment 23-39**

**Goal DE 4** has been changed to remove the word “system.”

### **Response to Comment 23-40**

**Objective DE 4.1** has been changed to rename the “Comprehensive Nutrient Management Plan (CNMP)” to “Manure Nutrient Management Plan (MNMP)” as recommended in the comment. This change will accomplish the goal of this section. All references to the “CNMP” are also changed to “MNMP.”

### **Response to Comment 23-41**

**Policy DE 4.1a.A** has been changed to delete all but the first sentence. Generally the diet of the cattle is done on recommendations from the dairy’s nutritionist to get the best balance between feed input and milk production.

### **Response to Comment 23-42**

**Policy DE 4.1a.B.1** has been modified to make it clear that clean water that does not come into contact with manured or feed storage areas may be diverted from the dairy process water collection system. However, once it is collected into the dairy facility’s system, it shall be handled in the same manner as all other dairy process water.

**Policy DE 4.1a.B.2.b** has been modified as recommended concerning the maintenance of lagoon liner integrity.

**Policy DE 4.1a.B.2.c** has been modified to refer to the minimum permeability of the soils in the lagoon liner.

**Policy DE 4.1a.B.2.d** has been modified to require that the liners be certified as installed according to the design standards.

The Professional Engineer or Engineering Geologist who certifies the liner pursuant to paragraph 2.d above can accomplish **Policy DE 4.1a.B.2.f**.

**Policy DE 4.1a.B.2.g** has been changed, as recommended, and additional language has been added to reference the pertinent code section.

**Policy DE 4.1a.B.2.i** has not been modified in response to the comment. Please refer to Response to Comment 21-27.

#### **Response to Comment 23-43**

**Policy DE 4.1a.B.3** has been modified to ensure that runoff from manure storage areas is collected and diverted to the liquid manure collection system. However, the sentence about consideration for sensitive areas has been retained.

#### **Response to Comment 23-44**

**Policy DE 4.1a.B.4** has been modified as requested, and language added to tie it into the air quality standards of the Element.

#### **Response to Comment 23-45**

**Goal DE 5** has been changed to read "... through the reduction of potential adverse air emission ...." It is the adverse impacts that are of concern.

#### **Response to Comment 23-46**

The comment is noted for the record. **Objective DE 5.1** has not been modified in response to the comment. The County must implement policies that mitigate identified significant adverse air quality impacts. Mitigation of the impacts must be verifiable and the commentor's suggestion to "develop Voluntary Incentive Based Strategies at dairies that improve air quality" would not meet the requirements of CEQA.

#### **Response to Comment 23-47**

**Policy DE 5.1a** has been modified to replace the words "participate in" with "monitor." This will provide the County with the opportunity to comment on proposed air district action in a timely manner to ensure that the needs of the Kings County agricultural industry are heard.

#### **Response to Comment 23-48**

The second paragraph of **Policy DE 5.1b** has been modified as recommended. However, the third paragraph should remain until the air district develops a standard that can then

be substituted. In the meantime, this policy should stand to address the Dairy Element program requirements.

#### **Response to Comment 23-49**

**Policy DE 5.1d** has been modified since these emission control requirements are included in the Air District's Regulation VIII. The part removed is the details that do not have to be repeated in the Element.

#### **Response to Comment 23-50**

**Policy DE 5.1e** - Dust is a zoning ordinance issue. One of the findings that the zoning administrator must make is that, among other things, dust generated by the activity is not substantially injurious to people, property, or livestock in the vicinity (Section 2102.C.6.).

#### **Response to Comment 23-51**

**Policy DE 5.1f** has been removed from the Element. The components that are important to managing a dairy are covered in other parts of the Technical Report, or by other regulatory agencies. **Policies DE 5.1g** through **5.1k** have been renumbered appropriately.

#### **Response to Comment 23-52**

**Policy DE 5.1g** (now **5.1f**) has been modified to reflect that these control measures are guidelines developed and implemented by the SJVUAPCD. These details do not need to be repeated in the Element.

#### **Response to Comment 23-53**

**Policy DE 5.1h** (now **5.1g**) is maintained to facilitate the zoning administrator's consideration of the zoning aspects of dust generation.

#### **Response to Comment 23-54**

The comment suggests that "dust" is not a regulated criteria pollutant under the Clean Air Act or the California Clean Air Act. However, the fraction of fugitive dust that is comprised of particulate matter with aerodynamic diameters of 10 microns or less ("PM<sub>10</sub>") is regulated under both State and Federal law. **Policy DE 5.1i** (now **5.1h**) does not effect a "Permit to Farm" as indicated by the comment. The policy would not restrict the right to farm but would require controls to mitigate a significant adverse impact.

The last point made in the comment is that the County should adopt recommendations of the Agricultural Technical Advisory Committee of the San Joaquin Valley Unified Air Pollution Control District and the USDA Agricultural Air Quality Task Force. Recommendations made to date by these bodies do not include verifiable performance

standards or other requirements. CEQA requires that mitigation is verifiable. Please refer to Response to Comment 23-46.

#### **Response to Comment 23-55**

**Policy DE 5.1j** (now **5.1i**) has been modified to remove cropland from the policy. At this time there are no requirements to consider the cropland's effects on constituents. To do the monitoring, operators of new and expanded dairies must keep a written record of their efforts to implement their activities to operate the dairy within the Element standards and demonstrate their compliance.

#### **Response to Comment 23-56**

**Policy DE 5.1k** (now **5.1j**) has been modified to restrict this requirement to changes of use that do not include livestock.

#### **Response to Comment 23-57**

In response to the comment, **Goals DE 6** and **7** have been combined with extensive rewording and moving of policies to cover the issues that were previously in both goals. **Goal DE 6** now contains the monitoring policies to ensure that the Dairy Monitoring Office tracks the mitigation measures in the Element. Subsection "B. Tracking Program," including **Goal DE 7**, has been removed, and the objectives and policies of **Goal DE 7** have been rewritten and moved into **Goal DE 6** as **Objective DE 6.1** and **Policies DE 6.1a** and **6.1b**.

The Introduction to Section V has been expanded to explain the purpose of the monitoring program. Principally it is the Planning Commission's responsibility to ensure that the General Plan and Zoning Ordinance are working as intended. Reports back to the Commission will satisfy the CEQA Monitoring and Reporting Program. This information is part of the CEQA monitoring requirement.

#### **Response to Comment 23-58**

Section VI has been completely rewritten to simply state that Kings County desires that all dairies in the County operate in efficient and economically and environmentally sound ways and recommends that all dairies work toward certification under the California Dairy Quality Assurance Program. **Goal DE 8**, **Objective DE 8.1**, and **Policies DE 8.1a** through **8.1c** have been deleted. In addition, the content of **Policy DE 8.1c** has been moved to Section IV and renumbered **Policy DE 3.7a**.

#### **Response to Comment 23-59**

The comment is noted for the record. Please refer to Response to Comment 7-7.

**Response to Comment 23-60**

The comment is noted for the record.

**Response to Comment 23-61**

The comment is noted for the record. Please refer to Response to Comment 7-7.

**Response to Comment 23-62**

Please refer to Response to Comment 20-39.

**Response to Comment 23-63**

The recommended definition is not necessary as the term “Dairy Best Available Retrofit Control” is not used in the Element.

## **LETTER 24 - Caroline Farrell and Brent Newell, Center on Race Poverty and the Environment**

### **Response to Comment 24-1**

The comment identifying the purpose of the letter and the commentors' general opinion regarding the adequacy of the PEIR are noted for the record.

### **Response to Comment 24-2**

The general description of the purpose of the California Environmental Quality Act (CEQA) presented in the comment is acknowledged. It is noted that the purpose of preparing the PEIR for the project was to meet the requirements of CEQA. The commentors' general opinion regarding the analysis presented in the PEIR is noted for the record.

### **Response to Comment 24-3**

The purpose of preparing the Draft PEIR was described on pages 1-1 and 1-2. The County developed the Element and prepared the PEIR to serve as the environmental documentation for implementation of the Element. Following adoption, dairy development projects that conform with all of the provisions presented in the Element would not require additional environmental review under CEQA. However, if a dairy development is proposed that does not conform with the goals, objectives, and policies of the Element, the development would be required to apply for a conditional use permit (CUP). Under the CUP process, additional environmental review under CEQA would be required. In those circumstances, the CEQA documentation could be tiered from the PEIR prepared for the Element. The PEIR meets the intent and requirements of CEQA and that identified impacts have been evaluated specifically and comprehensively in the PEIR. The commentors are referred to Responses to Comments 24-4 through 24-109 for further discussion of the comments presented in Comment Letter 24.

### **Response to Comment 24-4**

The comment is noted for the record. Preparation of a PEIR is the most appropriate type of environmental review for the Element. As described on pages 1-2 and 1-3 of the Draft PEIR, the County recognizes that dairy management practices will evolve over time and that specific management practices will vary from dairy to dairy. The intent of the provisions of the Element is to allow individual dairy operators to design and operate their dairies in the most suitable manner given the site-specific conditions for their project. However, each dairy would be required to meet all provisions of the Element. The Element specifies the content of required plans and reports. If site-specific conditions at a proposed dairy site or proposed dairy design preclude the project from meeting the requirements of the Element, the project would require a CUP and further environmental review.

### **Response to Comment 24-5**

Contrary to the statements made by the commentors, the impacts of transportation of manure were evaluated in the PEIR. The transportation analysis (Impact 4.9-8) assumed additional vehicle trips generated by dairies developed under the Element, including manure transport trucks. In addition, the air quality analysis (Impact 4.2-4) evaluated the air emissions generated by equipment at dairies, including manure trucks.

### **Response to Comment 24-6**

The term “Best Available Control Measures” (BACM) has been removed from the Element.

### **Response to Comment 24-7**

Kings County is required under CEQA to ensure that required mitigation measures are enforced. Section 15097 of the CEQA Guidelines states that:

“In order to ensure that the mitigation measures and project revisions identified in the EIR or negative declaration are implemented, the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring to another public agency or to a private entity that 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.”

The County is bound by CEQA to adopt and implement a mitigation monitoring program. The Mitigation Monitoring Plan (MMP) for the proposed project is presented as Appendix C of this volume of the Final PEIR. The MMP identifies the timing of monitoring, the party responsible for monitoring compliance with the requirements, the method for compliance, and enforcement mechanisms for the mitigation measures developed for the project. The County is committed to implementation of the MMP and the comment presents no argument that the County cannot or would not abide by the requirements of the law to implement and enforce the MMP.

With regard to the commentor’s reference to the Galhandro dairy site, enforcement efforts are currently being coordinated with the RWQCB. The County Planning Agency is waiting for RWQCB action before taking action on the herd size issue. In addition, the dairy operator has submitted an application for a CUP and is waiting for completion of the PEIR before proceeding with the expansion to bring the site into compliance.

### **Response to Comment 24-8**

In response to the comment, **Objective DE 3.7** and **Policy DE 3.7a** have been added to the Element to reinstate the language referenced by the commentor. The County is committed to enforcement of the provisions of the Element and this PEIR. The Element and the PEIR do not apply to existing dairies unless the dairies expand. The County encourages all dairies to work toward certification under the California Dairy Quality Assurance Program. Section V (now VI) of the Element has been amended to reflect this intention. Please also refer to Response to Comment 1-4.

### **Response to Comment 24-9**

The comment suggests that significant negative impacts on “other agricultural uses” could result if dairies are not set back from these uses. The comment does not identify the impacts that are suggested. **Policy DE 1.2h**, which requires setback of dairies from other dairies, was included in the Element as a “biosecurity” measure to reduce the potential for spread of illness between herds. Proposed dairy projects are required to ensure that runoff from dairy operations and cropland is controlled. Spray irrigation is not permitted. These mitigations and all of the other restrictions on dairy development appropriately minimize potential impacts on other agricultural uses.

### **Response to Comment 24-10**

The preparers of the PEIR do not consider the analysis in the Element to be any less accurate as the dairy cattle population changes. The theoretical maximum herd includes existing and future dairy cattle. Therefore, the maximum herd that could occur under the Element at “buildout” is not affected by increases in the existing dairy herd. The 1999 dairy herd statistics were the most recent data available at the time the environmental impact analysis was prepared. Although the existing milk cow herd increased by approximately four percent between 1999 and 2000, the use of the 1999 herd for analysis of environmental impacts presents conservative results. Comparing the impacts of the smaller existing herd to the impacts of the maximum herd results in greater impacts.

### **Response to Comment 24-11**

The calculation of potential salt loading related to the application of manure and process water made the assumption that salt loading rates used by the Regional Water Quality Board are appropriate estimates. It is beyond the scope of the PEIR to conduct technical review of RWQCB estimates of salt uptake for each crop. It is noted that most dairy developments would be expected to raise forage crops on their agricultural fields and it is predictable that these crops would replace some of the acreage currently used for cotton production.

### **Response to Comment 24-12**

The justification for the assumption that process water would be stored for longer than 60 days was based on several factors. First, California confined animal facility regulations require that dairy process water lagoons be required to provide 120 days of process water storage. Therefore, the dairies will have the capacity to provide for storage that would exceed 60 days. Second, typical operation of modern dairy facilities includes recycling of process water for use in flushed freestall barns. This practice promotes longer term storage. Third, typical modern dairy operations use process water to irrigate forage crops. Typical forage crops, such as wheat and corn silage, only require irrigation at specific times throughout the course of the year, again promoting longer storage time. Finally, the Element requires advanced treatment of manure and process water. Whether the treatment is performed by aerobic or anaerobic treatment, the treatment requirement promotes longer storage.

