



# COUNTY OF KINGS BOARD OF SUPERVISORS

GOVERNMENT CENTER HANFORD, CALIFORNIA 93230 (559) 582-3211 EXT2362  
Catherine Venturella, Clerk of the Board of Supervisors

## AGENDA ITEM

July 30, 2002

Tape: 02-016 Reading: 2574

**SUBMITTED BY:** Planning Department – Bill Zumwalt

**SUBJECT:** CERTIFICATION OF THE PROGRAM EIR AND ADOPTION OF THE  
DAIRY ELEMENT OF THE KINGS COUNTY GENERAL PLAN

### **SUMMARY:**

#### **Overview:**

The action recommended is the final action required in the General Plan process to adopt the *Dairy Element* as an optional element of the *Kings County General Plan*. The Board held its public hearing on this project on June 18, 2002, at which time they received the Planning Commission recommendation and testimony from twelve people. Following that the Board took the matter under advisement, appointed a two-member sub-committee to review the Dairy Element and report back with a recommendation. On July 23, 2002, the full Board reviewed the sub-committee's report and recommendation and directed staff to return on July 30, 2002, with the required documents to adopt the Dairy Element.

#### **Recommendation:**

Adopt the attached "Findings of Facts, Conclusions of Law, and Decision," Statement of Overriding Considerations, and Resolution which will certify the Final Program EIR as adequate and adopt the Dairy Element of the Kings County General Plan.

### **BACKGROUND:**

This action will formally certify the Program EIR as adequate under CEQA and adopt the Dairy Element as an optional element of the Kings County General Plan and make all of the required findings for this project. This action culminates a three year process to develop, review, and adopt the Dairy Element.

Additional information that the Board used to support its findings and conclusions are attached. They are:

- 1) Property Tax Revenue Estimate at Buildout of Dairy Element Capacity
- 2) Monthly Labor Force Data for Counties – June 2002
- 3) Federal Register, Wednesday, May 10, 2000, pages 30222 to 30227, Proposed Hydrogeologic Sensitivity Assessment Rules

**BOARD ACTION:**

APPROVED AS RECOMMENDED.  OTHER:

**ROLL CALL: TAYLOR, OLIVEIRA, NEVES, RACHFORD, BARBA - AYE**

[Reference: See Resolution No. 02-088, which by reference hereto, is made part of these minutes.]

I hereby certify that the above order was passed  
and adopted on 07/30/2002.

CATHERINE VENTURELLA, Clerk of the Board

By \_\_\_\_\_ Deputy

**BEFORE THE BOARD OF SUPERVISORS  
OF THE COUNTY OF KINGS, STATE OF CALIFORNIA**

**IN THE MATTER OF ADOPTING THE DAIRY)  
ELEMENT OF THE KINGS COUNTY )  
GENERAL PLAN )**

**Re: Resolution No. 02-088  
Dairy Element of the Kings County  
General Plan, Amendment #12**

*WHEREAS*, the California Government Code, Section 65300, requires that the planning agency of each county or city prepare, and the legislative body adopt, a comprehensive, long-term general plan for the physical development of the county; and

*WHEREAS*, the California Government Code, Section 65303 allows for the adoption of optional elements to address other subjects which, in the judgment of the legislative body, relate to physical development of the county; and

*WHEREAS*, in 1999, the Kings County Board of Supervisors determined that a *Dairy Element* as an optional element of the *Kings County General Plan*, which contains goals, objectives, policies, and programs for the development and expansion of the dairy industry in Kings County, was necessary to accomplish two equally important goals. One is to ensure that the dairy industry of Kings County continues to grow and contribute to the economic health of the County. The other is to ensure that the standards established in the *Dairy Element* protect public health and safety and the environment; and

*WHEREAS*, after three years of development, review, public hearings, and deliberation by the County's staff and consultants, the Kings County Environmental Review Committee, and the Kings County Planning Commission the Dairy Element and Final Program Environmental Impact Report were presented to the Board for their review, consideration and adoption; and

*WHEREAS*, on August 17, 1995, the California Regional Water Quality Control Board, Central Valley Region, adopted the current Water Quality Control Plan for the Tulare Lake Basin. Such plans are required by the state *Porter-Cologne Water Quality Control Act* and federal *Clean Water Act*. Under *CEQA Guidelines section 15064.7*, a County may adopt thresholds of significance to determine the significance of environmental effects. Therefore, dairy projects that 1) comply with the Basin Plan and 2) comply with the provisions in the Element allowing approval of a site plan review (SPR), do not create cumulatively significant environmental impacts on water quality; and

*WHEREAS*, on June 18, 2002, this Board held a duly noticed public hearing to accept the recommendations of the Environmental Review Committee and Planning Commission, and take testimony from interested members of the public or other public agencies concerning the Dairy Element and Final Program Environmental Impact Report. At the end of the hearing the Chairman closed the hearing and took the matter under advisement; and

*WHEREAS*, on June 25, 2002, the Board began its deliberations on the matter, and appointed a two-member sub-committee to review the Dairy Element in detail in light of the testimony received during the public hearing and all other information included in the development and review of the project; and

*WHEREAS*, on July 23, 2002, this Board received the report and recommendation from the sub-committee and after deliberation directed staff to return on July 31, 2002, with the required documentation to adopt the Dairy Element as recommended by the sub-committee; and

*WHEREAS*, the Dairy Element includes a recommendation to amend the Land Use Element of the Kings County General Plan (see Appendix K) to provide consistency between the Dairy Element and other elements of the General Plan. The Dairy Element also uses information in the other elements in its evaluation of the new policies, and makes recommended changes where necessary to ensure internal consistency throughout the General Plan. The *Dairy Element* supports, and is supported by, policies in the other elements of the General Plan.

*NOW, THEREFORE*, the Kings County Board of Supervisors:

1. Adopts the Findings of Fact and Statement of Overriding Consideration as shown in Exhibit A;
2. Certifies that the Final Program Environmental Impact Report for the project has been completed in compliance with CEQA;
3. Certifies that the Final Program Environmental Impact Report has been presented to the Board, which has reviewed and considered the information and analysis contained therein, as well as information contained in the record of the proceedings;
4. Certifies that the Final Program Environmental Impact Report for the project reflects the independent judgment of the Board;
5. Adopts compliance with the water quality objectives of the California Regional Water Quality Control Board, Central Valley Region, Water Quality Control Plan for the Tulare Lake Basin, as the threshold of significance for impacts to water quality from implementation of the Dairy Element; and
6. Adopts the Mitigation Monitoring Plan as shown in Exhibit B;
7. Adopts the Dairy Element as an optional element of the Kings County General Plan, included herein by reference; and
8. Amends the Land Use Element of the Kings County General Plan by adding Goal 9A and its associated objective and policy, and changing Land Use Programs 2 and 11, as shown in Appendix K of the Dairy Element.

The foregoing Resolution was adopted on a motion by Supervisor Taylor and seconded by Supervisor Oliveira, at a regular meeting held on July 30, 2002, by the following vote:

AYES:	SUPERVISORS TAYLOR, OLIVEIRA, NEVES, RACHFORD, BARBA
NOES:	NONE
ABSTAIN:	NONE
ABSENT:	NONE

/s/ Tony Barba  
Tony Barba, Chairman of the Board of Supervisors  
County of Kings, State of California

WITNESS, my hand this 30<sup>th</sup> day of July, 2002.

/s/ Catherine Venturella  
Catherine Venturella, Clerk of the Board of Supervisors

Attachments

- Exhibit A – Findings of Fact and Statement of Overriding Consideration
- Exhibit B – Mitigation Monitoring Plan

**Property Tax Revenue Estimate at Buildout of Dairy Element Capacity**

	Current Value (Econ. Study (Low))	Current Value (Econ. Study (High))	Increase At Buildout	Total at Buildout (Low)	Total at Buildout (High)
Dairy Facility Value per cow	\$1,875	\$2,775	\$3,500	\$3,500	\$3,500
Number of cows	125,000	125,000	257,000	382,000	382,000
Estimated assessed value	\$234,375,000	\$346,875,000	\$899,500,000	\$1,133,875,000	\$1,246,375,000
Property Tax Rate (1%)	\$2,343,750	\$3,468,750	\$8,995,000	\$11,398,750	\$12,463,750
General Fund share (16.2% of total property tax)	\$379,688	\$561,938	\$1,457,190	\$1,836,878	\$2,019,128
Fire Fund share (6.4% of total property tax)	\$150,000	\$222,000	\$575,680	\$725,680	\$725,680
Library Fund share (1.9% of total property tax)	\$44,531	\$65,906	\$170,905	\$215,436	\$215,436
County Share of Property Tax	\$574,219	\$849,844	\$2,203,775	\$2,777,994	\$2,960,244

ATTACHMENT NO. 2

July 12, 2002

MONTHLY LABOR FORCE DATA FOR COUNTIES  
 JUNE 2002 (Preliminary); 2001 BENCHMARK  
 NOT SEASONALLY ADJUSTED

COUNTY	RANK	LABOR FORCE	EMPLOYMENT	UNEMPLOYMENT	RATE
STATE TOTAL		17,566,000	16,435,900	1,130,100	6.4%
<b>KINGS</b>	<b>57</b>	<b>45,200</b>	<b>38,500</b>	<b>6,700</b>	<b>14.8%</b>

NOTE: Unemployment rates are calculated from unrounded data.

NOTE: Labor force data for years prior to 1990 are not comparable with data for 1990 and later years due to the introduction of the 1990 Census population figures. These data do not yet incorporate 2000 Census population figures.

Source: State of California, Employment Development Department,  
 Labor Market Information Division, (916) 262-2162.



# Federal Register

---

Wednesday,  
May 10, 2000

---

Part II

## Environmental Protection Agency

---

40 CFR Parts 141 and 142  
National Primary Drinking Water  
Regulations: Ground Water Rule;  
Proposed Rules

been corrected. EPA notes that follow-up in this context only applies to significant deficiencies.

#### d. Public Involvement

EPA requests comment on including public involvement and/or meetings for certain systems to discuss the results of sanitary surveys. Congress wrote requirements for extensive public information and involvement in programs and decisions affecting drinking water safety throughout the 1996 amendments to SDWA. For example, in addition to the new requirement for CWSs to produce and distribute annually a Consumer Confidence Report, the public notice requirements for PWSs regarding violations of a national drinking water standard were made more effective, and States were required to "make readily available to the public" an annual report to the Administrator on the statewide record of PWS violations, see (SDWA 1414(c)(1)-(3)). Each State's triennial report to the Governor on the effectiveness of and progress under the capacity development strategy must also be available to the public. (See SDWA section 1420(c)(3)). EPA must make the information from the occurrence database "available to the public in readily accessible form." (See SDWA section 1445(g)(5)). The public must be provided with notice and an opportunity to comment on the annual priority list of projects eligible for State Revolving Fund (SRF) assistance that States will publish as a part of their SRF intended use plans (See SDWA section 1452(b)(3)(B)). States "shall make the results of the source water assessments \* \* \* available to the public." (See SDWA section 1453(a)(7)). And, under several specific provisions of the SDWA as well as the Administrative Procedure Act, EPA generally must publish and make regulations, and a number of guidance and information documents, available for public notice and comment.