### **Response to Comment 24-13**

Estimation of salt loading of groundwater under implementation of the Element cannot be made accurately. The amount of dissolved solids (i.e., salts) in treated manure and process water, which would be reused as fertilizer and irrigation supply, would depend on factors that would be significantly variable. The amount of salts contained in manure would be influenced by the diets of cattle, which would be controlled by each dairy operator. The salt content would also be influenced by the geochemistry of the water supply at each dairy. In addition, the salt content would be affected by the advanced manure treatment technology implemented at the dairy facilities. The amount of salt infiltration into the subsurface would depend on the physical and chemical properties of the soils and sediments underlying each dairy facility. In recognition of all these variables, the Element appropriately contains policies to minimize the potential for salt loading of groundwater. The policies of the Element require low permeability liners in manure separation pits and lagoons (**Policy DE 4.1a.B.2**), development and implementation of a Manure Nutrient Management Plan that ensures application of treated manure at agronomic rates (**Policy DE 3.2e**), and groundwater quality monitoring [**Policy DE 6.1h** (now **6.2f**)].

### **Response to Comment 24-14**

Phosphorus loading was considered during the water quality analysis but was not found to have a significant impact on the basis of environmental conditions. First, the project is designed to prevent flow of runoff or irrigation water into surface water bodies, a condition ensured by **Policy DE 4.1b**. Therefore, the possibility of excess phosphate loading of surface waters, which can result in algae blooms and depletion of dissolved oxygen, is avoided. In addition, **Policy DE 4.1a** requires development and implementation of a Manure Nutrient Management Plan to ensure that nutrient amendments (commercial fertilizers and treated manure) are applied at agronomic rates. Secondly, the soils in the

area of the designated DDOZs and NSOZs generally have relatively low phosphorus, the second most critical plant nutrient (after nitrogen). Most of the phosphorus is tied up in the alkaline soils at the site as low solubility phosphates not easily available to plants. Due to the low solubility of these compounds, phosphorus is not very mobile in the soil (i.e., not easily leached). Therefore, commercial fertilizers containing phosphorus (usually in the form of salts of phosphoric acids) are applied to nearly all crops grown in the region. The phosphorus contained in the manure would be used to offset the phosphorus deficiency of the soils and reduce the amount of commercial fertilizer applied to the crops.

#### **Response to Comment 24-15**

The nitrogen uptake estimates for crops presented in Table No. 5 of the Element were provided in discussions with the University of California Cooperative Extension farm advisors in Kings County, guidance documents from the Central Valley Regional Water Quality Control Board, and Natural Resource Conservation Service (NRCS) data when local data were not available. The use of available regional estimates of nitrogen content in plants and crop yield was considered more appropriate than using NRCS national averages.

The Element (**Policy DE 4.1b**) requires that the Manure Nutrient Management Plan (MNMP) developed and implemented at each dairy proposed under the Element ensure that the application of nutrients (including nitrogen) be balanced with the assimilative capacity of the site soils and planned crops. Achieving this requires testing of soils and manure. If testing indicates that nutrient loading is occurring in the cropland soils, the management plan would need to be adjusted.

#### **Response to Comment 24-16**

The comment is erroneous in stating that the PEIR does not disclose ambient levels of criteria air pollutants. In fact, Table 4.2-3 summarizes the last three years of air quality data for criteria pollutants monitored at the Van Dorsten station in Corcoran, Patterson station in Corcoran, and South Irwin Street station in Hanford. None of these monitoring stations collects ammonium nitrate data.

#### **Response to Comment 24-17**

The basin is designated as a “serious” nonattainment area for Federal PM<sub>10</sub> air quality standards. Under this designation, the basin is required to meet the 24-hour and annual PM<sub>10</sub> standards by December 31, 2006, which reflects a one-time, five-year extension granted by U.S. EPA. It is noted that dairies are not included in the attainment plan. Ultimately, if attainment with Federal standards is not achieved, possible sanctions include prohibition of approval of Federal grants for transportation improvement projects and

application of emission offset requirements (at a ratio of at least 2:1) for new or modified emission sources.

### **Response to Comment 24-18**

The comment is noted for the record. Please refer to Response to Comment 24-17 for discussion on indirect impacts of air emissions.

### **Response to Comment 24-19**

The Draft PEIR (pages 4.2-10 and 4.2-14) discloses the potential impacts associated with ozone (eye and lung irritation, vegetation damage, reduced crop yields, and deterioration of various products). The conversion of reactive organic gases (ROG) to ozone occurs as a complex set of photochemical reactions. A direct correlation between reactive organic gas emissions and ozone production has not been established. As indicated in the Draft PEIR (page 4.2-9), CARB and the SJVUAPCD are currently collecting the data necessary to develop photochemical modeling for ozone production. The preparers of the PEIR consider an attempt to quantify ozone production to be speculative. The PEIR presents the information necessary to determine the significance of ROG emissions as well as a quantification of the impact.

### **Response to Comment 24-20**

The PEIR discloses the general human health effects and environmental impacts of increased ozone emissions. An estimation of the actual increase in ozone formation related to emission of ozone precursors (i.e., reactive organic gases and oxides of nitrogen) is beyond the scope of this PEIR. The complex atmospheric conditions and reactions required to result in ozone formation in the San Joaquin Valley Air Basin are not well understood and are being evaluated by the SJVUAPCD and CARB. It is reasonable and consistent with SJVUAPCD guidelines to identify increased ozone precursor emissions as significant on the basis that these emissions contribute to the nonattainment status of the San Joaquin Valley Air Basin for ozone.

### **Response to Comment 24-21**

Similar to Response to Comment 24-20, which addresses the impact of potential increases in ozone, the PEIR has appropriately applied the general significance criteria of acknowledging that the proposed project would result in a cumulatively considerable net increase of any criteria pollutant (e.g., PM<sub>10</sub>) for which the project region is in nonattainment under Federal or State standards (see page 4.2-43 of the Draft PEIR). The recognition of the potential health effects of PM<sub>10</sub> is the primary basis for the designation of PM<sub>10</sub> as a criteria air pollutant. The PEIR described the attainment status of the air basin and estimated PM<sub>10</sub> emissions.

### **Response to Comment 24-22**

The PEIR provides a discussion concerning the health effects associated with exposure to particulate matter and further includes an analysis of the potential particulate matter emissions that could result from operation of proposed dairy developments to determine the impact significance from particulate matter. The analysis compares the potential emissions against the San Joaquin Valley Unified Air Pollution Control District's significance threshold level/offset requirement for particulate matter. The setback's offset level was established as a mechanism to allow the release of air pollutant emissions by future projects while not interfering with the efforts in achieving the Federal and State ambient air quality standards for particulate matter for the air basin, which are based on protection of public health.

### **Response to Comment 24-23**

The comment is noted for the record.

### **Response to Comment 24-24**

The comment enters into the record a published study<sup>26</sup> that presents the results of a statistical analysis of the relationship of mortality and illness rates in 20 metropolitan areas in the U.S. to changes in the concentration of PM<sub>10</sub> in air. The 20 urban areas, including Los Angeles, Oakland, San Diego, San Jose, and San Bernardino, had populations ranging from 1,185,394 to 8,863,164. Ambient PM<sub>10</sub> concentrations (24-hour) in the 20 cities ranged from 24 to 46 µg/m<sup>3</sup>. The results of the study indicate that each incremental increase of 10 µg/m<sup>3</sup> of PM<sub>10</sub> in the atmosphere correlated to a 0.51 percent increase in mortality rates from all causes and 0.68 percent from cardiovascular and respiratory causes. It is important to understand the context of these results relative to the proposed project.

Kings County is located in a rural area as compared to the large metropolitan cities evaluated in the study. Comparison of health impacts in rural and metropolitan areas can be influenced by significant differences in lifestyles in these distinct populations and significant differences in density of population. In addition, significant differences in the chemical composition of the particulate matter in cities compared to that of rural areas would be expected.

Given the difference in land use (rural versus urban setting) between the study and the proposed project area, the appropriateness of applying the statistical correlation, which was developed for metropolitan areas with large populations, relating increased PM<sub>10</sub> levels with increased mortality for evaluating the potential impacts of the project on local

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<sup>26</sup> Samet, J.M., Dominici, F., Curriero, F.C., Coursac, M.S., and Zeger, S.L., 2000, Fine Particulate Air Pollution and Mortality in 20 U.S. Cities, 1987-1994, *New England Journal of Medicine*, 343(24):1742-1749.

mortality rates is questionable. The preparers of the PEIR consider that an estimate of any change in local mortality rates resulting from dairy development related to PM<sub>10</sub> emissions or any other causes (e.g., workplace or vehicle accidents) would be speculative.

It is noted that the PEIR has identified the expected increase in particulate matter resulting from implementation of the proposed project as a significant and unavoidable impact. The potential effects on human health caused by PM<sub>10</sub> emissions have also been discussed in the PEIR.

### **Response to Comment 24-25**

The health effects of fine particulate matter are discussed in the PEIR. The PEIR indicates that exposure to fine particulate matter has been linked to health problems, including asthma, bronchitis, acute and chronic respiratory symptoms, such as shortness of breath and painful breathing, and premature deaths. The PEIR further indicates that the elderly, individuals with cardiopulmonary disease, and children appear to be at greatest risk.

### **Response to Comment 24-26**

The commentator suggests that the PEIR “piecemeals” project-related air pollutant emissions. With respect to construction and operational emissions, the San Joaquin Valley Air Pollution Control District’s August 20, 1998 Guide for Assessing and Mitigating Air Quality Impacts recommends that construction and operational emissions be analyzed separately because “...construction emissions produces only temporary impacts while the operational phase will produce emissions indefinitely into the future.” The San Joaquin Valley Air Pollution Control District has provided their comments to the PEIR (Comment Letter 8). The setback indicated that the PEIR “...does a thorough job in addressing the air quality implications of dairy development in Kings County... The discussion and use of emission factors to quantify the air quality impacts is consistent with the District’s understanding of the current state of knowledge in this field.”

For operational emissions, the San Joaquin Valley Air Pollution Control District previously recommended that impacts be evaluated under three categories: indirect/mobile sources (e.g., regional vehicular traffic emissions), area sources, and stationary sources (Mitchell, 2001). The air quality analysis was conducted in a format generally consistent with this recommendation. However, due to a recent lawsuit currently against the setback, the setback is reconsidering this recommendation (Mitchell, 2001). In light of this information, impact discussions for PM<sub>10</sub> emissions from equipment exhaust (Impact 4.2-4) and PM<sub>10</sub> emissions from vehicular traffic (Impact 4.2-10) have been moved to Impact 4.2-3, which discusses PM<sub>10</sub> emissions from fugitive dust. Similarly, impact discussions for ROG emissions from equipment exhaust (Impact 4.2-4) and ROG emissions from vehicular traffic (Impact 4.2-10) have been moved to Impact 4.2-6 (now 4.2-5), which discusses ROG emissions from cattle manure. NO<sub>x</sub> emissions from exhaust and NO<sub>x</sub> emissions from

vehicular traffic have been combined together under Impact 4.2-4 (now 4.2-5). Lastly, CO emissions from vehicular traffic have been evaluated in Impact 4.2-9.

### **Response to Comment 24-27**

Quantification of PM<sub>10</sub> construction emissions was not conducted per recommendations from the San Joaquin Valley Unified Air Pollution Control District. The setback's August 20, 1998 Guide for Assessing and Mitigating Air Quality Impacts states that "The SJVUAPCD emphasizes implementation of effective and comprehensive control measures rather than detailed quantification of construction emissions." As indicated in the PEIR, the San Joaquin Valley Unified Air Pollution Control District considers PM<sub>10</sub> emissions to be the pollutant of greatest concern from construction activities and has established comprehensive control measures for construction-related activities to control these emissions, which are incorporated into the setback's proposed amendment of Regulation VIII (fugitive PM<sub>10</sub> prohibitions). **Policy DE 5.1d** of the Element requires compliance with the setback's regulation during construction of a dairy facility to control PM<sub>10</sub> emissions from fugitive dust.

The setback's guideline further indicates that quantification of emission reductions from construction-related mitigation measures is not needed. The setback's recommended approach to mitigating emissions focuses on evaluating whether all feasible control measures are being adequately implemented.

### **Response to Comment 24-28**

The comment is noted for the record. The commentor is referred to Response to Comment 24-27.

### **Response to Comment 24-29**

As indicated in Response to Comment 24-27, the San Joaquin Valley Unified Air Pollution Control District's guidelines consider PM<sub>10</sub> emissions to be the pollutant of greatest concern from construction activities. The setback does not specifically require that construction equipment emissions for all projects be estimated and will recommend quantification methods for projects on a case by case basis. The setback has provided their comments to the PEIR (Comment Letters 5 and 8) and has not requested quantification of construction equipment emissions from the proposed project.

Furthermore, the PEIR indicates that **Policy DE 5.1g** (now **5.1f**) of the Element requires the owner/operator of a proposed dairy development/redevelopment to ensure that measures developed by the San Joaquin Valley Unified Air Pollution Control District are implemented to control exhaust emissions.

### **Response to Comment 24-30**

Please see Responses to Comments 22-20 and 24-54.

### **Response to Comment 24-31**

The comment is noted for the record. The commentor is referred to Response to Comment 24-29.

### **Response to Comment 24-32**

**Policy DE 5.1g** (now **5.1f**) of the Element includes provisions requiring the owner/operator of a proposed dairy development to implement measures that would control exhaust emissions from construction equipment.

### **Response to Comment 24-33**

As indicated in Response to Comment 24-22, the PEIR provides a discussion concerning the health effects associated with exposure to particulate matter and further includes an analysis of the potential particulate matter emissions that could result from operation of the proposed project to determine the impact significance from particulate matter. The analysis compares the potential emissions against the San Joaquin Valley Unified Air Pollution Control District's significance threshold level/offset requirement for particulate matter, which is ultimately based on the protection of public health.

The commentor is incorrect in indicating that the PEIR does not consider BACMs beyond the most recently adopted SJVUAPCD Regulation VIII. **Policy DE 5.1j** (now **5.1i**) of the Element requires that all applications for proposed dairies estimate the anticipated PM<sub>10</sub> emissions from cattle movement and maintenance activities at unpaved corrals, perimeter roadways, and other unpaved areas throughout the dairy facility. In addition, **Policy DE 5.1h** (now **5.1g**) also requires the preparation of a Fugitive Dust Emissions Control Plan, which must describe and demonstrate conformance with **Policies DE 5.1e** and **5.1i** (now **5.1h**). **Policy DE 5.1i** (now **5.1h**) requires compliance with SJVUAPCD Regulation VIII. **Policy DE 5.1e** requires the control of fugitive dust emissions from cattle movement and maintenance activities at the unpaved corrals, perimeter roadways, and other unpaved roadways throughout the dairy facilities.

In addition, **Policies DE 6.1e** (now **6.2d**) and **6.2a** (now **6.3a**) provide for monitoring of dairy operations to demonstrate the Element's effectiveness in protecting the environment and the effectiveness of the mitigation measures required for each operating dairy facility in Kings County. Furthermore, **Policies DE 7.1a** (now **6.1a.A**), **7.1b** (now **6.1a.B**), and **7.1c** (now **6.1a.C**) provide a mechanism for the County to track and evaluate monitoring data, address dairy operational problems encountered, and compile general results of the monitoring program specified under the Element.

### **Response to Comment 24-34**

As indicated in Response to Comment 24-33, **Policy DE 5.1h** (now **5.1g**) requires the preparation of a Fugitive Dust Emissions Control Plan, which must describe and demonstrate conformance with **Policies DE 5.1e** and **DE 5.1i** (now **5.1h**), policies that require control of fugitive dust emissions from cattle movement and maintenance activities at the unpaved corrals, perimeter roadways, and other unpaved areas throughout the dairy sites.

### **Response to Comment 24-35**

The commentor suggests that support stock be put out to pasture instead of retaining the support stock in a corral as a means of mitigating for PM<sub>10</sub> fugitive dust. Although this recommended mitigation measure would certainly reduce the amount of fugitive dust that would be generated from the corrals, this recommended mitigation measure would be considered to contain several flaws.

For instance, collection and treatment of manure generated by the support stock would be much more difficult to implement. This task would likely require the increased use of exhaust-generating equipment (compared to manure scraped from unpaved corrals) to collect manure. In addition, collection of all manure deposited throughout the entire pasture area cannot be ensured whereas manure deposited in unpaved corrals is contained in a confined area. Pasturing of dairy cattle, as suggested in the comment, does not occur and is not expected to occur in Kings County. However, manure that is left in the pasture area would inevitably decompose and, as a result, release air pollutants, such as reactive organic gases, methane, ammonia, and hydrogen sulfide. Also, PM<sub>10</sub> emissions from fugitive dust would inevitably be generated during the manure collection process from disturbance of the pasture area by manure collection equipment.

### **Response to Comment 24-36**

The commentor suggests the use of offsets to further mitigate operational PM<sub>10</sub> emissions. SJVUAPCD administers an offsets program for regulated stationary sources. The SJVUAPCD requires stationary point sources to purchase offsets for PM<sub>10</sub> emissions exceeding 15 tons per year. As discussed in the PEIR, however, dairies are not regulated as point sources by the SJVUAPCD (Draft PEIR, pages 4.2-8 and 4.2-43.)

The County has neither the authority nor the ability to create and administer an offsets program. "In mitigating or avoiding a significant effect of a project on the environment, a public agency may exercise only those express or implied powers provided by law other than this division." (Pub. Resources Code, § 21004.) Moreover, the issuance of air quality permits is not subject to CEQA (Pub. Resources Code, § 21080.24). Thus, even if dairies were a permitted source, offsets would never be required through the CEQA process.

If dairies were to participate in an offsets program, it would have to be administered by an agency with the appropriate authority, such as the SJVUAPCD or CARB. Neither entity has proposed to administer such a program. Regardless of which entity could impose and implement an offsets program, practical considerations make such a program infeasible for dairy PM<sub>10</sub> emissions at this time. Any offsets program must include a reliable method of quantifying the emissions to be offset. As discussed in the PEIR, the appropriate factor for quantification of PM<sub>10</sub> emissions has not been established (Draft PEIR, pages 4.2-29 to 4.2-32).

The Element requires the use of other control measures to reduce PM<sub>10</sub> emissions to mitigate this impact to the extent feasible. See **Policies DE 5.1e, 5.1g (now 5.1f), 5.1h (now 5.1g), 5.1i (now 5.1h), 6.1d (now 6.2c), and 7.1d (now 6.1b)**.

#### **Response to Comment 24-37**

The comment is noted for the record. The commentor is referred to Response to Comment 24-26.

#### **Response to Comment 24-38**

The comment is noted for the record. The commentor is referred to Response to Comment 24-26.

#### **Response to Comment 24-39**

The comment is noted for the record. The commentor is referred to Responses to Comments 24-20 and 24-26.

#### **Response to Comment 24-40**

The comment is noted for the record. As policy, the County does not restrict the use of equipment with gasoline or diesel engines meeting State and Federal emission requirements. The commentor suggests that biogas generated at dairies by controlled anaerobic processes would be an appropriate fuel for farm equipment. Only approximately 60 percent of the biogas would be methane (a gas similar to natural gas). The operator would need to separate the methane and remove any impurities. This is not practical or feasible.

#### **Response to Comment 24-41**

The Element (**Policy DE 5.1c**) requires new and expanded dairies to implement advanced manure treatment technologies and sets a performance standard for their effectiveness. The control of gas emissions will result in a reduction in the potential for odor problems to develop. The type of treatment system chosen by individual dairy operators will depend on site-specific conditions and the costs associated with different treatment

technologies. The preparers consider that the PEIR has provided sufficient information to support the determination that various treatment methods are capable of meeting the performance standard of fifty percent volatile solids removal. In addition to the requirements for manure treatment, **Policy DE 5.1b** of the Element requires that all proposed dairy projects develop and implement site-specific odor management plans.

#### **Response to Comment 24-42**

The Draft PEIR (page 4.2-21) discusses the decomposition of volatile solids and the relationship of that process to gas emissions. Aerobic and anaerobic treatment are further discussed on pages 4.2-17 through 4.2-21 of the Draft PEIR. The analysis presented in the Draft PEIR (page 4.2-70) acknowledges that immediate and complete decomposition of manure is not feasible and, therefore, release of gases generated by anaerobic bacteria would be expected. Quantification of these emissions is not possible due to the complex environmental conditions and variability of manure management. Due to these uncertainties, the Draft PEIR conservatively identifies these emissions as significant and unavoidable. In response to the comment, the text on page 4.2-21 of the Draft PEIR has been modified to clarify the discussion of volatile solids reduction and air emissions.

#### **Response to Comment 24-43**

The comment is noted for the record. **Policy DE 6.1f** (now **6.2e**) is an appropriate acknowledgment that the development of a practical method for sampling and analyzing air quality samples at dairy facilities may occur in the future. For example, current research is being conducted at a Washington State University research dairy to investigate new technologies for monitoring ammonia in the atmosphere at dairy operations. As discussed on pages 4.2-24 through 4.2-27 of the Draft PEIR, numerous ongoing and long-range research projects being conducted by USDA are investigating improved ways to quantify and monitor air emissions from confined animal facilities. This research, when complete, has the potential to result in the development of monitoring methodologies that would be appropriate for ongoing monitoring at dairies in Kings County.

In response to the comment, the text of **Policy DE 6.1f** (now **6.2e.B**) has been modified as follows:

In the event that standard testing methods are developed and required by the SJVUAPCD for....

#### **Response to Comment 24-44**

The commentors' legal opinion is noted for the record. The impact of reactive organic gas emissions and the mitigating policies contained in the Element were discussed on pages 4.2-66 through 4.2-70 of the Draft PEIR.

### **Response to Comment 24-45**

The commentors' legal opinion is noted for the record. Section 4.2 of the PEIR presents information (facts, data, and quantification) regarding reactive gas emissions that describes the magnitude and environmental effects of those emissions.

### **Response to Comment 24-46**

The impacts of reactive organic gas emissions were described in the analysis of Impacts 4.2-6 and 4.2-12. Both impacts were found to be significant on the basis of their contribution to the existing and expected ozone nonattainment status of the San Joaquin Valley Air Basin. The commentors' reference to *Stanislaus Natural Heritage Project v. County of Stanislaus* (1996) 48 Cal.App.4<sup>th</sup> 182, 206 is not relevant. That opinion required the identification of impacts associated with supplying the proposed project with water, i.e., a secondary effect of the project. In this case, the emissions of reactive organic gases are directly discussed as an impact and the nonattainment status of the Basin is not an additional environmental effect that must be discussed separately.

### **Response to Comment 24-47**

The Draft PEIR (page 4.2-12) acknowledges that ammonium nitrate particles in the PM<sub>2.5</sub> range could result from reactions between ammonia and nitric acid. The PEIR also provides an estimate of the potential ammonia emissions that could result from proposed project operations. A calculation of a reasonably accurate estimate of PM<sub>2.5</sub> emissions that could result from ammonia emissions is not possible at the present time. The estimate of secondary PM<sub>2.5</sub> emissions caused by ammonia emissions would require a regional atmospheric photochemical model, which has not been developed by U.S. EPA, CARB, or SJVUAPCD. Development of such a model is beyond the scope of this PEIR.

In response to the comment, the text of page 4.2-56 of the Draft PEIR has been amended to acknowledge that an unknown but significant amount of secondary PM<sub>2.5</sub> potentially produced by reactions of ammonia emissions from dairies would increase the PM<sub>10</sub> emissions caused by dairy development.

### **Response to Comment 24-48**

Contrary to the comment, the Draft PEIR (pages 4.2-70 through 4.2-73) does evaluate the potential impact associated with ammonia releases from proposed dairy operations. The PEIR provides an estimate of the potential ammonia emissions that could result during project operations. The Draft PEIR (page 4.2-12) also provides a discussion of the health impacts associated with ammonia. The PEIR indicates that ammonia is an irritant that inflames wet body tissues, even at low concentrations. The PEIR further indicates that mucous surface irritation results when exposed to between 100 and 500 parts per million (ppm) of ammonia and that immediate irritation of the eyes, nose, and throat occurs at

exposure levels between 400 and 700 ppm. The PEIR states that exposure to levels between 2,000 and 3,000 ppm can cause eye irritation, coughing, and frothing at the mouth, which could be fatal, and that exposure to concentrations of about 5,000 ppm can lead to respiratory spasm and rapid asphyxia. The PEIR also indicates that exposure to 10,000 ppm of ammonia is fatal.

#### **Response to Comment 24-49**

The comment is noted for the record. The commentor is referred to Response to Comment 24-50

#### **Response to Comment 24-50**

The PEIR provides a discussion of feasible technologies that are capable of reducing ammonia emissions, anaerobic treatment, aerobic treatment, and combined anaerobic/aerobic treatment systems. The PEIR indicates that implementation of these technologies is required by the Element to reduce ammonia emissions from cattle manure. The PEIR, however, acknowledges that, even with the implementation of a treatment system, ammonia emissions could continue to be generated from such manure sources as stockpiled manure and that the possibility of immediately treating all manure generated at dairies to eliminate the release of ammonia emissions is impractical. The PEIR, therefore, appropriately considered the impact to be significant and unavoidable.

#### **Response to Comment 24-51**

Contrary to the commentor's opinion, the PEIR provides a complete discussion of the hydrogen sulfide emissions from proposed dairy operations. The PEIR indicates that hydrogen sulfide emissions could be generated from cattle manure decomposition, although quantification of the potential hydrogen sulfide emissions was not included in the PEIR due to the lack of the availability of an applicable emission rate factor. The PEIR identifies the inclusion of hydrogen sulfide under the California Air Toxics "Hot Spots" Information and Assessment Act. The PEIR identifies policies contained in the Element that are relevant to hydrogen sulfide emissions from cattle manure.

In summary, **Policy DE 3.1a** addresses hydrogen sulfide emissions in the development of the countywide policy. **Policy DE 5.1c** requires the preparation of an MTMP that would be implemented to reduce air pollutant emissions from manure, including hydrogen sulfide. **Policy DE 6.1f** (now **6.2e**) requires that, when standard methods for testing air emissions become available, dairy owners/operators would be required to test for air pollutants, including hydrogen sulfide. The PEIR acknowledges that there is a current lack of available standards to determine the effectiveness of manure treatment technologies in reducing hydrogen sulfide as well as other air pollutants associated with manure decomposition. An accurate method for quantifying the potential air pollutant emissions

from treated manure are anticipated to be available following completion of USDA ARS research activities under the national programs. The PEIR further indicates that because hydrogen sulfide emissions would be expected even after mitigation, the residual impact is conservatively considered to be significant and unavoidable.

### **Response to Comment 24-52**

Contrary to the comment, the Draft PEIR (pages 4.2-75 through 4.2-77) provides an adequate discussion of the feasible mitigation measures to reduce methane emissions from dairy operations. The PEIR describes the two main sources of methane, cattle digestion and decomposition of cattle manure. The PEIR evaluated the proposed Element to determine whether the policies contained in the Element would provide adequate measures to reduce methane emissions that could be generated from dairy operations. It is noted for the record that methane emissions from dairies are not currently regulated by CARB or U.S. EPA.