These requirements, and others like them, are integral to both the philosophy and operation of the amended SDWA. They reflect Congress' view that public confidence in drinking water safety and informed support for any needed improvements must rest on full disclosure of all significant information about water system conditions and quality, from source to tap.

The 1996 SDWA Amendments, and EPA's implementation of them, consistently provide for such disclosure and involvement by means that are informative, timely, understandable, and practicable for each size group of

PWSs subject to them. EPA believes that the principles of public information and involvement must apply with equal validity to the GWR, and is considering including in the final rule provisions to apply these principles, for disclosure and involvement. EPA believes that the following approach meets both tests and principles, but solicits comment on alternative means of doing so.

EPA requests comment on what approaches might be practicable, not burdensome and workable to involve the public in working with their system to address the results of their system's sanitary survey. Specifically, EPA requests comment on requiring ground water CWSs to notify their consumers, as part of the next billing cycle, of the completion of any sanitary survey, and any significant deficiency(s) and corrective action(s) identified. The system would also have to make information concerning the sanitary survey available to the public upon request. Alternatively, the system might be required to notify customers of the availability of the survey only, and provide copies on request, or include information about the survey in the annual Consumer Confidence Report (CCR). EPA requests comment on whether this approach should be extended to transient and nontransient NCWSs as well. EPA also requests comment on what approaches might be practicable, not burdensome and workable to involve the public in working with their system to address the results of their system's sanitary survey.

#### B. Hydrogeologic Sensitivity Assessment

##### 1. Overview and Purpose

Occurrence data collected at the source from public ground water systems suggest that a small percentage of all ground water systems are fecally contaminated. Because of the large number of ground water systems (156,000), the GWR carefully targets the high priority systems and has minimal regulatory burden for the remaining low priority systems. The GWR screens all systems for priority and only requires corrective action for fecally contaminated systems and systems with significant deficiencies. Thus, the challenge of the hydrogeologic sensitivity assessment is to identify ground water wells sensitive to fecal contamination. The assessment supplements the sanitary survey by evaluating the risk factors associated with the hydrogeologic setting of the system. EPA believes requiring hydrogeologic sensitivity analysis for all non-disinfecting ground water systems

will reduce risk of waterborne disease by identifying systems with incomplete natural attenuation of fecal contamination. EPA bases the following requirements on: CDC outbreak case studies, USGS studies of ground water flow, State vulnerability maps, and US National Research Council reports on predicting ground water vulnerability.

For the purposes of this rulemaking, EPA intends the term "well" to include any method or device that conveys ground water to the ground water system. The term "well" include springs, springboxes, vertical and horizontal wells and infiltration galleries so long as they meet the general applicability of the GWR (see section 141.400). The GWR does not apply to PWSs that are designated ground water under the direct influence of surface water; such systems are subject to the SWTR and IESWTR. EPA requests comment on this definition of "well."

The hydrogeologic sensitivity assessment is a simple, low burden, cost-effective approach that will allow States to screen for high priority systems. Systems that are situated in certain hydrogeologic settings are more likely to become contaminated. EPA believes that a well obtaining water from a karst, fractured bedrock or gravel hydrogeologic setting is sensitive to fecal contamination unless the well is protected by a hydrogeologic barrier. A State may add additional sensitive hydrogeologic settings (e.g., volcanic aquifers) if it believes that it is necessary to do so to protect public health. A hydrogeologic barrier is defined as the physical, biological and chemical factors, singularly or in combination, that prevent the movement of viable pathogens from a contaminant source to a public supply well. In this proposal, a confining layer is one example of a hydrogeologic barrier. The strategy is for a State to consider hydrogeologic sensitivity first. If ground water systems not treating to 4-log inactivation of viruses are located in sensitive hydrogeologic settings, then the strategy allows the State to consider the presence of any existing hydrogeologic barriers that act to protect public health. If a hydrogeologic barrier is present, then the State can nullify the determination that a system is located in a sensitive hydrogeologic setting. If no suitable hydrogeologic barrier exists, then the GWR requires the system to conduct monthly fecal indicator source water monitoring. Finally, for those systems where monitoring results are positive for the presence of fecal indicators, under the proposed GWR, States may require systems to eliminate

the source of contamination, correct the significant deficiency, provide an alternate source water, or provide a treatment which reliably achieves at least 99.99 percent (4-log) inactivation or removal of viruses before or at the first customer. GWSs which provide 4-log inactivation or removal of viruses will be required to conduct compliance monitoring to demonstrate treatment effectiveness.

The States have experience implementing a wide variety of methods suitable for identifying hydrogeologically sensitive systems. Also, the States may collect hydrogeologic information through their SWAPP (see section I.B.) that is useful for the hydrogeologic sensitivity assessments under the GWR. EPA believes that it would be beneficial if the States coordinate their SWAPP analysis with the GWR. By using the information generated in the SWAPP for the GWR hydrogeologic sensitivity assessment, States can effectively reduce the burden associated with this requirement.

EPA-approved vulnerability assessments conducted for the purpose of granting waivers under the Phase II and Phase V Rules may also serve as sources of hydrogeologic information useful to the State in assessing the hydrogeologic sensitivity of its GWSs under the GWR. Under the Phase II (56 FR 30268, July 1, 1991d)(US EPA, 1991) and Phase V (57 FR 31821, July 17, 1992)(US EPA, 1992b) Rules, monitoring waivers may be granted to individual systems for specific regulated chemicals (e.g., PCBs and cyanide). Monitoring frequencies may be reduced or eliminated by the State if the system obtains a waiver based on previous sampling results and/or an assessment of the system's vulnerability to each Phase II and V contaminant. This evaluation must include the sampling results of neighboring systems, the environmental persistence and transport of the contaminant(s) under review, how well the source is protected by geology and well design, Wellhead Protection Assessments, and proximity of potential contamination sites and activities.

## 2. Hydrogeologic Sensitivity

Sensitive hydrogeologic settings occur in aquifer types that are characterized by large interconnected openings (void space) and, therefore, may transmit ground water at rapid velocities with virtually no removal of pathogens. Sensitive aquifers may be present at or near the ground surface or they may be covered by overlying aquifers or soils. An aquifer is sensitive, independent of

its depth or the nature of the overlying material, because average water velocities within that aquifer are rapid. This allows microbial contaminants to be transported long distances from their source at or near the surface and especially in the absence of a hydrogeologic barrier. In the following paragraphs, each sensitive aquifer type is briefly characterized. It is often difficult to determine the actual contaminant removal capabilities of an aquifer and the ground water velocities within an aquifer. Consequently, the aquifer rock type can be a surrogate measure in the hydrogeologic sensitivity assessment. All soil and rocks have void space, but aquifers have the largest interconnected void space. The voids are filled with water that is tapped by a well. Without these interconnections, the water could not flow to a well. In those aquifers with the largest interconnected void space, ground water velocities can be comparable to the velocity of a river, and the rate of travel can be measured in kilometers per day (US EPA, 1997b). Compared to velocities in fine-grained granular aquifers (aquifers that are not considered sensitive under the GWR), ground water velocities in fractured media are large (Freeze and Cherry, 1979). Sensitive aquifers allow fecal contaminants to travel rapidly to a well, with little loss in number due to inactivation or removal.

In the GWR, three aquifer types are identified as sensitive: (1) Karst aquifers, (2) fractured bedrock aquifers, and (3) gravel aquifers. Each aquifer type is characterized by the differing nature and origin of the interconnected void space. These distinctions are important to hydrogeologists identifying these aquifer types. To meet the requirements of the hydrogeologic sensitivity assessment of the GWR, it is sufficient for States to identify the aquifer type supplying a system. Karst, fractured bedrock and gravel aquifer types are at high risk to fecal contamination by virtue of their capability to rapidly transmit fecal contamination long distances over short time periods.

Several means can be used to evaluate wells to determine if they are located in one of the three sensitive hydrogeologic settings proposed under the GWR. For example, hydrogeologic data are available from published and unpublished materials such as maps, reports, and well logs. The United States Geologic Service (USGS), U.S. Department of Agriculture's Natural Resource Conservation Service, USGS Earth Resources Observation System Data Center, the EPA Source Water

Assessment and Protection Program and Wellhead Protection Program, State geological surveys, and universities have substantial amounts of regional and site-specific information. The USGS has published a national karst map (USGS, 1984) on which States can locate karst settings. Karst and other aquifers may also be identified on finer scale maps published by States or counties. For example, the State of Kentucky contains substantial karst terrain, documented in complete geologic maps at the scale of one inch: 2000 feet (7.5 minute quadrangles).

States can base assessments on available information about the age and character of the regional geology, regional maps and rock outcrop locations. For example, in a karst setting, the State may have some additional information such as: (1) Observations of typical karst features such as sinkholes and disappearing streams; (2) well driller logs which noted the presence of limestone or crystalline calcite (a mineral that grows into openings in rock) or a drop in the drill string as it penetrated a karst opening; or (3) geologic reports (or unpublished geological observations) which identify the presence of limestone in rock outcrops in the vicinity of the well.

### (a) Karst Aquifers

Karst aquifers are aquifers formed in soluble materials (limestone, dolomite, marble and bedded gypsum) that have openings at least as large as a few millimeters in radius (EPA 1997b). Over geologic time periods, infiltrating precipitation (especially acid rain) moving through the aquifer has enlarged, by dissolution, the small openings that existed when the rock was formed. In mature karst terrain, characterized by relatively pure limestone located in regions with high precipitation, caves or caverns are formed in the subsurface, often large enough for human passage. Ground water has the potential to flow rapidly through karst because the void spaces are large and have a high degree of interconnection. In addition to the openings created by solution removal, karst aquifers, like all consolidated geologic formations, also contain fractures that transmit ground water. The size of these fractures may be small, but the fractures may also be more numerous than solution-enhanced openings. The fractures may or may not have a high degree of interconnection, and the degree of interconnection is a primary factor that controls the velocity of the ground water.