The PEIR acknowledged that **Policies DE 3.1a, 5.1c, ~~5.1f~~, ~~6.1b~~, 6.1e (now 6.2d), 6.1f (now 6.2e), ~~6.1g~~, and 6.2a (now 6.3a)**, and policies under **Goal DE 7 (now 6)** of the Element are relevant to reducing methane emissions from cattle manure. The PEIR also estimated methane emissions for future conditions for dairies requiring the implementation of an advanced treatment system specified under **Policy DE 5.1c**.

The air quality analysis indicated that implementation of **Policies DE 3.1a, 5.1c, ~~5.1f~~, ~~6.1b~~, 6.1e (now 6.2d), 6.1f (now 6.2e), ~~6.1g~~, 6.2a (now 6.3a), and 7.1d (now 6.1b)** would reduce methane generated from ruminant livestock and manure, although methane would continue to be released by the dairy cattle and temporarily stockpiled manure even after the mitigation measures are implemented. Therefore, the impact associated with methane emissions was considered to be significant and unavoidable.

### **Response to Comment 24-53**

A reasonably accurate quantification of the amount of vehicular emissions generated under the Element would require specific knowledge of the location and size of the dairy as well as the location of end points of the vehicle trips (i.e., milk or cheese processing facility, feed sources, and worker residences). The distance of the vehicular trip is the predominant influence on the generation of emissions. Response to Comment 24-54 provides an analysis of the potential vehicular emissions generated by dairy operations under the Element.

## Response to Comment 24-54

The comment references an Environmental Impact Report prepared by Kings County for the Chamberlain Ranch Planned Dairy Development project (“Chamberlain Ranch EIR”). Vehicular emissions were estimated for each of four proposed dairy facilities. Estimation of the emissions was possible since the location and management practices were described by the proposed project. The commentor accurately cites the estimated vehicular emissions for reactive organic gases (0.19 ton per year), PM<sub>10</sub> (0.02 ton per year), and NO<sub>x</sub> (0.97 ton per year) for one of the four proposed dairies (Dairy A). It is noted for the record that the Chamberlain Ranch EIR found the impact of vehicular emissions on air quality to be less than significant.

However, in response to the comment, the preparers of the PEIR have prepared an estimate of vehicular emissions related to the range of dairy sizes presented in Table 4.2-5c (i.e., 500-, 735 (705)-, 2,000-, and 5,000-milk cow dairies). This range of conditions is presented to show the public the impacts over variable size projects and to be consistent with other information presented in the PEIR. The vehicular emissions have been estimated using the California Air Resources Board URBEMIS7 computer model (the same model used to estimate emissions from the Chamberlain Ranch project). The estimated number of vehicle trips was developed from site-specific data presented for the four different size dairies in the Chamberlain Ranch EIR. Because the lengths of the vehicle trips are not known, the default values recommended by CARB for the URBEMIS7 model were used. Table 4.2-5c of the Draft PEIR has been amended to present the estimates of vehicular emissions.

The exhaust emissions from equipment used at the dairy sites were also estimated for the four dairy size classes. Again, the dairy site equipment was estimated using data presented in the Chamberlain Ranch EIR to determine the types and number of equipment that would be used at the variable size dairies. These estimates are presented in Table 4.2-5c of the Draft PEIR. The estimates of vehicle and dairy equipment exhaust contribute to the total emissions related to the project.

In response to the comment, the discussions of PM<sub>10</sub> and ozone precursor emissions have been amended to acknowledge the total emissions from dairy operations, including vehicular and equipment emissions. In addition, Tables 4.2-5a and 4.2-5b have been amended to include these emission estimates. The PM<sub>10</sub> and ozone precursor emissions remain significant and unavoidable.

The comment estimates that the total vehicular emissions generated by trips associated with dairy development projects under the Element to be 13.6, 69.6, and 1.4 tons per year of ROG, NO<sub>x</sub>, and PM<sub>10</sub>, respectively. In reality, this emission estimate would only apply at full buildout. The Draft PEIR (page 5-11) estimates that, assuming a five percent growth

rate, full buildout would not occur until 2022. The annual emissions rate would increase as dairies are constructed.

#### **Response to Comment 24-55**

The preparers of the PEIR do not agree with the suggestion made by the commentor to compare the total vehicular emissions potentially generated by all dairy projects developed under the Element to SJVUAPCD's threshold for individual point sources. Although the PEIR used these thresholds, dairies are not considered point sources by the SJVUAPCD or Kings County. If new or expanded dairy projects were developed, the SJVUAPCD thresholds would be applied to each project. If emissions at an individual site were to be less than the threshold, the individual project would not be considered to have a significant impact on air quality. The Element is a program for land use development. The actual threshold for dairy development under the Element as a program would be the SJVUAPCD threshold values times the number of dairies that are actually developed (e.g., if 72 dairies were developed, the collective threshold for NO<sub>x</sub> would be 720 tons per year, not 10 tons per year, which applies to a single project). However, each project would be contributing to cumulative air quality impacts. The amendments to the discussion of Impacts 4.2-3 and 4.2-4 discussed in Response to Comment 24-54 address the total emissions of PM<sub>10</sub> and ozone precursors (ROG and NO<sub>x</sub>) resulting from all sources related to dairy development.

#### **Response to Comment 24-56**

Please refer to Response to Comment 22-14.

#### **Response to Comment 24-57**

The regional groundwater quality conditions in Kings County were discussed on pages 4.3-8 through 4.3-11 of the Draft PEIR. The discussion included information generated by published USGS reports evaluating the regional impacts of salinity, nitrate, and pesticides. The reports were published during the period 1991 through 1998. The frequency of detection of nitrates above drinking water standards was specifically disclosed (Draft PEIR, page 4.3-11). The PEIR also provided more recent data collected in the Tulare Lake Basin. The preparers of the PEIR consider this information to be recent and extremely relevant.

#### **Response to Comment 24-58**

Contrary to the commentors' assertion, the potential impact of adverse water quality associated with construction activities was analyzed on pages 4.3-14 and 4.3-15 of the Draft PEIR. The comment suggests that the impacts be quantified but does not suggest a methodology for such quantification or what should be quantified.

### Response to Comment 24-59

There are several factors that limit the potential impacts to the environment of flooding of fields fertilized with treated manure and process water. First, the probability of flooding in a 100-year event would be low (one percent). Secondly, **Policy DE 1.2c** prohibits application of manure during floods or threat of floods. **Policy DE 4.1b** requires manure and process water to be applied on cropland at agronomic rates. Therefore, nutrients (which could be potential pollutants if discharged to surface water) in the treated manure would be assimilated by the crops between the infrequent flooding events. Potential pathogens in treated manure would be subjected to drying, a condition that would limit long-term survival of these organisms between flood events. Lastly, the flood zones within the DDOZs are generally terminuses of stream systems. Most of the flood water would drain to the Tulare Lake Bed and eventually evaporate; and those waters temporarily inundating farmland would not be permanent fresh water habitat.

### Response to Comment 24-60

The commentors are referred to Response to Comment 24-14. Within the environment of Kings County, nitrogen would be the limiting nutrient with regard to agronomic rates of application of manure and process water. **Policy DE 4.1a** requires development and implementation of a Manure Nutrient Management Plan for each proposed dairy development. **Policy DE 4.1b** requires that “nutrients” (which include nitrogen, phosphorus, and potassium) be managed to avoid overapplication on crops.

### Response to Comment 24-61

The commentator incorrectly states that the PEIR “identifies atmospheric fallout as an impact to surface water quality...” The PEIR states that, after considerable discussion and presentation of background on the issue, the potential impacts associated with atmospheric fallout of ammonia are *less than significant*. A literature review conducted by researchers at the University of California Cooperative Extension “...uncovered no cause and effect data regarding atmospheric nitrogenous compound concentrations and eutrophication of water resources that may harm aquatic life.”<sup>27</sup>

The analysis presented in the hydrology and water quality section of the PEIR correctly states that the air quality section of the PEIR includes mitigation measures designed to reduce emissions of nitrogen-containing compounds. While the analysis and mitigation measures presented in the air quality section were unable to quantify the reduction in emissions due to lack of available research on emissions from aerobic treatment systems and emissions from effluent from aerobic or anaerobic systems, it is a certainty that

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<sup>27</sup> Shultz, Tom, and Collar, Carol, 1993, *Dairying and Air Emissions*, University of California Cooperative Extension, Dairy Manure Management Series.

emissions from dairies developed under the Element would produce lower emissions (per animal unit) than dairies without the controls (i.e., advanced manure treatment) required by the Element.

#### **Response to Comment 24-62**

An impact to surface water quality occurs when one or more beneficial uses of the subject water body is impaired. The Central Valley RWQCB maintains an inventory of impaired water bodies within its jurisdiction (referred to as the 303(d) list). The Central Valley RWQCB is able to consider any valid source of data when considering a pollutant for listing. Based on review of the current 303(d) list (1998) and the draft update (2002), there are no surface water bodies in Kings County that are impaired for ammonia or other nitrogen-containing compounds, indicating that this pollutant is not currently causing impacts to beneficial uses. The County is already a location of intense agricultural activity, including operating dairies that do not have in place the types of emissions controls that would be required under the Element. If current agricultural practices have not resulted in impairment of water bodies in the County, it is reasonable to assume that modern facilities with tighter controls on emissions would not cause new impacts associated with air emissions and surface water quality.

It is not relevant or feasible to present water quality data on all surface water bodies in Kings County, particularly when the potential for the proposed project to affect surface water quality is less than significant.

#### **Response to Comment 24-63**

The comment is noted for the record. The Draft PEIR analysis (pages 4.3-20 and 4.3-21) of potential impacts of atmospheric fallout is appropriate and adequate.

#### **Response to Comment 24-64**

The consumptive use of water at dairies developed under the Element was discussed on pages 4.3-22 and 4.3-23 of the Draft PEIR. The analysis disclosed the expected water use at dairy facilities and on associated agricultural fields. The mitigating effect of **Policy DE 3.2h** on potential groundwater depletion in areas of the County known to have limited water supplies was discussed. Under the policy, a Hydrologic Sensitivity Assessment (HSA) must be prepared by a qualified professional for proposed dairy development projects in those areas. The HSA must demonstrate that groundwater use will not exceed safe yield or that water demand must be met by surface water supplies that are demonstrated in the HSA to be available and reliable. These provisions constitute performance standards for the mitigating policy.

### **Response to Comment 24-65**

The commentors' legal opinion is noted for the record. Please refer to Responses to Comments 24-66 and 24-67.

### **Response to Comment 24-66**

The comment is noted for the record. The preparers of the PEIR reviewed and cited the Central Valley Regional Water Quality Control Board (RWQCB) study discussed in the comment. The commentor emphasizes that the observed groundwater degradation reported in the RWQCB study set out to "determine what usually was occurring under typical well run dairies." Although the study used that language, the study did not demonstrate that the dairies were "well run." The study does not indicate if any of the controls set forth by the provisions of the Element, such as lined lagoons, advanced treatment of manure and process water, available acreage for agronomic application of manure, implementation of manure nutrient management, and groundwater monitoring, were in place at the dairies that were studied. These controls were not typically required as part of Waste Discharge Requirements (WDRs) or waivers of WDRs.

In addition, the conditions at the dairies evaluated by the Central Valley RWQCB study differ substantially from conditions in Kings County. The Central Valley RWQCB study indicates that the "soils at the cooperating dairies have sandy and coarse materials throughout the profile" (page 2, paragraph 4). Most of the surface soils and subsoils in Kings County contain substantial amounts of silt and clay (refer to Response to Comment 24-70 for additional discussion of soil types in the County). Also, the Modesto and Turlock areas (the locations of the dairies evaluated in the Central Valley RWQCB study) receive approximately twice the annual rainfall as Kings County and, therefore, infiltration rates would be expected to be substantially greater. The combination of more permeable soils and high precipitation rates (relative to Kings County) identified at the study sites renders the Central Valley RWQCB study findings largely irrelevant to Kings County. The second study<sup>28</sup>

For the record, the commentor indicates that the salinity levels in groundwater (reported as TDS) underlying the dairies in the Central Valley RWQCB study exceeded Federal MCLs. There are no primary (health-based) MCLs for TDS. The secondary (aesthetics-based) MCL for TDS is 500 mg/L. Secondary MCLs generally address taste, odor, and appearance, not health or toxicity considerations.

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<sup>28</sup> Boyajian and Ross, Inc., 1998, Groundwater Investigation Report, Visalia Water Conservation Plant, City of Visalia, Tulare County, California, report prepared for the Visalia Public Works Department.

### **Response to Comment 24-67**

The comment is noted for the record. With regard to the Central Valley Regional Water Quality Control Board study referenced in the comment, please refer to Response to Comment 24-68. The commentor is correct in indicating that support stock housed in corrals will defecate and urinate on the ground. As indicated in the comment, **Policy DE 5.1e** of the Element requires periodic scraping of the corrals, which would reduce the accumulation of manure solids on the corral surface. **Policy DE 4.1a.B.2.g** requires that positive drainage be maintained in corrals and **Policy DE 4.1a.B.2.h** requires that maintenance of corrals shall include filling of any depressions. These measures would significantly reduce the potential for infiltration of runoff into the subsurface. State regulations (CCR Title 27, Division 2, Subdivision 1, 22562(a)) require that runoff from corrals be collected and retained at dairy facilities. **Policy DE 4.1a.B.2** requires that manure separation pits and lagoons used to store runoff and process water be lined to minimize infiltration.

### **Response to Comment 24-68**

The commentor refers to the studies used in the PEIR analysis of pollutant migration at the corrals as “weak,” but offers no explanation for this assertion. The commentor indicates that the analysis presented in the PEIR relied on two studies; however, four separate studies are referenced in the analysis. It should be pointed out that the studies referred to in the PEIR were published in refereed professional journals and that the two studies referred to by the commentor appear to be unpublished reports.

As described in Response to Comment 24-66, the Central Valley RWQCB study is not particularly relevant because of the differences in soil types and climate at the study area relative to Kings County.

### **Response to Comment 24-69**

Based on review of the comment, the commentor did not understand where the moisture seal is formed and how the corrals would be maintained. The moisture seal that forms in corrals is below the active maintenance surface. Routine manure removal (conducted properly) would not be expected to affect the seal. As required under **Policy DE 4.1a.B.2.h** (and analyzed on page 4.3-34 of the Draft PEIR), care shall be taken not to disturb the seal layer in the corrals. Dairy personnel shall be taught to correctly use manure collection equipment.

### **Response to Comment 24-70**

The comment incorrectly infers that “the PEIR relies” on the conclusions of a study (Elliot, et al., 1972) investigating groundwater conditions beneath a feedlot (Draft PEIR, page 4.3-34) for the determination that the potential for significant impacts to groundwater would occur as the result of implementation of the Element. The study was described in the discussion of published studies that have investigated the impacts of confined animal facilities. It is noted for the record that the Elliot study investigated a feedlot (which generally has a higher animal density than dairy corrals) that had not had manure removed for 15 years. The study did not indicate what form of fertilization was used for the adjacent cropland, which was used for comparison of groundwater conditions, but presumably the crops were not fertilized with manure from the feedlot. Therefore, the commentor’s point regarding the relevance of manure application rates seems moot. The preparers of the PEIR consider the discussion of the results of the Elliot study to be appropriate but stress that conclusions regarding the potential impacts related to corral management were based on the corral management requirements presented in **Policy DE 4.1a.B** of the Element.

### **Response to Comment 24-71**

With regard to the relevance of the Central Valley RWQCB and Visalia studies, please refer to Responses to Comments 24-66 and 24-68.

The commentor provides no data or evidence to suggest the studies used in the analysis are “misleading.” The commentor appears to indicate that the consideration of a 30-year-old study is somehow not appropriate. An abundance of research was conducted on pollutant migration at feedlots in the 1970s (considerably less has been published in refereed journals in the past few years). The soil physics and pollutant migration processes have not changed. These data are not obsolete. The preparers of the PEIR focused on the best available studies that pertained to the conditions in the County.

### **Response to Comment 24-72**

The commentor has not made a credible case for a significant impact to groundwater quality under the corrals. The analysis presented in the Draft PEIR (pages 4.3-33 to 4.3-34 and Responses to Comments 24-67 to 24-71) finds the potential impact to be less than significant and therefore no additional mitigation measures are necessary.

The comment suggests that pasturing of support stock (vs. housing these cattle in corrals) could mitigate potential impacts on groundwater quality. The San Joaquin Valley floor is not a suitable environment for pasturing cattle, and pasturing is not practiced in Kings County. The hot, dry summers would place significant stress on the cattle. The climate also presents significant limitations on maintaining pasture crops. The number of cows that could be supported per acre would be significantly reduced relative to dairies where

the stock would be housed in corrals. Increased importation of feed would probably be required. The collection of manure from pastures is not practical and, therefore, treatment of manure to reduce emissions would not be feasible. For the above reasons, pasturing of support stock is determined to be an ineffective and infeasible mitigation measure.

The comment also suggests lining of corrals as feasible mitigation. **Policy DE 4.1a.B.2.g** requires that corrals be underlain by clayey soils. Management of cattle in corrals would result in compaction of the soils and the formation of an organic mat. These conditions as well as the requirement to maintain positive drainage in the corrals would minimize the need to require liners for corrals.

### **Response to Comment 24-73**

The total dissolved solids (TDS) loading that would be expected to occur in the vicinity of the process water ponds can be estimated by dividing the average TDS content of the process water by the maximum allowable seepage volume through the liner of the ponds. A conservative estimate of the average TDS content of process water in the lagoons was calculated based on literature values for content of the predominant salt-forming elements (potassium, calcium, sodium, magnesium, sulfur, and chloride) in dairy cow manure [0.76 pound per day per animal unit (ASAE, 1998)] and the volume of water expected to be used to flush the facilities on a daily basis. This estimate is conservative because it assumes that all these constituents contained in the flushed manure would go into solution and be delivered to the process water lagoon. Realistically, some of the dissolved solids content would be removed with the solids collected in the manure separation pits.

As an example, a 2,000-cow dairy (5,908 animal units including support stock) would generate approximately 4,490 pounds of dissolved solids on a daily basis. Approximately 80 percent or 3,592 pounds of the dissolved solids would be directed to the process water lagoons (20 percent would be managed as dry manure). It is assumed the dairy is estimated to flush with approximately one acre-foot ( $1.23 \times 10^6$  liters) of water per day. Therefore, the resulting estimated concentration of total dissolved solids (conservatively assuming all salts go into and stay in solution) in the process water is calculated to be 1,327 mg/L. This estimate compares reasonably with the range of concentrations of total dissolved solids in samples of process water collected from lagoons at Central Valley dairies.<sup>29</sup>

Based on a maximum allowable seepage velocity of  $1 \times 10^{-6}$  cm/sec (as specified in **Policy DE 4.1a.B.2.c**), approximately 317,988 gallons ( $1.20 \times 10^6$  liters) of water per acre of pond would be expected to infiltrate through the liner on an annual basis. Therefore, directly

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<sup>29</sup> Shultz, Tom, 2000, Tulare County Dairy Farm Advisor, personal communication with Kevin O'Dea of BASELINE, 7 July.

under the ponds, the annual total dissolved solids loading rate could be as high as 3,513 lb/acre/year. However, the ponds comprise a relatively small portion of the total acreage of a dairy facility. Based on recently proposed dairy projects in Kings County, a dairy facility for 2,000 milking cows would occupy approximately 46 acres and have approximately 6 acres of wastewater lagoons. Therefore, the amount of salt infiltrating the subsurface could be 21,078 lb/year (3,074 lb/acre of pond/year × 6 acres of pond).

The non-pond areas of the dairy facility would not be expected to contribute significantly to salt loading. Manure from the freestall barns and corral is collected and either applied directly to cropland or temporarily stored in process water ponds, treated, and then applied to fields following dilution with well water. Therefore, it would be appropriate to evaluate the estimated salt loading at the pond acreage relative to the total acreage of the dairy facility. The annual per acre salt loading at a 2,000-cow dairy facility would be approximately 458 lb/acre (21,078 lb/46 acre). Conservatively assuming that the concentration of salt in process water is doubled, the salt loading could be 916 lb/acre.

#### **Response to Comment 24-74**

The calculation of expected seepage through the pond liners performed by the commentor's subconsultant did not consider the natural formation of a seal during operation. The formation of a seal by accumulation of solids on the surfaces in dairy wastewater lagoons is uncontested. The liner requirements recommended in the PEIR stipulate that the materials lining the wastewater lagoons and manure separation pits be shown to have a seepage velocity of not more than  $1 \times 10^{-5}$  centimeters per second (cm/sec). Considering that the formation of an organic seal at the surface of the liner will occur and that the organic seal will further reduce the seepage velocity by  $10^{-1}$  cm/sec, the effective seepage velocity would be  $1 \times 10^{-6}$  cm/sec. Inclusion of the reduction in seepage that would occur due to the presence of an organic seal would reduce the calculated seepage by an order of magnitude [i.e., 65 million gallons (199 acre-ft) of seepage would be reduced to 6.5 million gallons (19.9 acre-ft)].

In comparison, Class III landfills (which can accept manure as a waste) are required to have liners with a hydraulic conductivity of not less than  $1 \times 10^{-6}$  cm/sec. It is important to understand a significant difference between the recommended performance standard in the PEIR and the landfill liner requirements. The landfill requirement states only that the liner material has a hydraulic conductivity that is less than  $1 \times 10^{-6}$  cm/sec. The PEIR performance standard requires that the seepage velocity is less than  $1 \times 10^{-6}$  cm/sec. Hydraulic conductivity (K) is a property of the liner material (i.e., a constant that characterizes the capacity of the material to transmit water). The requirement for a particular hydraulic conductivity does not specifically address the other variables that determine the rate at which water is transmitted through a liner material, including hydraulic gradient (I). In contrast, the performance standard for the PEIR specifies the

seepage velocity ( $v$ ), which is a function of the hydraulic conductivity, hydraulic gradient, and effective porosity of the material. Therefore, the performance standard requires consideration of the hydraulic head imposed by impounded water in the wastewater lagoon, a condition generally not present in a landfill. Therefore, the seepage velocity performance standard is more rigorous and appropriate for a lagoon than specifying only a maximum hydraulic conductivity.

The performance standard in Mitigation Measure 4.3-7 sets a maximum seepage velocity for the materials that line the sides and bottom of the process water lagoons. Although flow through the liner material can occur, the rate would be slow,  $10^{-6}$  cm/sec (1 ft/yr). Water infiltrating through the liner could transport dissolved solids (including salt constituents) into the subsurface. Salt migration related to management of manure is addressed by guidelines set by the Central Valley Regional Water Quality Control Board. Those guidelines indicate that dairy Nutrient and Irrigation Water Management Plans should provide sufficient land for manure application to maintain a salt loading rate of less than 3,000 pounds per acre per year. Using the (corrected) calculations of the commentor's subconsultant, which include consideration of the organic seal, the total non-nitrate salt loading would be expected to be approximately 277 pounds per acre per year (4,037,478 divided by 14,573 acres). (Please note the final calculation in the comment is incorrect: 40,374,781.5 divided by 14,573 does not equal 29,08 (sic) or 2,908, it actually equals 2,771.)

The estimated salt loading rate is more than ten times lower than the Central Valley RWQCB recommended maximum of 3,000 pounds per acre per year.

#### **Response to Comment 24-75**

Refer to Response to Comment 24-74.

#### **Response to Comment 24-76**

The commentor has drastically overstated the severity of the potential impact as described in Response to Comment 24-74. The salt loading that would be expected to occur is substantially lower than the Central Valley RWQCB recommended loading rate.

#### **Response to Comment 24-77**

**Policy DE 6.1h** (now **6.2f**) of the Element specifically states the minimum requirements for water quality monitoring at individual dairies developed under the Element. These requirements are not deferred as suggested by the commentor.

#### **Response to Comment 24-78**

The potential for adverse impacts of dairy development under the Element on special status species (including the San Joaquin kit fox) was discussed in Impact 4.4-1 of the Draft

PEIR (pages 4.4-7 and 4.4-8). As indicated in that discussion, **Objective DE 3.3** of the Element promotes the protection of special status species and their habitat. **Policy DE 3.3a** provides for site specific biological surveys at dairy operations located in areas where sensitive habitat is likely to occur.

#### **Response to Comment 24-79**

The comment is noted for the record. In response to the comment, **Policy DE 3.3a** has been modified to require biological and wetlands surveys to be conducted for all new and expanded dairy projects developed under the Element.

#### **Response to Comment 24-80**

Please refer to Response to Comment 24-79. **Policy DE 3.3a** has been modified to require dairy projects at which special-taxa species have been identified by a site-specific biological survey to apply for a Conditional Use Permit, which would require further environmental review.

#### **Response to Comment 24-81**

**Policy DE 1.2e** has been modified to provide the clarification requested by the commentor.

#### **Response to Comment 24-82**

**Policy DE 3.3a** of the Element requires a site-specific biological resource and wetland survey for new and expanded dairy projects. If the surveys indicate that impacts on sensitive species may occur, additional environmental review would be required under the Conditional Use Permit process.

#### **Response to Comment 24-83**

The PEIR presented information on the recorded occurrences of special-taxa species and their habitat following review of the California Natural Diversity Data Base (2000) records available at the time of the Notice of Preparation. This information was presented on Figure 4.4-1 and the source of the information was cited on the figure and referenced in Section 7 of the PEIR. This information is not considered by the preparers of the PEIR to be dated, as asserted by the commentor.

#### **Response to Comment 24-84**

The types of wetlands present or potentially present in Kings County were described on page 4.4-6 of the Draft PEIR. **Policy DE 3.3a** requires that biological resource and wetland surveys be prepared in accordance with Federal and State guidelines that define the characteristics of wetland environments.

### Response to Comment 24-85

In response to the comment, the preparers of the PEIR contacted Tulare County Environmental Human Health Services (TCEHSD) to request data on the testing of water supply wells at Kings County dairies for the presence of coliform. During the period January 1997 to January 2002, 632 water supply well samples were collected. Total coliform was detected in 158 samples (25 percent) of these samples. In general, the presence of coliform is interpreted by the TCEHSD to represent contamination of the distribution system or wellhead and not the groundwater pumped from the well. When coliform is detected, the dairy operators are notified and it is recommended that the distribution system and well are disinfected. Following disinfection, confirmation sampling is performed. In most cases, confirmation testing does not indicate the presence of coliform suggesting that the groundwater is not a continuing source of coliform.<sup>30</sup>

### Response to Comment 24-86

In 2000, the Department of Pesticide Regulation reports that 5.2 million pounds of pesticides were applied in Kings County. The top five pesticides (on the basis of weight applied) were sulfur, sodium chlorate, metam-sodium, petroleum oil, and mineral oil. The most common pesticides expected to be used at dairy facilities would be insecticides containing organophosphate compounds (e.g., chlorpyrifos and diazinon) and pyrethroids (e.g., cyfluthrin and fenvalerate). Within the County in 2000, 130,093 pounds of chlorpyrifos were applied; 83 percent of the applications were on corn and alfalfa crops and 8 percent were used for structural pest control. Diazinon was applied at a rate of 12,421 pounds with 38 percent used for structural control of pests. The rate of application for cyfluthrin (376 pounds) and fenvalerate (0.15 pound) is much lower. The amount of pesticide use at the dairies facilities developed under the Element cannot be accurately predicted. However, all pesticide applications are required to be performed under State and Federal regulations governing pesticide use.