Quinlan (1989) suggests that about 20 percent of the U.S. is underlain by limestone or dolomite which may be karst aquifers. East of the Mississippi River, almost forty percent of the U.S. is underlain by limestone, dolomite or marble that may be karst aquifers (Quinlan, 1989). Karst areas are often identified by the formation of sinkholes at the ground surface. A sinkhole forms when the roof of a cave collapses and the material that was overlying the cave is dissolved or otherwise carried away by streams flowing through the cave. Sinkholes may also form or become enlarged as the direct result of vertical ground water flow dissolving the rock material to form a vertical passageway. Sinkholes represent direct pathways for fecal contamination to enter the aquifer from the surface. The surface topography may also be characterized by dry stream valleys in regions of high rainfall, by streams that flow on the ground surface but suddenly sink below ground to flow within a cave and by large springs where underground streams return to the surface. The degree of karst development in Missouri has been defined by Davis and Witt (1998) as primary and secondary karst: primary containing more than ten sinkholes per 100 square miles and secondary karst containing between one and ten sinkholes per 100 square miles. Other features suitable for identifying karst aquifers are described in EPA (1997b).

The most direct method for ground water velocity determinations consists of introducing a tracer substance at one point in the ground water flow path and observing its arrival at other points in the path, usually at monitoring wells (Freeze and Cherry, 1979). Using tracer studies, ground water velocities in karst aquifers have been measured as high as 0.5 kilometers (km) per hour (US EPA, 1997b). In Florida, ground water velocities surrounding a well have been measured at several hundred meters (m) per hour (US EPA, 1997b). At Mammoth Cave, Kentucky, ground water velocities have been measured at more than 300 m per hour (US EPA, 1997b). In a confined karst aquifer in Germany, ground water traveled 200 m in less than 4 days (Orth *et al.*, 1997). In the Edwards Aquifer, Texas, Slade *et al.*, (1986) reported that dye traveled 200 feet in ten minutes. The water level in one well (582 feet deep with a water table 240 feet deep) began rising within one hour after a rainfall (Slade *et al.*, 1986). These data suggest that ground water flows extremely rapidly through karst aquifers. Because ground water flows rapidly through karst aquifers, these aquifers are considered to be

hydrogeologically sensitive aquifers under the GWR.

#### (b) Fractured Bedrock

Bouchier (1998) characterizes a fractured bedrock aquifer as an aquifer which has fractures that provide the dominant flow-path. Although all rock types have fractures, the rock types most susceptible to fracturing are igneous and metamorphic rock types (US EPA, 1991c).

Freeze and Cherry (1979) report void space as high as 10 percent of total volume in igneous and metamorphic rock. These rock types readily become fractured in the shallow subsurface as a result of shifts in the Earth's crust. Most fractures are smaller than one millimeter (mm) in width but each fracture's capability to transmit ground water varies significantly with the width of the fracture. A one mm fracture will transmit 1,000 times more water than a 0.1 mm fracture, provided that other factors are constant (e.g., hydraulic gradient) (Freeze and Cherry, 1979). Data presented in Freeze and Cherry (1979) suggest that the first 200 feet beneath the ground surface produces the highest water yields to wells. These data suggest that the fractures are both more numerous and more interconnected in the first 200 feet interval. The rate of ground water travel in fractured rock can be estimated through the results of tracer tests. Malard *et al.*, (1994) report that dye traveled 43 m in a fractured aquifer in two hours. Becker *et al.*, (1998) report that water traveled 36 m in about 30 minutes. Therefore, ground water may travel as quickly as several hundreds of meters per day in fractured bedrock, comparable to travel times in karst aquifers.

Aquifers that are comprised of igneous or metamorphic rock are often fractured bedrock aquifers, and their size is typically larger than a few tens or hundreds of square miles in area. EPA (1991c) has compiled a map showing the distribution of fractured bedrock aquifers in the U.S. Because ground water flows rapidly through fractured bedrock aquifers, these aquifers are considered to be hydrogeologically sensitive aquifers under the GWR.

#### (c) Gravel Hydrogeology

Gravel aquifers are deposits of unconsolidated gravel, cobbles and boulders (material larger in size than pebbles). Due to the large grain sizes of gravel aquifers, ground water travels rapidly within these aquifers with little to no removal or filtration of contaminants from the ground water. Such gravel aquifers are typically

produced by catastrophic floods, physical weathering by glaciers, flash-floods at the periphery of mountainous terrain or at fault-basin boundaries. For example, glacial flooding has produced the Spokane-Rathdrum Prairie aquifer which extends from Spokane, Washington to Coeur d'Alene, Idaho. Another gravel aquifer is associated with glacial flooding along the Umatilla River in Milton-Freewater, Oregon. The boulder zone in the Jacobs Sandstone and Baraboo Quartzite near Baraboo, Wisconsin may represent another example. Typically, these aquifers are small.

Gravel aquifers are generally not alluvial aquifers. Alluvial aquifers, associated with typical river processes, normally have high proportions of sand mixed with the gravel. Sand or finer materials provide a higher probability of microorganism removal by the aquifer particles (Freeze and Cherry, 1979), and, therefore, greater public health protection. Because ground water flows rapidly through gravel aquifers, these aquifers are considered to be hydrogeologically sensitive aquifers under the GWR.

### 3. Hydrogeologic Barrier

The second part of the hydrogeologic sensitivity assessment is determining the presence of a hydrogeologic barrier. Under the GWR, the States perform an initial screen for hydrogeologic sensitivity by determining whether a PWS utilizes a fractured bedrock, karst or gravel aquifer. States would then examine systems located in these sensitive aquifers and determine whether a hydrogeologic barrier is present. A hydrogeologic barrier consists of physical, chemical, and biological factors that, singularly or in combination, prevent the movement of viable pathogens from a contaminant source to a public water supply well. If the State determines that a hydrogeologic barrier is present, the hydrogeologic setting is no longer considered sensitive to fecal contamination. If no such barrier is present or if insufficient information is available to make such a determination, the system would be identified as a sensitive system.

It is difficult to describe a single, detailed methodology for identifying a hydrogeologic barrier that can be used on a national basis. Geological and geochemical conditions, climate, and land uses are highly variable throughout the United States. In its primacy application, each State seeking consideration of a proposed hydrogeologic barrier under the rule may identify an approach for

determining the presence of a hydrogeologic barrier that addresses its own unique set of these variables (e.g., geological and geochemical conditions, climate, and land uses). In determining the presence of a hydrogeologic barrier, the State should evaluate specific characteristics of the hydrogeologic setting, discussed in more detail in the following paragraphs.

Examples of characteristics to be considered in determining the presence of a hydrogeologic barrier include, but are not limited to: (1) Subsurface vertical and horizontal ground water travel times or distances sufficiently large so that pathogens become inactivated as they travel from a source to a public water supply well, or (2) unsaturated geological materials sufficiently thick so that infiltrating precipitation mixed with fecal contaminants is effectively filtered during downward flow to the water table.

A confining layer is one type of hydrogeologic barrier EPA has identified which can result in sufficient protection in many settings. A confining layer may protect sensitive aquifers from fecal contamination. It is defined as a layer of material that is not very permeable to ground water flow which overlies an aquifer and acts to prevent water movement into the aquifer (US EPA, 1991b). Confined aquifers are bounded by confining layers and, therefore, generally occur at depth, separated from the water table aquifer at the surface. Confining layers are typically identified by the high water pressures in the underlying aquifer. Where present, a confining layer will separate an aquifer of high pressure from an overlying aquifer of lower pressure. The high water pressure in a confined aquifer can force water to flow naturally (without pumping) to heights greater than the ground surface, as in an artesian well. The confining layer is comprised of fine-grained materials such as clay particles, either as an unconsolidated layer or as a consolidated rock (e.g., shale). The small size of clay particles restricts the movement of water across or through the clay layer. Freeze and Cherry (1979) determined that water would take almost 10,000 years to pass through a 10 meters-thick unfractured layer of silt and clay deposited at the bottom of a glacial lake, such as the layers present in the northern part of the United States and the southern part of Canada. Therefore, the presence of a confining layer can provide public health protection.

However, confining layers may be breached and, therefore, unprotective.

Breaches may be natural (e.g., partly removed by erosion, sinkholes, faults, and fractures) or caused by humans (e.g., wells, mines, and boreholes). For example, an unplugged, abandoned well that breaches the confining layer is capable of providing a pathway through the confining layer, allowing water and contaminant infiltration into ground water. A thicker, unpunctured confining layer is considered most protective of the underlying aquifer. The State should consider such confined aquifer characteristics in determining the adequacy of a confining layer as a hydrogeologic barrier.

EPA proposes to use the presence of a confining layer that is protective of the aquifer to act as a hydrogeologic barrier and nullify a sensitivity determination. Where the confining layer integrity is compromised by breaches or if the aquifer appears at the surface near the water supply well, the State shall determine if the layer is performing adequately to protect the well, and, therefore, public health. EPA estimates approximately 15 percent of undisinfected ground water system sources will be determined to be hydrogeologically sensitive (see RIA section 6.2.1.1).

#### 4. Alternative Approaches to Hydrogeologic Sensitivity Assessment

EPA recognizes that the States have substantial experience characterizing hydrogeology. Most States require some hydrogeologic information for reasons such as to delineate wellhead protection areas, manage ground water extraction or assess ground water contamination. EPA recognizes that there is no single approach for identifying systems at risk from source water contamination. In the GWR, a selected subset of hydrogeologic settings (karst, fractured bedrock and gravel aquifers) is hydrogeologically sensitive. These hydrogeologic settings are identified through regional and local maps that show the general distribution of these settings. Other approaches considered by EPA to identify sensitive systems, but not selected, require additional data that may not be available to all States. In the following paragraphs, alternative methods to identify sensitive systems are discussed, including the data requirements for implementing each approach.

##### (a) Horizontal Ground Water Travel Time

Horizontal ground water travel time is the time that a water volume requires to travel through an aquifer from a fecal contamination source to a well. Viruses are longer lived than bacteria. Therefore, the ground water travel time should

allow sufficient virus die-off to take place such that the concentration of viruses in the well water would be at or below a 1 in 10,000 annual risk level (Regli *et al.*, 1991). However, travel time determinations are site specific, and some methods are expensive and/or difficult to perform. Therefore, EPA is not prescribing a particular travel time as a hydrogeologic sensitivity assessment criterion under the GWR. Travel time information may be useful for evaluating hydrogeologic barrier performance, and States may make use of this information where available.

Ground water travel time measurement methods include conservative tracer tests (e.g., dyes, stable isotopes), and travel time calculations. Conservative tracer tests may be used in all aquifer types including karst and fractured bedrock, as well as porous media aquifers. Tracer tests are expensive and difficult to perform. Ground water travel time calculations are only suitable for porous media aquifers. Because travel time methods are site-specific and their associated levels of uncertainty vary, EPA is not prescribing one travel time number or method to be used nationally.

In evaluating whether to require a specific ground water travel time, EPA recognized that there are three problems with requiring this method for all States. First, all ground water travel time calculations require measurement of the aquifer porosity (void space). Aquifer porosity data are rare and usually must be estimated based on the aquifer character (e.g., sand, or sand and gravel). Second, ground water travel time calculations require knowledge of the distance traveled and water velocity; however, calculating travel time is complicated because ground water does not travel in a straight line. The ground water's flow path can be nearly straight, as in the case of cavernous karst or it can be very convoluted as found in fractured media. Third, the ground water travel time value represents the average travel time of a large water volume moving toward a well. Some water arrives more quickly than the average. Because viruses and bacteria are small in size their charge effects become important. As a result, some fecal contaminants may take the fastest path from source to well and arrive faster than the average water volume. Fecal contaminants introduced into an aquifer may or may not be channeled into flow paths that move faster than the average water volume. Thus, a calculation of the average ground water travel time is not as protective as the calculation of the first arrival time of the

ground water volume. Because of the additional uncertainty in calculating first arrival times, average travel times must be augmented with a safety factor. Travel time data, where available, may assist States in evaluating hydrogeologic barriers for localities where all sources of fecal contamination have been identified.

#### (b) Setback Distance

A setback distance is the distance between a well and a potential contamination source. Many States already use setback distances around a well as exclusion zones in which septic tanks are prohibited.

EPA compiled data on State sanitary setback distances for PWS wells. EPA found that there is little uniformity among the States. State setback distances from septic tanks or drain fields for new PWS wells range from 50 to 500 feet. Moreover, some States have differing setback distances depending on the well type (e.g., CWS versus NTNCWS and TNCWS), the well pumping rate (e.g., greater or less than 50 gallons per minute) or the microbial contaminant source type (e.g., 50 feet from a septic tank and 10 feet from a sewer line).

EPA considered using a strategy that included the setback distance as an element in determining the potential fecal hazard to systems. In this strategy, wells located near contamination sources are at risk. EPA concluded that it would be difficult to implement this strategy on a national scale for two reasons. First, the differing State setback distance requirements suggests that there is substantial disagreement among the States about an appropriate setback distance. Second, any setback distance selected for use in the GWR must be sufficiently large so as to protect a well from fecal contamination. The complexity of the processes that govern virus and bacterial transport in ground water and the variability of ground water velocity in sensitive hydrogeologic settings make it difficult, if not impossible, for EPA to specify setback distances that will be protective of public health for all hydrogeologic settings. Thus, EPA concluded that there was insufficient scientific data to mandate national setback distances in the GWR.

#### (c) Well and Water Table Depth

Well depth is the vertical distance between the ground surface and the well intake interval or the bottom of the well. Water table depth is the vertical distance between the ground surface and the water table. Infiltrating ground water can require substantial time to

reach a deep well or a deep water table because precipitation infiltrating downward to the water table and vertical ground water flow within an aquifer are typically slow, and thus the long infiltration path to a deep well or water table provides opportunities for inactivation or removal of pathogens and is protective against source water contamination.

EPA considered identifying well depth and water table depth as alternative hydrogeologic sensitivity methods. Two key pieces of information would then be needed for each well: (1) Aquifer measurements that describe its capability to vertically transmit ground water and (2) measurements from the soil and other material overlying the water table that describe its capability to transmit infiltrating precipitation mixed with fecal contamination. EPA believes that few data are available to describe vertical ground water flow or infiltration on a national level. Thus, EPA concluded that there was insufficient data available to determine a well depth at which there exists a fecal contamination risk for all systems on a national scale.

### 5. Proposed Requirements

#### (a) Assessment Criteria

Today's proposal provides that States shall identify high priority systems through a hydrogeologic sensitivity assessment. In this assessment, wells located in karst, fractured bedrock or gravel hydrogeologic settings are determined to be sensitive. The information provided in previous paragraphs shows that the wells located in these hydrogeologic settings are potentially at risk of fecal contamination because ground water velocities are high and fecal contamination can travel long distances over a short time. A hydrogeologic barrier can protect a sensitive aquifer, and if present, can nullify the sensitivity determination. In its primary application, a State shall identify its approach to determine the presence of a hydrogeologic barrier. For example, a State may choose to consider a specific depth, hydraulic conductivity, and the presence of improperly abandoned wells. For systems with one or more wells that potentially produce ground water from multiple aquifers, the State shall identify its approach to making separate hydrogeologic sensitivity determinations and, if appropriate, hydrogeologic barrier identifications, for each well. For example, a State may choose to consider a specific depth and hydraulic conductivity, improperly abandoned wells. The system shall provide to the

State or EPA, at its request, any pertinent existing information that would allow the State to perform a hydrogeologic sensitivity analysis. The hydrogeologic sensitivity assessment does not necessarily require an on-site visit by the State, provided the State has adequate information (geologic surveys, etc.) to make the assessment without a site visit.

Discussions of proposed monitoring requirements for hydrogeologically sensitive systems are found in section III.D., and corrective action requirements are found in section III.E.

#### (b) Frequency of Assessment

The States, or their authorized agent, shall conduct one hydrogeologic sensitivity assessments for each GWS that does not provide treatment to 4-log inactivation or removal of viruses. States shall conduct the hydrogeologic sensitivity assessment for all existing CWSs no later than three years after publication of the final rule in the Federal Register and for all existing NCWSs no later than five years after publication of the final rule in the Federal Register. States shall complete the hydrogeologic sensitivity assessment prior to a new ground water system providing drinking water for public consumption. EPA requests comment on these time frames. Some stakeholders have indicated that an assessment for hydrogeologically sensitive areas (karst, gravel, fractured rock) of a State can be quickly performed at the State level. If such data can be quickly gathered and an assessment easily performed, EPA questions putting off the routine monitoring requirements and public health protection that it would bring for three or five years. EPA requests comment on requiring the State to perform the hydrogeologic sensitivity assessment within one year of the effective date of the final GWR.

#### (c) Reporting and Record Keeping Requirements

The State shall keep records of the supporting information and explanation of the technical basis for determinations of hydrogeologic sensitivity and of the presence of hydrogeologic barriers. The State shall keep a list of ground water systems which have had a sensitivity assessment completed during the previous year, a list of those systems which are sensitive, a list of those systems that are sensitive, but for which the State has determined a hydrogeologic barrier exists at the site sufficient for protecting public health, and a record of an annual evaluation of the State's program for conducting hydrogeologic sensitivity assessments.

## 6. Request for Comments

EPA requests comments on all the information presented earlier and the potential impacts on public health and the regulatory provisions of the GWR.

### a. Routine Monitoring Without State Assessment

EPA requests comment on requiring systems to perform routine monitoring if the State fails to conduct a hydrogeologic sensitivity assessment. Under this provision, if the State fails to conduct a hydrogeologic sensitivity assessment within the time frame specified by the GWR, the systems would conduct fecal indicator monitoring once per month for every month they serve water to the public (see section § 141.403(d), microbial analytical methods). The time frame for completing sensitivity assessments for all existing CWSs is no later than three years after the date of publication of the final rule in the *Federal Register*, and the time frame for all existing NCWSs is no later than five years after the date of publication of the final rule in the *Federal Register*. The systems could discontinue monitoring only after the State conducts a hydrogeologic sensitivity assessment and determines that the systems are not sensitive, or if the systems initiate and continue treatment to achieve 4-log inactivation or removal of viruses.

### b. Vulnerability Assessment

EPA requests comment on a detailed, on-site vulnerability investigation as an alternative to the Hydrogeologic Sensitivity Assessment. The alternative hydrogeologic investigation will assess the performance of all existing hydrogeologic barriers such as unsaturated zone thickness and composition (including the soil), the saturated zone thickness and composition above the well, intake interval, the frequency, duration and intensity of precipitation for all aquifer types, and will also require a detailed investigation of the well construction conditions by a certified well technician and a review of the well construction-related documentation from the sanitary survey and SWAPP assessment. The results of the detailed investigation must demonstrate that the existing hydrogeologic barriers, aquifer type and the well construction function to prevent the movement of viable pathogens from a contaminant source to a public water supply well. The demonstration may include ground water age dating, natural or artificial tracer test data, or ground water modeling results. See EPA 1998b for

more information on vulnerability assessments.

### c. Sandy Aquifers

EPA is proposing to require States to identify systems in karst, gravel and fractured rock aquifer settings as sensitive and these systems must perform routine source water monitoring. On March 13, 2000, the Drinking Water Committee of the Science Advisory Board (DWCSAB) reviewed this issue and made several recommendations to EPA concerning a draft of this proposal. EPA requests comment on two DWCSAB recommendations concerning the hydrogeologic sensitivity assessment. The committee recommended that all ground water sources be required to monitor for bacterial indicators and coliphage for at least one year—regardless of sensitivity determination. As an alternative approach, the committee recommended sand aquifers be included as sensitive settings. This recommendation was based on column studies of virus transport in soils that showed that viruses move rapidly through sandy soils and field studies of virus transport from septic tanks showing rapid movement into ground water from sandy coastal plains.

### C. Cross Connection Control

EPA is concerned about introduction of fecal contamination through distribution systems; however, EPA has not proposed cross connection control requirements in the GWR. EPA will work with the Microbial/DBP FACA to consider whether cross connection control should be required in future microbial regulations, particularly during the development of the Long Term 2 ESWTR, in the context of a broad range of issues related to distribution systems. EPA will also request input from the FACA on whether to require systems to maintain disinfection residual throughout the distribution system. EPA seeks comments or additional supporting data related to cross connection control or other distribution system issues. In particular to cross connections, the Agency requests public comment on: (1) Whether EPA should require States and/or systems to have a cross connection control program, (2) what specific criteria, if any, should be included in such a requirement, (3) how often a program should be evaluated, (4) and whether EPA should limit any requirement to only those connections identified as a cross connection by the public water system or the State. The Agency also requests comment on what other regulatory measures EPA should

consider to prevent contamination of drinking water in the distribution system.

### D. Source Water Monitoring

#### 1. Overview and Purpose

As previously stated, EPA recognizes that there are particular challenges associated with developing an effective regulatory approach for ground water systems. These include the large number of ground water systems that would be regulated, the fact that only a subset of these systems appear to have fecal contamination (although a larger number are likely to be sensitive), and that most ground water systems range from small to very small in terms of the population served. These factors combine to underscore the limitations of an across-the-board disinfection approach to regulation.