### Response to Comment 24-87

As indicated in the discussion of Impact 4.8-1, implementation of the Element would not be expected to significantly increase the use of agricultural chemicals and would reduce the amount of acreage on which agricultural chemicals would be applied. As discussed in the Draft PEIR (page 4.8-7), the potential exposure of workers and the public to hazardous materials is addressed in **Objective DE 4.3** and **Policy DE 4.3a** of the Element.

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<sup>30</sup> Bairstow, Mark, 2002, Dairy Inspector, Tulare County Environmental Human Health Services, personal communication with Kevin O'Dea of BASELINE, 7 February.

### **Response to Comment 24-88**

The use of antibiotics at dairy facilities is regulated by the California Department of Food and Agriculture. Existing regulations require the testing of milk products for trace levels of antibiotics (or antimicrobials) and control the potential for consumption of milk containing unsafe levels of these and other potentially harmful compounds. It would be speculative to assume that development of dairies in Kings County under the Element would directly or indirectly affect the consumption of milk products and any associated health effect related to that consumption. The County considers potential health effects of the consumption of milk or meat products produced at dairies to be outside the scope of the PEIR. The Notice of Preparation for the Draft PEIR was distributed to all responsible agencies, including the Kings County Department of Environmental Health and the California Department of Food and Agriculture. No responsible agency indicated that the scope of the PEIR should include analysis of the potential impacts of consumption of milk or meat products. Please refer to Response to Comment 22-61 for further discussion of potential environmental impacts related to antimicrobial use at dairies.

### **Response to Comment 24-89**

The potential exposure of workers to pesticides and other hazardous materials was discussed on pages 4.8-6 and 4.8-7 of the Draft PEIR. The conclusion in the PEIR that compliance with existing regulations (as required by **Policy DE 4.3a** of the Element) regarding the use, storage, and disposal of hazardous materials is considered appropriate feasible mitigation of the potential exposure of workers and the public.

### **Response to Comment 24-90**

The comment is noted for the record. The preparers of the PEIR agree that agricultural workers and the public can be exposed to pesticides. These chemicals are legally produced, distributed, and used by workers and other members of the public. The potential human exposure during the production, storage, and use of pesticides is regulated by Federal, State, and local agencies. In California, the regulations for pesticide management are contained in the California Code of Regulations Title 3, Division 6. Article 3 of Subchapter 3 of Chapter 3 of Division 6 sets regulations for field worker safety that include provisions for worker training, field reentry, field posting, and record keeping. Implementation of these regulations, which have been developed on the basis of years of scientific research and governmental rule making, is considered to be the only feasible mitigation to reduce potential impacts related to pesticide use to levels of acceptable risk.

### **Response to Comment 24-91**

The storage, use, and disposal of insecticides at dairy facilities to control flies and mosquitoes is regulated by existing pesticide regulations. Please refer to Response to Comment 24-90. **Policy DE 4.3b** requires dairy operators to prepare a Pest and Vector Management Plan. Guidance for the preparation of the plans presented in Appendix J of the Element promote the implementation of good housekeeping practices and biological pest control prior to the use of chemical control. Insecticide use at dairies would replace insecticide use for agricultural crop production. The amount of insecticide use for crops is highly variable and depends on the type of crops, climatic conditions, and other factors. It would be speculative to assert whether or not pesticide use at dairies developed under the Element would be greater than pesticide use for existing crops.

### **Response to Comment 24-92**

Please refer to Response to Comment 24-93. The infiltration of water from storage lagoons at dairies is inevitable. Infiltration of dairy process water from lagoons has not resulted in any documented case of public water supply infection by pathogens associated with dairy cattle in Kings County. Despite the fact that the dairy industry has supplied millions of pounds of beneficial food products for decades, a significant public health problem related to dairy operations has not been demonstrated or referenced by the commentor. The County, through development of the goals, objectives, and policies, is requiring safeguards (i.e., lagoon liners, advanced manure treatment, containment of runoff from dairy facilities and cropland, and inspection of well seals) that minimize the potential of any such risk.

### **Response to Comment 24-93**

The comment focuses on the potential health risk impacts related to *Cryptosporidium parvum*. This organism is a small protozoal parasite that lives in and is shed from humans, domestic animals, and wildlife species. The infectious stage of cryptosporidium is as an oocyst [a small (5 microns in diameter) resistant egg]. Oocysts are shed from the digestive tract of infected mammals and released to the environment with the excretion of feces. Within dairy herds, nearly all cryptosporidium shedding occurs from young (one to three weeks in age) calves; minor shedding has been suspected but not confirmed in older cattle.<sup>31</sup> The commentor is correct in pointing out that cryptosporidium is commonly detected at dairies.

Several factors affect the infectious viability of the *Cryptosporidium parvum* oocysts once they are released to the environment. Adverse conditions for viability include drying and heating. Migration (i.e., infiltration) of viable oocysts into the subsurface are affected by

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<sup>31</sup> Atwill, Edward, 2002, University of California School of Veterinary Medicine, Research Veterinarian, personal communication with Kevin O'Dea of BASELINE, January.

soil type, soil moisture conditions, slope, and vegetation. The potential for downward migration of all small particles (including oocysts) is reduced by decreasing hydraulic conductivity. Finer-grained soils (i.e., clays and silts) have lower hydraulic conductivity than coarser-grained soils (i.e., sands and gravels). As water infiltrates, small particles are filtered out and adsorb to larger particles. This relationship applies to oocysts, viruses, and other pathogens. Laboratory studies<sup>32</sup> indicate that vertical migration of oocysts in medium textured soils (clay loam, silty loam, and loamy sandy soils; similar to soils in the designated DDOZs and NSOZs) can occur to depths of 12 inches but that the majority (73 percent) of oocysts remain in the upper inch of the soil column. Recent studies completed by University of California researchers<sup>33</sup> indicate that less than one percent of oocysts applied to a fine sand sediment column were passed through the column. Clearly, *Cryptosporidium parvum* oocysts are effectively filtered and adsorbed in the very shallow subsurface.

The preparers of the PEIR believe that the following environmental conditions and provisions of the Element mitigate the potential exposure of drinking water supplies to degradation by pathogens at dairy facilities to a less-than-significant level:

- hot, arid climate conditions in the southern San Joaquin Valley, which promote inactivation of pathogens;
- requirements for advanced manure treatment, which promote inactivation of pathogens by oxidizing conditions (aerobic treatment) or heating (controlled anaerobic treatment);
- requirements for low hydraulic conductivity liners for manure separation pits and lagoons;
- medium to fine grained surface soil types, which limit infiltration of residual pathogens during land application;
- requirements for collection and containment of runoff from manured areas;
- requirements for irrigation design to prevent runoff from manure application areas at dairy facilities;

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<sup>32</sup> Mawdsley, J.L., Brooks, A.E., and Merry, R.J., 1996, Movement of the protozoan pathogen *Cryptosporidium parvum* through three contrasting soil types, *Bio Fertil Soils* 21:30-36.

<sup>33</sup> Harter, T., Wagner, S., and Atwill, E., 2000, Colloid transport and filtration of *Cryptosporidium parvum* in sandy soils and aquifer sediments, *Environmental Science and Technology*, 34(1):62-70.

- absence of surface water sources for drinking water in the area of or downstream of designated DDOZs and NSOZs;
- requirements for setbacks between water supply wells and dairy facilities; and
- requirements for inspection and repair of water supply well seals at dairy development sites.

#### **Response to Comment 24-94**

Please refer to Response to Comment 24-93. Outbreaks of human cryptosporidiosis (i.e., clinical human infection by cryptosporidium) are nearly always caused by contamination of drinking water supplied by surface waters. In some of the documented outbreaks, implications have been made, but not confirmed, that the source of the contamination was associated with confined animal facilities. The cryptosporidiosis outbreak in Milwaukee, Wisconsin was not conclusively determined to have been caused by shedding of this organism at dairy facilities. There are no surface drinking water supplies within or downstream of the DDOZs and NSOZs designated in the Element.

Although more than 140 dairies have been in operation in Kings County since 1982, only one person has been diagnosed with cryptosporidiosis (see Response to Comment 22-59). It is noted that the dairies have not been subject to the environmental controls required by the Element. For these reasons, the risk of a cryptosporidiosis outbreak is very low.

#### **Response to Comment 24-95**

The comment is noted for the record. The County is committed to the protection of drinking water supplies in Kings County. It is noted that, within the County, no potential source has ever resulted in an outbreak of cryptosporidium infection.

#### **Response to Comment 24-96**

The suggestions made by the commentator have been considered. However, the imposition of a tax on milk, feed, and manure shipments is considered unnecessary and infeasible. All County arterial, collector, and minor roadways are designated for truck use by the County. As such, these roadways are built and maintained to support truck trips. The construction and maintenance of the roads are financed by taxes generated by the sale of fuel. The fairness and adequacy of the taxing system for road maintenance is beyond the scope of the PEIR.

#### **Response to Comment 24-97**

The use of electricity at dairy facilities would be in support of the production of milk products to meet consumer demand. The County considers the use of electricity for this

purpose to be appropriate and necessary. The electricity would be used for that purpose whether the Element is implemented or not. This use of energy is not wasteful and is not considered an adverse environmental impact. For the record, a study conducted for the California Energy Commission indicated that the average electrical energy use at ten dairies in California was between 0.8 and 2.0 kilowatt-hours per milking cow per day.<sup>34</sup>

### **Response to Comment 24-98**

Please refer to Responses to Comments 6-1 and 6-2.

### **Response to Comment 24-99**

The commentors' suggestion that cultural resource surveys be performed for all proposed dairy development sites is noted for the record. Most areas within the designated DDOZs have already been graded and plowed for agricultural crop production. These activities have likely resulted in significant disturbance of any cultural resources at the surface and in the shallow subsurface. **Policy DE 3.3a** requires a CUP (and additional environmental review) for dairy projects located in areas of existing pasture or range land or natural vegetation (i.e., areas where agricultural grading may not have been performed). **Policy DE 3.1d** of the Element requires that, if the required review of proposed dairy projects by the California Historical Resources Information System indicates that cultural resources are known or suspected, then an evaluation of the site needs to be made by a qualified archaeologist. These policies would minimize the potential for disturbance or destruction of known or suspected cultural resources. The provisions of **Policy DE 3.1e** are considered to be an appropriate and feasible mitigation for the potential disturbance of unknown or unsuspected cultural resources. This is a typical mitigation measure required by the County for any type of project that involves grading or construction of large areas that potentially contain cultural resources.

Preconstruction surveys are neither feasible nor necessary for all dairy sites. The Dairy Element has been modified to include additional steps to avoid potential impacts on cultural resources. Documentation of a California Historic Resources Information Resources System records review and a Sacred Lands File Check by the Native American Heritage Commission must be submitted with all dairy applications (**Policy DE 3.1d**). If the survey identifies any impacts on historical, archaeological or paleontological resources, then the applicant will not be eligible to obtain SPR approval by the Zoning Administrator and will instead complete a conditional use permit application process.

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<sup>34</sup> Moser, M., 1997, Resource Potential and Barriers Facing the Development of Anaerobic Digestion of Animal Waste in California, report prepared for the California Energy Commission, Contract No. 500-93-039.

### **Response to Comment 24-100**

The citations of the CEQA Guidelines are noted for the record. The commentors state that the PEIR is inadequate for failing to list the 149 existing dairies in Kings County. Instead of providing the names of each individual dairy, the preparers of the PEIR took the more reasonable and informational approach of providing a map of the location of the existing dairies and information on the total herd size of the existing dairies (Draft PEIR Figure 5-1, Table 5-1).

The PEIR presented information regarding past, present, and probable future projects similar to the dairy development projects that could occur under the proposed Element. Table 5-1 of the Draft PEIR lists the number of existing dairies in Kings County at the time of release of the notice of preparation for the Draft PEIR. The table groups the dairies relative to the size of the dairy herds and presents the number of milk cows with each dairy size group for the years 1982, 1987, 1990, 1995, and 1999. Appendix G of the Draft PEIR presents the milk cow herd size for all dairies in Kings County at the time of the release of the Draft PEIR. Figure 5-4 shows the locations of the existing dairies. Table 5-2 lists the approved and proposed dairies in Kings County and identifies their locations. Table 5-3 lists the number of dairies and the size of the milking cow herds for each of the eight counties in the San Joaquin Valley Air Basin. The commentors imply that all past, present, and probable future projects must be "named." The CEQA Guidelines do not require that related projects be named.

Given the information contained in the PEIR, the preparers consider that the PEIR meets the requirements of CEQA to list past, present, and probable projects producing related or cumulative impacts, including those projects outside the control of the agency.

### **Response to Comment 24-101**

The comment suggests that the PEIR has not disclosed the severity of the environmental impacts of air emissions related to implementation of the Element. The potential impacts of air emissions on the environment and public health were described at length in the Setting section and the Air Quality section of the PEIR. By their nature, air quality impacts of the proposed project are cumulative impacts in that the emissions contribute to regional air quality problems. The Draft PEIR (pages 5-8 through 5-16) presents an analysis of the cumulative impacts of air emissions. When possible, the analysis used available emissions factors to estimate the expected quantity of particular air pollutants for identified cumulative projects. The commentors' opinion that "quantification of pollution is meaningless" is noted for the record. The quantification of emissions provides the public and the decision makers an opportunity to evaluate the severity of the cumulative emissions. The analysis presented in the Draft PEIR also describes the contribution of the cumulative dairy projects (including potential dairy development under the Element)

relative to available regional estimates of total pollutant emissions. The analysis also describes the implications of the emissions on the attainment status for PM<sub>10</sub> and ozone.