As part of the multiple-barrier approach, EPA proposes source water monitoring requirements that fulfill the need for a targeted risk-based regulatory strategy by identifying those systems with source water contamination and systems with high sensitivity to possible fecal contamination—specifically undisinfected systems located in hydrogeologically sensitive aquifers. EPA believes that the proposed requirements provide a meaningful opportunity to reduce public health risk for a substantial number of people served by ground water sources. This section provides detailed information on current monitoring requirements, monitoring data, indicators of fecal contamination, co-occurrence issues, and describes the proposed requirements.

EPA proposes the following source water monitoring requirements for systems that do not treat 4-log removal and/or inactivation of viruses: (1) A system must collect a source water sample within 24 hours of receiving notification of a total coliform-positive sample taken in compliance with the TCR, and test for the presence of *E. coli*, enterococci or coliphage; and (2) any system identified by the State as hydrogeologically sensitive through a sensitivity assessment (see § 141.403) must conduct routine monthly monitoring, during the months the system supplies water to the public, and analyze for *E. coli*, enterococci or coliphage. In either case, if any sample is fecal indicator-positive, the system would have to notify the State immediately and then the system must take corrective action.

Currently, all systems must comply with the TCR (see section I.B.1.) and the MCL for nitrates and nitrites. In

EXHIBIT A

**CEQA FINDINGS OF FACT**

**and**

**STATEMENT OF OVERRIDING  
CONSIDERATIONS**

**OF THE KINGS COUNTY BOARD OF SUPERVISORS**

**for the**

**DAIRY ELEMENT OF THE KINGS COUNTY GENERAL PLAN**

**ENVIRONMENTAL IMPACT REPORT**

**July 30, 2002**

**I.**  
**INTRODUCTION**

The Final Program Environmental Impact Report ("FPEIR") prepared for the DAIRY ELEMENT OF THE KINGS COUNTY GENERAL PLAN (the "Element" and/or "Project") addresses the potential environmental effects associated with implementation of the goals, policies, and objectives of the Element. These findings have been prepared to comply with requirements of the California Environmental Quality Act ("CEQA") (Pub. Resources Code, § 21000 *et seq.*) and the CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 *et seq.*). These findings refer to the Final PEIR ("FPEIR") where the material appears in that document. Otherwise, references are to the Draft PEIR ("DPEIR").

**II.**  
**DEFINITIONS**

"BMPs" means best management practices.

"Board of Supervisors" or "Board" refers to the Kings County Board of Supervisors.

"CAF" means Confined Animals Facilities.

"CARB" means California Air Resources Board.

"CDP" means California Department of Pesticide Regulations.

"CDFA" means California Department of Food and Agriculture.

"CDPWAP" means Comprehensive Dairy Process Water Application Plan.

"CEQA" means California Environmental Quality Act.

"cm/s" means centimeters per second.

"CO" means carbon monoxide.

"dB" means decibels.

"DDOZs" means Dairy Development Overlay Zones.

"DOGGR" means California Department of Conservation Division of Oil, Gas, and Geothermal Resources.

“DPEIR” means Draft Program Environmental Impact Report for the Dairy Element of the Kings County General Plan, dated May 7, 2001.

“EC” means electrical conductivity.

“EPA” means Environmental Protection Agency.

“FMMP” means Farmland Mapping and Monitoring Program.

“FEMA” means Federal Emergency Management Agency.

“FDECP” means Fugitive Dust Emissions Control Plan.

“FPEIR” means Final Program Environmental Impact Report for the Dairy Element of the Kings County General Plan, dated March 11, 2002.

“HSA” means Hydrogeologic Sensitivity Assessment.

“KCACO” means Kings County Agricultural Commissioner’s Office.

“KCEHS” means Kings County Environmental Health Services.

“KMAD” means Kings Mosquito Abatement District.

“L<sub>dn</sub>” means day/night noise level.

“LOS” means level of service.

“MMP” means Mitigation Monitoring Plan.

“MNMP” means Manure Nutrient Management Plan.

“NOP” means Notice of Preparation.

“NO<sub>x</sub>” means nitrogen oxide.

“NPDES” means National Pollutant Discharge Elimination System.

“NRCS” means Natural Resource Conservation Service.

“NSOZs” means Nutrient Spreading Overlay Zones.

“OMP” means Odor Management Plan.

“OPR” means Governor’s Office of Planning and Research.

“PEIR” means Program Environmental Impact Report for the Dairy Element of the Kings County General Plan, including the DPEIR and the FPEIR.

“PM<sub>10</sub>” means particulate matter with a diameter of 10 microns or less.

“PM<sub>2.5</sub>” means particulate matter with a diameter of 2.5 microns or less.

“PVMP” means Pest and Vector Management Plan.

“ROG” means reactive organic gases.

“RWQCB” means Regional Water Quality Control Board.

“SJVUAPCD” means the San Joaquin Valley Unified Air Pollution Control District.

“SPR” means site plan review.

“SWPPP” means Storm Water Pollution Prevention Plan.

“TDS” means total dissolved solids.

“TIS” means Traffic Impact Study.

“VS” means volatile solids.

“WDRs” means Waste Discharge Requirements.

“WPPP” means Water Pollution Prevention Plan.

### **III. PROJECT DESCRIPTION**

#### Project Location

Kings County is located in the southern San Joaquin Valley. The County is comprised of 1,391 square miles (890,513 acres) of land, predominantly dedicated to agricultural production. The central and eastern portions of the County occupy the relatively flat valley floor; the southwestern portion is characterized by the low hills and intervening valleys of the Kettleman Hills and Coast Ranges. (FPEIR Vol. 1B, p. 3-1.)



### Project Objectives

The objectives of the Dairy Element are:

- To evaluate the overall ability/capacity of Kings County to host dairies from the standpoint of the environment;
- To provide standards, including mitigation of impacts and monitoring and reporting of the mitigation measures applicable to the establishment of new and expanded dairies in Kings County;
- To streamline the dairy approval process, facilitating the orderly and efficient expansion of the dairy-based economy of the County;
- To maintain the viability of valued existing dairy operations within the County;
- To ensure that dairies approved in Kings County are competitive in the dairy industry;
- To support the dairy quality assurance program.

(FPEIR Vol. 1B, pp. 3-11 to 3-12.)

### Discretionary Actions

In order to implement the Element, the Board of Supervisors must:

- Certify the Program Environmental Impact Report;
- Approve and adopt the Dairy Element of the Kings County General Plan; and
- Amend the Kings County Zoning Ordinance as noted in Appendix E to the Dairy Element to implement the policies in the Element.

(FPEIR Vol. 1B, pp. 3-12 to 3-13.)

## IV. **BACKGROUND**

### Project History

The Dairy Element of the Kings County General Plan has been developed by the Kings County Planning Agency as a comprehensive set of goals, objectives, policies and standards to guide development, expansion, and operation of milk cow (bovine) dairies within the County. 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 standards for the local dairy industry. (DPEIR, p. 1-1.)

Adoption of the proposed Element would revise the County's existing regulating structure for dairy operations. Currently, dairy operations and other concentrated animal feeding operations are designated in the Kings County Zoning Ordinance as conditional uses requiring environmental review, a public hearing, and Planning Commission approval. Implementing the Element will streamline the approval process by establishing comprehensive performance standards that would apply to all dairies in the County. Under the Element, new and expanded dairies that are in conformance with the provisions of the Element can be approved by the zoning administrator under the site plan review process (SPR). (DPEIR, p. 1-2.) If a dairy applicant cannot, or chooses not to, propose a dairy project that meets the specifications in the Element, the existing conditional use permit process remains available.

The formulation of the Dairy Element has taken place over the last two years. An initial Notice of Preparation (NOP) for the Project was prepared by the Kings County Planning Agency and distributed to local, regional, state, and federal agencies and other interested parties on November 17, 2000, for a 30-day period ending December 18, 2000. On December 21, 2000, the County released the Draft Program Environmental Impact Report for the Draft Dairy Element of the Kings County General Plan. Subsequent to the release of that document, the County elected to retract the document on February 6, 2001 to revise the Draft Dairy Element. Following revisions to the Element, a second NOP was distributed on April 12, 2001. (DPEIR, p. 1-3.) This Revised PEIR on the Revised Dairy Element represents the recirculation of the previously released PEIR. (DPEIR, p. 1-2.)

Following completion and release of the Revised Draft PEIR, a 45-day public review period began and was extended twice, for a total of 124 days. Written comments were submitted to the County during the extended public review period. Following receipt of all written and verbal comments on the Revised Draft PEIR during the public review period, responses to all the comments were prepared and incorporated with the comments into a Final PEIR. The Responses to Comments document also includes the Mitigation Monitoring Program for the Element. The Revised Draft PEIR and Responses to Comments document together comprise the Final PEIR for this project. (DPEIR, p. 1-3.) The Revised Draft PEIR and the Final PEIR were prepared by Baseline Environmental Consulting with Kevin O'Dea, CEG, acting as Project Manager and Rhodora Del Rosario providing supporting expertise on air quality issues. (See Attachments 1 and 2 to this document for Mr. O'Dea and Ms. Del Rosario's biographical information demonstrating that they are experts in the field.)

In developing the Dairy Element and the PEIR, the Kings County Planning Agency has requested and/or received input from the following agencies: Kings County Health Department, Division of Environmental Health Services; Kings County Agricultural Commissioner; Kings County Public

Works Department; California Department of Food and Agriculture; Kings County Mosquito Abatement District; San Joaquin Valley Unified Air Pollution Control District; Kings County/Tulare County Dairy Inspector (Tulare County Health Department); California Department of Water Resources, Division of Safety of Dams; and the California Department of Fish and Game, California Department of Conservation Division of Oil, Gas and Geothermal Resources; California Air Resources Board; California Department of Transportation; and the United States Fish and Wildlife Service. (FPEIR Vol. 1B, p. 3-13.)

The Kings County Environmental Review Committee made recommendations to the Kings County Planning Commission and Board of Supervisors regarding the adequacy of the PEIR. The Planning Commission considered the Environmental Review Committee's recommendation. The Planning Commission held public hearings, deliberated regarding the Element and the PEIR and then recommended certain changes to the Element prior to certification of the PEIR. The Board of Supervisors considered the Planning Commission recommendations, held public hearings and deliberated regarding the Element and the PEIR and has directed staff to make certain changes to the Element. The most important change from the Element circulated for public review with the FPEIR is that the Board determined that advanced manure treatment required by Policy DE 5.1c of the Element is not feasible and therefore should not be required. Other minor changes relate to: the effective date of the Element (Policy DE 2.2a), the separation of new and expanding existing dairies from residential uses (Policy DE 3.1b and Policy DE 3.1c), assessment of ability to accommodate nutrients in process water (Policy DE 3.1j), fire safety standards (Policy DE 3.6a), clay content under corrals (Policy DE 4.1aB.2.g), and which entity will regulate and monitor dairy development (Goal 6). None of these changes in the Project warrant recirculation of the FPEIR under CEQA Guidelines section 15088.5.

The Board's actions are final unless appealed to the courts. (DPEIR, p. 1-3.)

## V. RECORD OF PROCEEDINGS

For purposes of CEQA and these Findings, the Record of Proceedings for the Project consists of the following documents, at a minimum:

- The Notice of Preparation and all other public notices issued by the County in conjunction with the Project;
- The FPEIR for the Dairy Element of the Kings County General Plan;
- All comments submitted by agencies or members of the public during the 124-day public comment periods on the Revised Draft PEIR;
- All comments and correspondence submitted to the County with respect to the Project, in addition to timely comments on the Revised Draft PEIR;

- The Mitigation Monitoring and Reporting Plan for the Project;
- All findings and resolutions adopted by County decisionmakers in connection with the Project, and all documents cited or referred to therein;
- All reports, studies, memoranda, maps, staff reports, or other planning documents relating to the Project prepared by the County, consultants to the County, and responsible or trustee agencies with respect to the County's compliance with the requirements of CEQA and with respect to the County's actions on the Project;
- All documents submitted to the County by other public agencies or members of the public in connection with the Project, up through the close of the public hearing;
- Minutes and/or verbatim transcripts of all public meetings and public hearings held by the County in connection with the Project;
- Any documentary or other evidence submitted to the County at such public meetings and public hearings;
- Matters of common knowledge to the County, including, but not limited to federal, state, and local laws and regulations;
- Any documents expressly cited in these findings, in addition to those cited above; and
- Any other materials required to be in the record of proceedings by Public Resources Code section 21167.6, subdivision (e).

The custodian of the documents comprising the record of proceedings is William R. Zumwalt, Secretary of the Planning Commission, whose office is located at the Kings County Government Center, 1400 W. Lacey Blvd., Bldg. 6, Hanford, California, 93230.

The Board of Supervisors has relied on all of the documents listed above in reaching its decision on the Dairy Element of the Kings County General Plan, even if not every document was formally presented to the Board or County Staff as part of the County files generated in connection with the Project. Without exception, any documents set forth above not found in the Project files fall into one of two categories. Many of them reflect prior planning or legislative decisions with which the Board was aware in approving the Dairy Element of the Kings County General Plan. (See City of Santa Cruz v. Local Agency Formation Commission (1978) 76 Cal.App.3d 381, 391-392; Dominey v. Department of Personnel Administration (1988) 205 Cal.App.3d 729, 738, fn. 6.) Other documents influenced the expert advice provided to County Staff or consultants, who then provided advice to the Board. For that reason, such documents form part of the underlying

factual basis for the Board's decisions relating to the adoption of the Dairy Element of the Kings County General Plan. (See Pub. Resources Code, § 21167.6, subd. (e)(10); Browning-Ferris Industries v. City Council of City of San Jose (1986) 181 Cal.App.3d 852, 866; Stanislaus Audubon Society, Inc. v. County of Stanislaus (1995) 33 Cal.App.4th 144, 153, 155.)

## VI. FINDINGS REQUIRED UNDER CEQA

Public Resources Code section 21002 provides that "public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would *substantially lessen* the significant environmental effects of such projects[.]" (Emphasis added.) The procedures required by CEQA "are intended to assist public agencies in systematically identifying both the significant effects of Projects and the feasible alternatives or feasible mitigation measures which will *avoid* or *substantially lessen* such significant effects." (Emphasis added.) Section 21002 goes on to state that "in the event [that] specific economic, social, or other conditions make infeasible such project alternatives or such mitigation measures, individual projects may be approved in spite of one or more significant effects thereof."

The mandate and principles announced in Public Resources Code section 21002 are implemented, in part, through the requirement that agencies must adopt findings before approving projects for which EIRs are required. (See Pub. Resources Code, § 21081, subd. (a); CEQA Guidelines, § 15091, subd. (a).) For each significant environmental effect identified in an EIR for a proposed project, the approving agency must issue a written finding reaching one or more of three permissible conclusions. The first such finding is that "[c]hanges or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR." (CEQA Guidelines, § 15091, subd. (a)(1).) The second permissible finding is that "[s]uch changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency." (CEQA Guidelines, § 15091, subd. (a)(2).) The third potential conclusion is that "[s]pecific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR." (CEQA Guidelines, § 15091, subd. (a)(3).) Public Resources Code section 21061.1 defines "feasible" to mean "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors." CEQA Guidelines section 15364 adds another factor: "legal" considerations. (See also Citizens of Goleta Valley v. Board of Supervisors ("Goleta II") (1990) 52 Cal.3d 553, 565.)

The concept of "feasibility" also encompasses the question of whether a particular alternative or mitigation measure promotes the underlying goals and objectives of a project. (City of Del Mar v. City of San Diego (1982) 133 Cal.App.3d 410, 417.) "[F]easibility' under CEQA encompasses 'desirability' to the extent that desirability is based on a reasonable balancing of the relevant

economic, environmental, social, and technological factors.” (*Ibid.*; see also Sequoyah Hills Homeowners Assn. v. City of Oakland (1993) 23 Cal.App.4th 704, 715.)

The CEQA Guidelines do not define the difference between “avoiding” a significant environmental effect and merely “substantially lessening” such an effect. The County must therefore glean the meaning of these terms from the other contexts in which the terms are used. Public Resources Code section 21081, on which CEQA Guidelines section 15091 is based, uses the term “mitigate” rather than “substantially lessen.” The CEQA Guidelines therefore equate “mitigating” with “substantially lessening.” Such an understanding of the statutory term is consistent with the policies underlying CEQA, which include the policy that “public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would *substantially lessen* the significant environmental effects of such projects.” (Pub. Resources Code, § 21002, emphasis added.)

For purposes of these findings, the term “avoid” refers to the effectiveness of one or more mitigation measures to reduce an otherwise significant effect to a less than significant level. In contrast, the term “substantially lessen” refers to the effectiveness of such measure or measures to substantially reduce the severity of a significant effect, but not to reduce that effect to a less than significant level. These interpretations appear to be mandated by the holding in Laurel Hills Homeowners Association v. City Council (1978) 83 Cal.App.3d 515, 519-527, in which the Court of Appeal held that an agency had satisfied its obligation to substantially lessen or avoid significant effects by adopting numerous mitigation measures, not all of which rendered the significant impacts in question less than significant.

Although CEQA Guidelines section 15091 requires only that approving agencies specify that a particular significant effect is “avoid[ed] or substantially lessen[ed],” these findings, for purposes of clarity, in each case will specify whether the effect in question has been reduced to a less than significant level, or has simply been substantially lessened but remains significant.

Moreover, although section 15091, read literally, does not require findings to address environmental effects that an EIR identifies as merely “potentially significant,” these findings will nevertheless fully account for all such effects identified in the Final PEIR.

CEQA requires that the lead agency adopt mitigation measures or alternatives, where feasible, to substantially lessen or avoid significant environmental impacts that would otherwise occur. Project modification or alternatives are not required, however, where such changes are infeasible or where the responsibility for modifying the project lies with some other agency. (CEQA Guidelines, § 15091, subd. (a), (b).)

With respect to a project for which significant impacts are not avoided or substantially lessened either through the adoption of feasible mitigation measures or feasible environmentally superior alternative, a public agency, after adopting proper findings, may nevertheless approve the project if the agency first adopts a statement of overriding considerations setting forth the specific

reasons why the agency found that the project's "benefits" rendered "acceptable" its "unavoidable adverse environmental effects." (CEQA Guidelines, §§ 15093, 15043, subd. (b); see also Pub. Resources Code, § 21081, subd. (b).) The California Supreme Court has stated that, "[t]he wisdom of approving . . . any development project, a delicate task which requires a balancing of interests, is necessarily left to the sound discretion of the local officials and their constituents who are responsible for such decisions. The law as we interpret and apply it simply requires that those decisions be informed, and therefore balanced." (Goleta II, 52 Cal.3d 553, 576.)

These findings reflect the independent judgment of the Board of Supervisors and constitute its best efforts to set forth the rationales and support for its decision under the requirements of CEQA.

## VII. LEGAL EFFECTS OF FINDINGS

To the extent that these findings conclude that various proposed mitigation measures outlined in the Final EIR are feasible and have not been modified, superseded or withdrawn, the County hereby binds itself to implement these measures. These findings, in other words, are not merely informational, but rather constitute a binding set of obligations that will come into effect when the Board of Supervisors approves the Project.

The mitigation measures are referred to in the Mitigation Monitoring and Reporting Plan (MMP) adopted concurrently with these findings, and will be effectuated through the process of constructing and implementing the Project. For the purposes of this Project, the objectives, goals and policies in the Element serve as mitigation measures. Therefore, the MMP lists requirements in the Element as mitigation for the various environmental impacts associated with adoption and implementation of the Element.

## VIII. MITIGATION MONITORING PLAN

A Mitigation Monitoring Plan (MMP) has been prepared for the Project and has been adopted concurrently with these Findings. (See Pub. Resources Code, § 21081.6, subd. (a)(1).) The County will use the MMP to track compliance with Project mitigation measures.

## IX. SIGNIFICANT EFFECTS AND MITIGATION MEASURES

The Final PEIR identified several significant environmental effects (or "impacts") that adoption and implementation of the Dairy Element of the Kings County General Plan will cause. Most significant effects were avoided altogether because the proposed Project (the Element), as revised over the course of the adoption process, contains requirements that prevent the occurrence of significant effects in the first place. The requirements of the Element itself mitigate effects

identified in the Revised Draft PEIR and the FPEIR. Thus, the identification of additional mitigation beyond the requirements of the Element (the Project) was not, for the most part, necessary. Some significant impacts of implementation of the Element, however, cannot be avoided by the adoption of feasible mitigation measures or feasible alternatives; these effects are outweighed by overriding considerations set forth in Section XI below. This Section (IX) presents in greater detail the Board's findings with respect to the environmental effects of the Project.

## A. GEOLOGY, SOILS, AND SEISMICITY

### Standards of Significance

Unstable geologic environments can potentially result in significant damage to structures and/or cause injuries or death to persons exposed to those hazards. A potentially significant impact will result if the Project will result in or expose people or structures to any of the following:

- Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
- Strong seismic ground shaking;
- Seismic-related ground failure, including liquefaction;
- Landslides;
- Substantial soil erosion or the loss of topsoil;
- Geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- Expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;
- Soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

(FPEIR Vol. 1B, pp. 4.1-14 to 4.1-15.)

In addition to the analysis of unstable geologic conditions, the EIR also evaluated potential impacts of the Element on soils as an agricultural resource. Therefore, the following significance criteria were also considered:



- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to non-agricultural use;
- Conflict with existing zoning for agricultural use or a Williamson Act contract;
- Involve other changes in the existing environment that, due to their location or nature, could result in conversion of farmland to non-agricultural uses.