### **Response to Comment 24-102**

The Draft PEIR's discussion of cumulative air quality impacts cannot reasonably be described as "conclusory." The preparers of the PEIR did not make "glib" findings of significance to "shirk" their statutory duty. The ambient air quality in the San Joaquin Valley Air Basin is discussed in Section 4.2. The PEIR provides a discussion of the various Federal, State and local air quality standards (Draft PEIR, pages 4.2-1 through 4.2-10). The PEIR discusses the attainment status for ozone, carbon monoxide, particulate matter, ammonia, hydrogen sulfide, and methane (Draft PEIR, pages 4.2-10 to 4.2-14). For each pollutant, the health impacts and the consequences of nonattainment are discussed.

The conclusion made in the Draft PEIR that the cumulative impacts of PM<sub>10</sub>, reactive organic gases, ammonia, hydrogen sulfide, and methane are significant and unavoidable were based on the extensive analysis presented. The impacts were determined to be significant on the basis of the significance criteria presented in the Draft PEIR (page 4.2-43). Specifically, PM<sub>10</sub> and reactive organic gas emissions would be expected to violate ambient air quality standards, contribute substantially to existing air quality violations, and result in a cumulatively considerable net increase of criteria pollutants for which the air basin is in nonattainment under Federal air quality standards. In addition, cumulative PM<sub>10</sub>, reactive organic gases, ammonia, and hydrogen sulfide emissions are considered by the PEIR to expose receptors to substantial pollutant concentrations. The PEIR presents substantial evidence that the significant air quality impacts cannot be reduced to less-than-significant levels through feasible mitigation.

### **Response to Comment 24-103**

The preparers of the PEIR do not consider all CAFOs to be "related projects" for purposes of the cumulative impacts analysis. The possible realm of projects that could be considered CAFOs is too broad and the impacts from each type of CAFO are different from the impacts from dairies. Other CAFOs in Kings County were used in calculating the theoretical herd size because the calculation of the theoretical herd size is based on nitrogen and salt loading. To calculate the theoretical herd size, all sources of nitrogen and salts were considered, including CAFOs and spreading of sewage sludge. These other types of developments were considered in the calculation of the theoretical herd size, not because they are similar projects, but because they contribute to the amount of nitrogen and salt loading.

Furthermore, it would be infeasible to calculate air emissions for every confined animal facility in the San Joaquin Valley Air Basin. Each type of CAFO would have different types of emissions and different emissions factors for each type of pollutant.

The cumulative analysis presented in the Draft PEIR has provided sufficient information to support the conclusions regarding the significance of cumulative impacts. It is important to note that, in commenting on the analysis presented in the PEIR, Dave Mitchell, Supervising Air Quality Planner with the San Joaquin Valley Unified Air Pollution Control District (Comment 8-1), concluded that the PEIR “does a thorough job in addressing the air quality implication of dairy development in Kings County.” Furthermore, Mr. Mitchell comments that the “District concurs with the impacts identified as significant and unavoidable.”

#### **Response to Comment 24-104**

The comment is noted for the record. Contrary to the first statement presented in the comment, the cumulative water quality impacts were discussed in the Draft PEIR (pages 5-16 and 5-17). Furthermore, the PEIR correctly bases the finding of less than significant cumulative water quality impacts on the threshold of significance that will be adopted by the County according to CEQA Guidelines section 15064.7. There is no limitation in CEQA restricting the use of thresholds of significance adopted according to CEQA Guidelines section 15064.7 to initial studies. Please also see Response to Comment 24-105. In addition, please refer to Response to Comment 24-93, which summarizes the effective and feasible mitigation of water quality impacts provided by the Element and PEIR.

#### **Response to Comment 24-105**

CEQA Guidelines section 15130, subdivision (d) provides that a “no further cumulative impacts analysis is required when a project is consistent with a general, specific, master or comparable programmatic plan where the lead agency determines that the regional or areawide cumulative impacts of the proposed project have already been adequately addressed . . .” Similarly, subdivision (e) of that guideline provides that, if a cumulative impact was already addressed in a prior plan, and the project is consistent with that plan, then the EIR for that project should not further analyze the cumulative impact.

As discussed in the PEIR, the Element is consistent with, and exceeds the requirements of, the Water Quality Control Plan for the Tulare Lake Basin (the “Basin Plan”) (Draft PEIR, pages 5-16 to 5-17). The Basin Plan specifically addresses confined animal activities as a source of water quality degradation.

For the sake of providing full disclosure to the public and in accordance with CEQA Guidelines section 15130, subdivision (a), the PEIR does include a brief cumulative impacts discussion of water quality (Draft PEIR, pages 5-16 and 5-17).

**Response to Comment 24-106**

As discussed in Response to Comment 24-105, the County may rely on the previously adopted Basin Plan for the cumulative impacts discussion. Contrary to the comment, the PEIR discusses the current water quality in Kings County in the Water Resources section (Draft PEIR, pages 4.3-7 to 4.3-11).

**Response to Comment 24-107**

The comment is noted for the record.

**Response to Comment 24-108**

The commentors suggest that the County should consider a “no-dairy economic development alternative” to the Element. The PEIR did not consider an alternative that assumes no future dairy development as such an alternative would be fundamentally inconsistent with the objectives of the Element. The Board of Supervisors will consider all the alternatives analyzed in the PEIR. The commentors’ opinions that the Board should adopt the Fifty Percent Reduced County Herd Size alternative and consider even greater herd reduction are noted for the record.

**Response to Comment 24-109**

The commentors’ opinion is noted for the record.

## **LETTER 25 - Jan Knight, United States Department of the Interior**

This comment letter was received after the close of the public review and comment period.

### **Response to Comment 25-1**

The comment is appreciated and noted for the record. Responses to more detailed comments reflected in this comment are addressed in the following responses.

### **Response to Comment 25-2**

The County agrees with the commentor's assessment of the responsibility under CEQA for the evaluation of potential impacts on water quality and public health related to implementation of the proposed Element. The comment does not identify specific impacts but supports full environmental review for the proposed Element.

### **Response to Comment 25-3**

The comment generally identifies potential impacts related to manure and process water management. All potential impacts indicated by the comment were addressed in the PEIR with the exception of "endocrine disruption and animal deformities." More specific discussion of this impact is presented in Responses to Comments 25-12, 25-21, 25-22, and 25-23.

### **Response to Comment 25-4**

The commentor's summary of the prohibitions under Section 9 of the Endangered Species Act related to any potential "take" of a federally listed "endangered species" is appreciated. The Draft PEIR (page 4.4-2) presented a similar discussion and the potential impacts related to endangered species are discussed in Impact 4.4-1.

### **Response to Comment 25-5**

The comment is noted for the record.

### **Response to Comment 25-6**

In response to this comment by USFWS, the responsible agency for implementation of the Endangered Species Act, the text of **Policy DE 3.3a** has been modified to require that dairy applicants obtain USFWS concurrence on compliance with the Act.

### **Response to Comment 25-7**

The text of **Policy DE 1.2e** of the Element has been amended by to provide clarification on the types of wetlands and associated special-taxa species that could be affected by proposed dairy development.

### Response to Comment 25-8

Under **Policy DE 3.3a** of the Element, all dairy development projects are required to conduct a biological resource survey to determine if habitat for sensitive species (including San Joaquin kit fox) would be significantly impacted by the proposed development. The surveys would determine if kit fox dens are present or if significant interruption of travel corridors would occur. It is important to note that the dairy facility (structures, lagoons, and corrals) comprises only a small percentage (about 10 percent) of dairy sites, which have been designed to accommodate agronomic application of manure and process water as required by **Policy DE 3.2b** of the Element. The remaining areas of dairy sites are agricultural land needed for the purpose of crop production (and manure reuse). These areas of dairy development sites will continue to provide foraging habitat and available corridors for migration. The commentor's reference to "intensified cultivation pattern" is not clear. **Policies DE 1.2g** through **1.2j** establish setback requirements (one-half mile) for dairy facilities, preserving potential corridors for kit fox and other animals.

### Response to Comment 25-9

As indicated in the comment, the Food and Drug Administration (1993) reported that samples collected from "manure pits" by researchers at Michigan State University contained selenium at a concentration of 0.062 to 0.088 part per million (ppm) (wet basis). Recent evaluation of total selenium in cattle excreta indicates average total selenium levels in cattle supplemented with the allowable level of selenium supplements range from 0.010 to 0.179 ppm (wet basis). Comparatively, excreta from unsupplemented cattle contained, on average, 0.010 ppm.<sup>35</sup> The reported results reflect the total selenium in a mixture of solids and liquid. The amount of total selenium held in the solid particles and that contained in the liquid cannot be determined. The concentrations of soluble and insoluble selenium cannot be determined from the presented data. Only soluble selenium forms (species), such as selenium salts (e.g., sodium selenite and sodium selenate) would be expected in the liquid fraction; insoluble species, such as selenium oxides or selenides, could be present in the solid fraction. The comparison made by the commentor of the concentration of selenium in manure (combined solid and liquid phases) to water quality criterion for aquatic habitat or drinking water is not valid without an adequate determination of the expected amount of soluble selenium that would become available.

The concentration of selenium in the wastewater lagoons could be considerably lower than the concentration of selenium in manure pits (0.063 to 0.088 mg/L) cited by the commentor. Preliminary testing of selenium concentration in dairy wastewater lagoons conducted by

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<sup>35</sup> Maas, J., 2001, Veterinarian, University of California Cooperative Extension, personal communication with Kevin O'Dea of BASELINE, 28 September.

the Central Valley Regional Water Quality Control Board (RWQCB)<sup>36</sup> suggests significantly lower selenium concentrations. Water samples were collected from 29 dairy wastewater lagoons located in the San Joaquin Valley in May and June 2001. The concentration of total selenium ranged from 0.00042 to 0.0125 mg/L. The mean concentration of total selenium was 0.003 mg/L, a level below the U.S. EPA water quality criterion for protection of freshwater aquatic life (0.005 mg/L).

The commentator's conclusion that "direct contamination of fish and wildlife habitat and human drinking water is clearly a potential hazard" is speculative. The State regulations prohibit the discharge of manure or process water to waters of the State; these materials are required to be collected and managed. Under the Element, the manure from proposed dairies is required to be treated by aerobic or controlled anaerobic treatment systems. The manure and process water would then be reused as fertilizer and irrigation for the production of agricultural crops. Nutrients, including selenium, would be available for uptake by agricultural crops. Agricultural crops from the western San Joaquin Valley exhibit a wide range in the concentration of total selenium but are within the range reported above for dairy cattle manure. For example, the average total concentration of selenium contained in broccoli leaves is 0.43 ppm while corn leaves contain an average of 0.047 ppm. The comparison of these selenium levels in plant tissue (including solids and liquids) to water quality standards would not be a valid evaluation of environmental risk posed by agricultural crops.

### **Response to Comment 25-10**

The comment makes the point that the FDA has determined that, in 1993, existing scientific research was inadequate to determine whether allowable selenium supplementation to domestic animals as an essential nutrient presented a significant environmental impact. The FDA also determined that "using the current data base and making assumptions where data are missing leads to interpretations of potential environmental impacts across the entire spectrum from no impacts expected to significant impacts expected." Because of the uncertainties, the FDA concluded that preparation of an Environmental Impact Statement under the National Environmental Protection Act to evaluate environmental effects of selenium supplementation was not appropriate. A discussion of the FDA's 1993 ruling, subsequent actions taken by the Federal government, and past and current scientific research regarding selenium supplementation to livestock are presented in Response to Comment 16-1.

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<sup>36</sup> Rodgers, Clay, 2001, Senior Engineering Geologist, Central Valley Regional Water Quality Control Board, personal communication with Kevin O'Dea of BASELINE, 9 October.

### **Response to Comment 25-11**

As described in Response to Comment 25-10, an accurate assessment of the ultimate fate of selenium contained in manure and process water that is applied as fertilizer and irrigation to cropland cannot be made because of deficiencies in the data available on the biogeochemistry of selenium. The estimates of the amount of selenium introduced to the environment in Kings County presented by the commentator rely on assumptions that are similar to assumptions rejected by FDA in 1993 as inadequate to provide a meaningful analysis of the potential environmental impacts related to supplementation of livestock feed with selenium.

The commentator compares the estimated amount of total selenium in manure to a water quality objective implying that all selenium may eventually be released to receiving waters. There is no justification for this comparison considering that some of the selenium would be taken up by agricultural crops and that insoluble forms of selenium would not be expected to be readily mobilized into water resources. The commentator's request for an adequate analysis of the projected environmental fate of selenium in the PEIR is not possible.

The comment presents an interpretation of the FDA's finding that is not accurate. The FDA has not "clearly warned the public that supplementing livestock feeds with 0.3 ppm selenium is a significant issue." The FDA concluded that insufficient data and methodologies were available to accurately determine the significance of environmental impacts of selenium supplementation. It is important to note that, although more recent data are available, the FDA has not changed the allowable supplementation of selenium in animal diets.

### **Response to Comment 25-12**

The estimate of potential selenium concentration applied to agricultural land presented in the comment is noted for the record. The preparers of the PEIR do not agree with the assumptions presented in the estimate. The Element conservatively estimates that manure and process water would be applied to 268,129 acres of available agricultural cropland, not the total 665,623 acres within the DDOZs and NSOZs as assumed in the comment.