(FPEIR Vol. 1B, p. 4.1-15.)

**Impact 4.1-1:** Construction of embankments to contain dairy operations process water present the potential for erosion and slope failure and release of contained process water. (FPEIR Vol. 1B, p. 4.1-15.)

**Finding:** This is a less-than-significant impact.

**Explanation:**

Under existing conditions, the topography within the Dairy Development Overlay Zones (DDOZs) is primarily flat (with slopes less than one percent) and the potential for slope failure is negligible. The only exception is the slopes along existing irrigation canals and agricultural ditches. The potential for slope failure along the canals is minimized by the low height (generally less than ten feet) and maintenance activities under which the slopes are regraded periodically, providing uniform slope surfaces. Under the Project, manure separation pits and process water ponds at some potential dairy sites will be constructed above the existing ground surface by the emplacement of earthen embankments. Generally, the embankments will be constructed with available surface soils at the dairy site and will not require the importation of fill materials from off-site locations. (FPEIR Vol. 1B, p. 4.1-15.)

The properties of the shallow surface soils in portions of the County can present problems for appropriate embankment construction. The surface soils of the soil-mapping units within the DDOZs are predominantly loams and silty loams, some of which are alkali and have high salt content. These soils generally have low compressive strength that can present slope stability problems if not properly treated and compacted. These soils are also potentially subject to a phenomenon known as hydrocompressibility. (FPEIR Vol. 1B, p. 4.1-16.)

In addition, the soils have a high potential for erosion when exposed on a steep slope such as those proposed for the embankments. Although the potential for water erosion by runoff will be limited due to low precipitation amounts and slow runoff, the potential for erosion by wave action can result in minor slope failures along the interior margin of constructed embankments. (FPEIR Vol. 1B, p. 4.1-16.)

The site-specific potential for slope failures and erosion of the embankment slopes at new or expanded dairies is addressed in the Element. Policy DE 3.1a requires that soil characteristics, slope stability, and erodibility be considered in siting of new and expanded dairies. Policy DE 2.1f (Appendix J, Component 1a) requires that all applications for new dairies include a Geotechnical Report prepared by a licensed geotechnical engineer or professional civil engineer. Additionally, a post-construction report, certifying that lagoons and embankments have been constructed in conformance with design requirements, is required. (FPEIR VOL. 1B, p. 4.1-16.)

Under Policy DE 6.2b, the dairy operators are responsible for conducting an annual inspection of the interior and exterior slopes surrounding the manure separation pits and process water ponds following the rainy season of each year. The inspections are required to document the occurrence of any significant erosion (e.g., formation of rills or gullies longer than ten feet and/or deeper than one foot) or any significant slope failures (e.g., soil slips greater than 100 square feet in area). A report of the inspections, including recommendations and schedule for completing any necessary corrective action, must be made available to Code compliance personnel upon request. This policy ensures that long-term stability of the slopes is maintained. (FPEIR Vol. 1B, pp. 4.1-16 to 4.1-17.)

Compliance with the requirements of Policies DE 2.1f, 3.1a, and 6.1c will ensure that potential adverse geotechnical issues will be evaluated by a qualified professional. Conformance with professional recommendations will reduce the impact to a less-than-significant level. (FPEIR Vol. 1B, p. 4.1-17.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.1-17.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.1-2:           Disturbance of agricultural soils caused by construction of dairy facilities.** (FPEIR Vol. 1B, p. 4.1-17.)

**Finding:                This is a less-than-significant impact.**

**Explanation:**

The development of new or expanded dairies will require construction of dairy barn and associated structures and manure separation pits and process water pond. Construction of these improvements will likely require extensive grading to meet requirements for uniform and positive drainage in corrals and the excavation of ponds, or construction of pond embankments. The grading will presumably result in disturbance of the naturally developed soil horizons. Such disturbance can adversely affect the capability of these soils for agricultural crop production. (FPEIR Vol. 1B, p. 4.1-17.)

The Element will allow construction of dairy facilities within five distinct Dairy Development Overlay Zones. The Element estimates that, at buildout, approximately 42,693 acres of land will be required for dairy facilities. Within each of the DDOZs, large areas of land are classified by the FMMP as “prime farmland” or “farmland of statewide importance.” Conversion of these areas to dairy facilities will result in reclassification of these areas by FMMP to “farmlands of local importance.” (FPEIR Vol. 1B, p. 4.1-17.)

However, the project will not result in the conversion of farmland to non-agricultural use. The Kings County General Plan specifically permits “animal concentrations” on lands designated General Agricultural, confirming dairy facility operations as an agricultural use. Thus, development of dairy facilities on cropland was not considered conversion to nonagricultural use. The construction and operation of dairies within General Agricultural areas are permitted under the County Zoning Ordinance. Such developments are also consistent with provisions of the Williamson Act, as enforced in the County (i.e., the *Uniform Rules for Agricultural Preserves in Kings County*). Therefore, the disturbance of agricultural soil will be a less-than-significant impact. (FPEIR Vol. 1B, p. 4.1-17.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.1-18.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.1-3:**           **Potential damage during expected seismic shaking.** (FPEIR Vol. 1B, p. 4.1-18.)

**Findings:**           **This is a less-than-significant impact.**

**Explanation:**

Moderate to strong seismic shaking can occur throughout the County during expected earthquakes on regional active faults. The agricultural buildings and residences at the dairy facilities permitted under the Project will be required to be designed and constructed in accordance with the requirements of the current building code for seismic design. These requirements will minimize the potential for building collapse during earthquakes. Although structural and nonstructural damage can occur, these potential impacts will be similar to those that can occur throughout the region. The potential for damage and possibly related human injuries is acknowledged as an acceptable risk through the adoption of building codes that do not preclude this risk. Therefore, damage to proposed structures and other improvements caused by seismic shaking is a less-than-significant impact. (FPEIR Vol. 1B, p. 4.1-18.)

The process water ponds, manure separation pits, and associated dairy runoff conveyance systems can be constructed completely or partially above the existing ground surface. Possible damage to these facilities caused by seismic shaking can occur but is addressed in the requirements of Element Policy DE 2.1f (see component 1a of Appendix J). (FPEIR Vol. 1B, p. 4.1-18.)

The potential for liquefaction or other related seismically-induced ground failure is low to moderate due to the gentle topography and the low potential for saturated near-surface granular sediments. Significant ground failure associated with liquefaction typically occurs in areas where liquefied sediments can flow to a "free face," which extends below the liquefied layer, such as a stream bank or artificial cut. Under the Element, excavations expected at proposed dairy facilities will not extend below the groundwater table and this condition will not occur. (FPEIR Vol. 1B, p. 4.1-18.)

One other potential liquefaction hazard can be presented by dairy development under the Project. The fill materials used for embankments around proposed manure separation pits and ponds can include granular materials that can be locally saturated. However, Element Policy DE 2.1f (Appendix J, Component 1a) requires that a site-specific Geotechnical Report for proposed dairies evaluate and address the liquefaction potential at project sites. In addition, Element Policy DE 4.1a requires that the soils lining the pits and ponds have low hydraulic conductivity, reducing the potential for saturation of underlying granular sediments. Therefore, the potential for liquefaction is considered low. (FPEIR Vol. 1B, pp. 4.1-18 to 4.1-19.)

Implementation of Element Policy DE 2.1f (see Component 1a of Appendix J), and enforcement of existing building code requirements will reduce the potential impacts related to seismic shaking to a less-than-significant level. (FPEIR Vol. 1B, p. 4.1-19.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.1-19.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.1-4:**            **The moderate to high shrink-swell potential and the potential for corrosion of uncoated steel and concrete within soils can present significant maintenance and stability problems for pipelines, foundations, and pavements. (FPEIR Vol. 1B, p. 4.1-19.)**

**Finding:**                **This is a less-than-significant impact.**

**Explanation:**

The soils throughout the seven DDOZs proposed by the Element present a moderate to high potential for corrosion of untreated steel and concrete and moderate to high shrink-swell potential. Utility pipelines will be required to cross areas containing corrosive soils. Corrosion of the pipelines or other buried steel structures can result in failure of the lines. Concrete footings and pavement can also be subject to corrosion. Repair or replacement of the pipelines and concrete can result in interruption of service. Modern dairy designs for the southern San Joaquin Valley typically propose that a process water collection system will be constructed of plastic pipe and will not be significantly affected by the high corrosivity of the soils. The Uniform Building Code

has specific design requirements for design specifications for steel and concrete exposed to corrosive soils and requirements for construction in expansive soils. In addition, Element Policy DE 2.1f (Appendix J, Component 1a) specifically requires that the site-specific geotechnical report prepared for each proposed dairy development evaluate and address the potential adverse effects of soil corrosivity and present professional recommendations to reduce these effects. Implementation of Policy DE 2.1f and compliance with the requirements of the Uniform Building Code will reduce this impact to a less-than-significant level. (FPEIR Vol. 1B, p. 4.1-19.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.1-19.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**B. AIR QUALITY**

**Standards of Significance**

Based on the environmental checklist in the CEQA Guidelines, the Project could have a potentially significant air quality impact on the environment if it would:

- conflict with or obstruct implementation of air quality plan;
- violate ambient air quality standards or contribute substantially to an existing or projected air quality violation;
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under Federal or State standards;
- expose receptors to substantial pollutant concentrations; or
- create objectionable odors affecting a substantial number of people.
- An impact resulting from construction activities would also be considered significant if feasible construction control mitigation measures identified in SJVUAPCD's Guide for Assessing and Mitigating Air Quality Impacts (guidelines) were not implemented.

(FPEIR Vol. 1B, pp. 4.2-46 to 4.2-47.)

According to SJVUAPCD guidelines, a project could also have a significant air quality impact on the environment if project operations have the potential to frequently expose members of the public to objectionable odors; the SJVUAPCD has indicated that dairies located within 1.0 mile of a sensitive receptor could generate odors that may be significant. (FPEIR Vol. 1B, p. 4.2-47.)

During the public hearings on the project, the Planning Commission and the Board of Supervisors received evidence regarding the accuracy of the emissions factors used in the PEIR to assess the significance of the Project's air quality impacts. The Planning Commission, moreover, in its recommendation to the Board, stated that it considered the emissions factors used in the PEIR to be unreliable and that therefore certain air quality significance determinations in the PEIR should be changed to less than significant. The Board has determined that the significance determinations in the PEIR should not be changed. This finding is based on the following considerations, among others: 1) the emissions factors in the PEIR are the best available emissions factors, 2) the emissions factors were used in consultation with the San Joaquin Valley Unified Air Pollution Control District ("SJVUAPCD"), 3) the SJVUAPCD, in its comments on the DPEIR and in written testimony submitted at the June 18, 2002, Board Hearing, concurred with the significance determinations in the PEIR, and 4) and the California Air Resources Board ("CARB") in written testimony submitted the June 18, 2002, Board Hearing, concurred with the significance determinations in the PEIR.