The commentator is correct in pointing out that the FDA regulates only the amount of inorganic selenium that can be added to feed for cattle. It is possible for dairy cattle feed to be additionally supplemented with chicken manure, which contains selenium at varying concentrations. The dry matter feedstock for dairy cattle can also contain selenium. The amount of selenium in feed can vary widely depending on the specific feed plants and where the plants are grown. Because selenium concentrations in feed are variable, dairy

cattle nutritionists typically recommend the full allowable supplement to be added to the cattle diet.<sup>37</sup>

A statewide project monitoring trace element content in cattle is maintained by the University of California Cooperative Extension.<sup>38</sup> The results of limited testing in Kings County indicate that selenium levels within blood in cattle are marginally deficient relative to recommended selenium levels. Common practice in Kings County is to provide dairy cattle with the full allowable selenium supplement.<sup>39</sup> Full supplementation is generally rationalized by nutritionists because the allowable supplementation level is approximately sixteen times less than the lowest dietary level that has been related to chronic toxicity. Therefore, it is reasonable to assume that the diet includes selenium at concentrations in excess of the allowable supplement. However, it is likely that the diets of the cattle whose manure was tested in the past to determine selenium concentrations also contained selenium that was not ingested as the allowable supplement.

The "FDA model" described in the comment, which attempted to evaluate the effect of the application of selenium in chicken manure, was not cited and could not be verified by the PEIR preparers. However, it is important to realize that the metabolisms of chickens and other fowl are significantly different from those of ruminant animals such as dairy cattle. Very little is known about the forms of selenium in chicken manure or manure generated by dairy cattle. The comment does not describe the assumptions made for the model regarding the topography, climate, soil conditions, or the vegetation in the area where the chicken manure was theoretically applied. The comment does not indicate if the model was verified or calibrated. Therefore, it is not possible to evaluate whether the calculated concentrations of selenium in runoff generated by the model reported by the comment have any relevance to the proposed project.

### **Response to Comment 25-13**

The comment is noted for the record. It is noted that discharge of manure or process water to water bodies is prohibited under the Element and State regulation. Please refer to Response to Comment 16-2.

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<sup>37</sup> Robinson, P.H., 2001, Extension Veterinarian, University of California Cooperative Extension, personal communication with Kevin O'Dea of BASELINE, 27 September.

<sup>38</sup> The results of the UC Cooperative Extension Trace Mineral Program are available on the internet at <http://animalscience.ucdavis.edu/extension/mineralproject>.

<sup>39</sup> Aseltine, Mark, 2001, Professional Nutritionist, personal communication with Kevin O'Dea of BASELINE, 26 September.

### **Response to Comment 25-14**

The information presented in the comment regarding selenium content in earthworms is noted for the record. However, preparers of the PEIR point out that the commentor's implied conclusion concerning the accumulation of selenium released to the environment is difficult to support. Firstly, the conclusion relies on an annual estimate of bioavailable selenium, which cannot be substantiated at this time. (Please refer to Responses to Comments 25-9 and 25-11.) But, even if the selenium loading rate was 5.5 grams per hectare (as estimated in Comment 25-12), the loading rate would be approximately 22 times less than the rate of application described in this comment. Secondly, the conclusion implies that individual earthworms would bioaccumulate selenium over a 20 to 25 year period. The average life span of common earthworms is three to six years. The estimate of the bioaccumulation rate in earthworms related to an annual loading rate of 5.5 grams of selenium per year, which ignores the life span of potential receptors and the potential uptake of selenium during the production of valuable agricultural crops, is neither reasonable nor responsible.

### **Response to Comment 25-15**

The development of the maximum theoretical dairy herd presented in the Element assumed the maximum application rate of 1,000 pounds (45,326 g) of salt per acre of single-cropped agricultural field (recommended rate by RWQCB guidelines). The applied salts would include selenium salts (predominantly selenate and selenite). If all selenium contained in manure and urine were conservatively assumed to be in the form of soluble salts, the commentor's estimated application of 5.5 grams of selenium per hectare (2.2 grams per acre) represents 0.005 percent of the total salt application. As discussed above, some, currently unquantifiable, amount of the selenium would be expected to be taken up in agricultural crops. Most of these crops would be fed back to dairy cattle. The selenium in harvested crops would provide a portion of dietary selenium required for cattle nutrition. Therefore, most of the selenium could be recycled for a beneficial use. The non-bioavailable forms of selenium, such as elemental selenium and selenide, have low solubility and would be relatively stable in the environment. Some unknown amount of selenium would be volatilized as organic, methylated compounds through respiration by cattle and during plant metabolization.

### **Response to Comment 25-16**

The commentor's opinion expressed in the comment regarding previous analysis and conclusions presented by the commentor regarding potential selenium impacts ("analyses such as those presented above") is acknowledged and appreciated. The view of the commentor "that educated predictions about reality [regarding estimation of impacts related to selenium] are virtually impossible (as opposed to specific hypothetical scenarios that are precise, but of unknown realism)" is shared by the preparers of the PEIR, as

expressed in Responses to Comments 16-1, 16-2, 16-3, 25-9, 25-10, 25-11, 25-12, 25-13, 25-16, and 25-15. Insufficient data are available to support the identification of selenium loading associated with management of dairy cattle excreta containing selenium as a significant or insignificant environmental impact.

In response to the commentor's suggestion that selenium monitoring should be required, **Policy DE 6.1h.B** (now **6.2f.B**) identifies the minimum constituents to be analyzed as part of required groundwater quality monitoring. The policy provides that the list of constituents to be monitored may be modified by the Regional Water Quality Control Board (RWQCB). The RWQCB does not generally require selenium monitoring at dairy facilities.<sup>40</sup> However, if recommended by the RWQCB, the list of constituents can be modified to include selenium.

### **Response to Comment 25-17**

The commentor is referred to Responses to Comments 22-61 and 24-88 for discussion of potential impacts related to the use of medicines at dairy facilities. Please refer to Responses to Comments 25-9 through 25-16 and 25-18 for discussion of other common micronutrient supplements.

### **Response to Comment 25-18**

Copper and zinc, like selenium, are essential micronutrients required for healthy cattle. Copper deficiency is the second most common cattle mineral deficiency worldwide. The most common condition indicating a dietary deficiency for copper is lack of color ("bleached out") in the hair of affected cattle. Other symptoms of low dietary copper can include bone fractures and/or weak bones and delayed shedding of winter hair coat. Deficiency of dietary zinc can result in reduced weight gains, slower wound healing, impaired reproductive function, and listlessness. Recommended dietary requirement for copper in the diet of Holstein milk cows is approximately 16 milligrams per kilogram of dry matter intake (mg/kg); the requirement for zinc is 65 mg/kg.<sup>41</sup> If insufficient amounts of zinc and/or copper are contained in feedstuff, dietary supplementation of these minerals may be required.

Normal blood serum levels (i.e., not indicating a deficiency) for copper in cattle range from 0.8 to 1.5 parts per million (ppm). Copper levels in cattle liver tissue of 100 ppm or greater indicate that dietary supplementation is not required. Blood serum levels of zinc were

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<sup>40</sup> Rodgers, Clay, 2001, Senior Engineering Geologist, Central Valley Regional Water Quality Control Board, personal communication with Kevin O'Dea of BASELINE, 9 October.

<sup>41</sup> National Research Council, 2001, Nutrient Requirements of Dairy Cattle, Seventh Revised Edition, 2001, prepared by the Subcommittee on Dairy Cattle Nutrition.

within the range 0.8 to 1.4 ppm. Monitoring of cattle in Kings County by the University of California Cooperative Extension indicate that copper levels are adequate, but that some cattle are likely deficient in zinc.

The average daily production of copper and zinc in manure generated by dairy cattle is 0.45 and 1.8 grams, respectively, per animal unit.<sup>42</sup> The copper and zinc contained in the manure would be transferred into manure treatment systems. If these metals go into solution, there is a potential for them to migrate into the subsurface with infiltrating water from storage lagoons. The concentration of copper and zinc in dairy lagoons in California has not been studied.

Metals would be conserved in treated manure and process water and would ultimately be applied to irrigated crop land. Runoff from irrigated fields could contain trace amounts of copper and/or zinc. Studies<sup>43</sup> of copper and zinc concentrations in soils in areas amended with poultry manure indicate that the concentration of copper and zinc were higher than in areas that were not amended. However, the concentrations decreased significantly with depth, indicating limited mobility in the subsurface. Both metals were found at higher concentrations in the organic fraction of the soil than the mineral fraction, exhibiting an affinity for binding with organic material. The mobility of these metals may be enhanced by subsurface transport of colloids (e.g., fine clay particles) to which the metals are adsorbed. Similar studies have not been conducted in California for areas amended with dairy cow manure. Although the southern San Joaquin Valley supports a large dairy industry, surface waters in the area have not been identified by the Regional Water Quality Control Board as impaired by elevated levels of copper or zinc.

The Element presents numerous performance standards, which have been developed to minimize the potential for water quality degradation. **Policy DE 4.1a.B.2** of the Element presents mitigation, which minimizes the infiltration of process water from lagoons, manure separation pits, and corrals. **Policy DE 3.2d** prohibits the discharge of dairy process water to surface water bodies, minimizing the potential for runoff containing trace metals to enter surface water. The policy is supported by **Policy DE 4.1c**, which requires land management practices that minimize the movement of soil, organic material, and nutrients from lands where manure is applied into surface water or groundwater. In addition, **Policy DE 4.1b.C** requires that a dairy development project develop and implement an Irrigation Management Program, which ensures that irrigation water and runoff is prevented from migrating into surface water.

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<sup>42</sup> American Society of Agricultural Engineers, 1999, Manure Production and Characteristics, ASAE Publication D384.1.

<sup>43</sup> Han, F.X., Kingery, W.L., and Selim, H.M., 2001, Accumulation, Redistribution, Transport, and Bioavailability of Heavy Metals in Waste-Amended Soils, in Trace Elements in Soil, eds. I.K. Iskandar and M.B. Kirkham, Lewis Publishers, pp. 145-169.

### Response to Comment 25-19

The Element does not rely on regional mapping of groundwater levels, such as that referenced in the comment, to determine if proposed individual dairy development projects would be located in areas of high groundwater levels. The groundwater levels in Kings County are not considered static in the Element or the PEIR, as suggested by the commentor. The Element contains policies that require investigation and reporting of groundwater conditions prior to dairy development and throughout the operational period. **Policy DE 1.2d** of the Element does not allow the development of dairy operations in areas of high groundwater conditions unless the applicant can demonstrate that the minimum vertical distance between the proposed lagoon bottoms and corral surfaces and the highest groundwater levels is at least five feet. This determination is required to be made by a qualified professional engineer or geologist. **Policy DE 3.2a** requires that all dairies submit, as part of the Technical Report, a groundwater evaluation conducted by a qualified engineer or geologist. The evaluation is required to identify the highest anticipated groundwater level at the proposed dairy site. In addition, all dairies are required by **Policy DE 6.1h** (now **6.2f**) to implement a groundwater quality monitoring program. This policy requires that groundwater levels and water quality be monitored. These precautions are not acknowledged by the commentor

The preparers of the PEIR consider the site-specific investigation of groundwater conditions to be the most appropriate way to ensure that dairy development not be allowed in areas of high groundwater. If a dairy development project is not able to meet the requirements of the Element, the project would be required to obtain a Conditional Use Permit, which would result in further site-specific environmental review under CEQA.

### Response to Comment 25-20

The commentor is referred to Response to Comment 20-19. It is possible that areas of the DDOZs established by the Element include areas in which groundwater is less than five feet below the ground surface. However, each proposed dairy development is required to ensure, on the basis of site-specific data, that the groundwater levels at the site are not less than five feet below the corrals and process water lagoons. If areas of high groundwater are determined by the site-specific evaluations, dairy development in those areas would not be permitted under the Site Plan Review process. It is important to realize that the designation of the DDOZs and the estimation of the maximum theoretical County dairy herd were made as general planning tools. Dairy development throughout the DDOZs and buildout of the maximum herd are not assured. The County recognizes that site-specific conditions may preclude dairy development under the SPR process.

The Element (**Policy DE 4.1a**) requires that all reuse of dairy manure and process water within both the DDOZs and NSOZs be conducted under a Manure Nutrient Management Plan (MNMP) and that nutrients are applied at agronomic rates whether the nutrients are

used at the dairy facility or transported away from the facility. Limiting the application of nutrients in this manner minimizes the potential impacts of the reuse of manure and process water as a valuable fertilizer.

### **Response to Comment 25-21**

The comment reiterates points made in Responses to Comments 25-9 through 25-16. The commentor indicates that failing to mitigate potential selenium issues could be a violation of NEPA. The proposed Element is not a project under the jurisdiction of NEPA and, therefore, cannot violate that Federal Act. The Element is a project under CEQA and for that reason this PEIR has been prepared. It is the opinion of the PEIR preparers that the uncertainties related to available scientific research on the fate of selenium in cattle excreta make determination of the significance of this impact impossible at this time. As allowed for under Section 15145 of the CEQA Guidelines, this particular impact is too speculative for evaluation. Mitigation is not required in this circumstance.

The commentor's view that mitigation should require "extensive environmental monitoring for selenium" and "should probably include the funding of substantive primary scientific research" is noted for the record. Kings County is not responsible for the control of dietary supplements allowed by Federal law and is not responsible for funding research required for the development of Federal regulations. The Food and Drug Administration is responsible for setting allowable selenium supplements in livestock feed. Land grant colleges and universities, including the University of California, are conducting ongoing research on selenium and its use as an essential nutrient.

### **Response to Comment 25-22**

The commentor is referred to Response to Comment 25-18.

### **Response to Comment 25-23**

The commentor's opinion that dairy development under the Element could result in the take of federally listed species is noted for the record. However, the Element presents safeguards that prevent a taking of federally listed species by a dairy approved under the SPR process. **Policy DE 3.3a** requires that all dairy applications present a biological survey conducted in compliance with U.S. Fish and Wildlife Service (USFWS) guidelines. If the survey indicates that consultation with USFWS is required, the application would not be approved until consultation is performed and documented as complete. The policy has been amended to clarify that, if the required surveys indicate impacts on wildlife or wetlands, the application would be reviewed under the Conditional Use Permit process. The Conditional Use Permit process would require further site-specific environmental review and potential permitting by USFWS.