**Impact 4.2-1:**            **Construction activities associated with new or expanded dairies will result in a short-term increase in PM<sub>10</sub> emissions from fugitive dust sources. (FPEIR Vol. 1B, p. 4.2-54.)**

**Finding:**                **This is a less-than-significant impact.**

**Explanation:**

Construction activities associated with development of a new or expanded dairy can include site preparation, soil excavation, grading, equipment traffic on paved and possibly unpaved roads, and construction of buildings (i.e., milking parlor, freestall barns). Soils exposed during excavation and grading will be subject to wind erosion. These activities will result in a substantial short-term increase in localized PM<sub>10</sub> emissions from fugitive dust emissions. (FPEIR Vol. 1B, p. 4.2-54.)

The level of PM<sub>10</sub> emissions that can generated from construction activities will be dependent on the surface area being disturbed, grading rate, construction duration, and weather conditions. The highest potential for PM<sub>10</sub> emissions from fugitive dust will occur when the exposed soils are dry, during late spring, summer, and early fall. (FPEIR Vol. 1B, p. 4.2-54.) Quantification of PM<sub>10</sub> emissions from fugitive dust during construction was not conducted according to the recommendation of the SJVUAPCD. (FPEIR Vol. 1B, Vol. 1a, 4-116.)

The San Joaquin Valley Air Basin is currently in nonattainment for the Federal and State PM<sub>10</sub> standards. The SJVUAPCD 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. The control measures are divided into the following three components: 1) control measures from the SJVUAPCD Regulation VIII - Fugitive PM<sub>10</sub> Prohibitions, Rule 8020, 2) enhanced control measures, and 3) additional control measures. These control measures are included in the SJVUAPCD's Guide for Assessing and Mitigating Air Quality Impacts, dated 20 August 1998. (FPEIR Vol. 1B, p. 4.2-54.)

Regulation VIII control measures are required for all construction projects and aim to reduce the amount of PM<sub>10</sub> emissions generated from fugitive dust sources. The SJVUAPCD has recently adopted amendments to Regulation VIII, in response to the deficiencies identified by the EPA on the corresponding rules. The amendments include replacing former rule 8020 with rule 8021. Rule 8021 generally includes the requirements from rule 8020 and also contains additional requirements for disturbed and undisturbed surface areas, wind-driven/blown fugitive dust. In addition, Rule 8081 addresses emissions from off-field agricultural sources, including construction-related activities associated for agricultural land uses, except when the activities are for the purpose of preparing land for the growing of crops or the raising of fowl or animals. (FPEIR Vol. 1B, pp. 4.2-54 to 4.2-55.)

Enhanced and additional control measures provide a greater degree of PM<sub>10</sub> reduction compared to Regulation VIII. According to SJVUAPCD, enhanced control measures are applicable to construction projects that will be expected to generate large PM<sub>10</sub> emissions and additional control measures are applicable for projects with large construction sites, located near sensitive receptors, or that for other reasons warrant additional emissions reductions. (FPEIR Vol. 1B, p. 4.2-55.)

Policy DE 5.1d of the Element requires compliance with the SJVUAPCD Regulation VIII, rules during construction of a Dairy Facility to control PM<sub>10</sub> emissions from fugitive dust. To further ensure control of dust emissions during construction, this policy requires the implementation of enhanced and additional control measures specified by SJVUAPCD. (FPEIR Vol. 1B, p. 4.2-55.)

Implementation of Policy DE 5.1d of the Element will reduce short-term construction-related PM<sub>10</sub> emissions from fugitive dust to a less-than-significant level. (FPEIR Vol. 1B, p. 4.2-56.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.2-56.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.2-2:**            **Construction activities associated with new or expanded dairies will result in short-term exhaust emissions from construction equipment.**  
(PEIR, p. 4.2-56.)

**Finding:**                **This is a less-than-significant impact.**

**Explanation:**

Heavy-duty construction equipment such as scrapers, graders, trenchers, and earthmovers that will be used during the development of a new or expanded dairy will release short-term exhaust emissions. The primary pollutants associated with exhaust emissions from construction-related

equipment consist of ozone precursors (ROG and NOx) and PM<sub>10</sub>. (FPEIR Vol. 1B, Vol. 1b, p. 4.2-56.)

The amount of daily exhaust emissions that can result from construction equipment will be dependent on the construction duration, work period, selected construction equipment, and construction activities. Short-term exhaust emissions (ROG, NOx, and PM<sub>10</sub>) generated during construction-related activities can expose any nearby residents and other sensitive receptors located downwind to temporary substantial pollutant concentrations. The SJVUAPCD considers PM<sub>10</sub> emissions to be the pollutant of greatest concern during construction activities. The SJVUAPCD did not request that the FPEIR quantify exhaust emissions. (FPEIR, Vol. 1a, comment letters 5 and 8.)

The Element addresses the short-term impact of exhaust emissions by including Policy DE 5.1f. (FPEIR Vol. 1B, p. 4.2-56.) The provisions of the policy require the owner/operator of a proposed dairy development or expansion to follow measures to control emissions (ROG, NOx, and PM<sub>10</sub>) generated from heavy-duty construction equipment as required by the SJVUAPCD. (FPEIR Vol. 1B, p. 4.2-56.)

The construction phase exhaust emissions will present a short-term impact. Implementation of the Policy DE 5.1f will reduce construction related exhaust emissions to a less-than-significant level. (FPEIR Vol. 1B, p. 4.2-57.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.2-57.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.2-3:**            **Operation of new or expanded dairies can increase PM<sub>10</sub> air pollutant emissions from fugitive dust, exhaust from agricultural and dairy equipment, vehicular traffic exhaust, and formation of secondary PM<sub>2.5</sub>.** (FPEIR Vol. 1B, p. 4.2-57.)

**Finding:**                **This is a significant and unavoidable impact.**

**Explanation:**

Similar to existing conditions, PM<sub>10</sub> emissions from fugitive dust will be generated during operation of new or expanded dairies. Fugitive dust sources from a new or expanded dairy are attributed to cattle movement in unpaved corrals, corral maintenance activities, vehicular use along unpaved or gravel paved roadways within the dairy facilities and unpaved areas within the dairy facilities, and from combustion engines on dairy operation equipment and vehicles moving to and from the dairies. Fugitive dust sources from related agricultural activities at a new or expanded dairy site will include land preparation, harvesting, and from wind blowing across



exposed agricultural land. Fugitive dust from cattle movement is considered the most significant source. (FPEIR Vol. 1B, pp. 4.2-57 to 4.2-58.)

*PM<sub>10</sub> Emissions from Fugitive Dust during Cattle Movement in Unpaved Corrals* (FPEIR Vol. 1B, p 4.2-58.)

The main fugitive dust source from dairies is from cattle movement in unpaved corrals. New and expanded dairies will typically house dry cows, bred heifers, heifers, calves, and baby calves in unpaved corrals. Milk cows will be housed in the freestall barns; little to no fugitive dust will be expected to be generated from the freestall barns as these facilities are typically paved with concrete. (FPEIR Vol. 1B, p. 4.2-58.)

PM<sub>10</sub> emissions were estimated for future conditions (emissions from all additional support stock cattle allowed under the Element) and for a typical 500-, 705-, 2,000-, and 5,000-milk cow dairy facility. Under future conditions, the number of support stock considered in calculating PM<sub>10</sub> emissions was based on data provided in Table 5 of the Element (Theoretical Dairy Herd Capacity for Kings County). In estimating the emissions for the 500-, 705-, 2,000-, and 5,000-milk cow dairies, the number of support stock assumed to be housed at the unpaved corrals were based on the individual support stock to milk cow ratio used in Table 5 of the Element. (FPEIR Vol. 1B, p. 4.2-58.)

Potential PM<sub>10</sub> emissions were estimated using PM<sub>10</sub> emission factors published by CARB as well as the Department of Agricultural Engineering at Texas A&M University for cattle feedlots. However, actual PM<sub>10</sub> emissions generated can be less than the estimated emissions since cattle feedlots are known to generate more PM<sub>10</sub> emissions than dairy corrals constructed to current California Department of Food and Agriculture standards. The PM<sub>10</sub> emission factor for dairy cattle may be less than 20 percent of the cattle feedlot PM<sub>10</sub> emission factor developed by Texas A&M (15 pounds per 1,000 head per day). (FPEIR Vol. 1B, p. 4.2-58.)

Similar to existing conditions, PM<sub>10</sub> emissions for future conditions and typical dairy sizes were estimated using CARB's emission factor under the following two scenarios to account for PM<sub>10</sub> emission reduction from the wet season (rainfall effects) and for potential additional PM<sub>10</sub> emissions generated from new born calves and calves between 320 to 700 pounds:

- Scenario 1: Exclude all calves in PM<sub>10</sub> emission estimate and account for potential PM<sub>10</sub> emission reduction during wet season; and
- Scenario 2: Conservatively include all calves in PM<sub>10</sub> emission estimate (assuming that PM<sub>10</sub> emission rates for calves are equivalent to those for the heavier and larger dry cattle and heifers), and ignore potential PM<sub>10</sub> emission reduction during wet season.

(FPEIR Vol. 1B, pp. 4.2-58 to 4.2-59.)

Similarly, the PM<sub>10</sub> emissions for future conditions and typical dairy facilities were estimated using the University's nonannualized emission factor under the following two scenarios:

- Scenario 3: Exclude all calves in PM<sub>10</sub> emission estimate and account for potential PM<sub>10</sub> emission reduction during wet season; and
- Scenario 4: Conservatively include all calves in PM<sub>10</sub> emission estimate, and ignore potential PM<sub>10</sub> emission reduction during wet season.

(FPEIR Vol. 1B, p. 4.2-59.)

For future conditions, potential PM<sub>10</sub> emissions can range from 695 to 10,400 tons per year, based on the four scenarios; this range reflects between 5 and 77 percent of the total estimated PM<sub>10</sub> emissions estimated for Kings County in 2000. However, it should be noted that the 2000 emission inventory did not account for PM<sub>10</sub> emissions from unpaved corrals at dairy facilities. (FPEIR Vol. 1B, p. 4.2-59.)

Approximately 5,165, 10,400, 769, and 1,548 tons per year of PM<sub>10</sub> emissions were estimated for scenarios 1, 2, 3, and 4, respectively. PM<sub>10</sub> emissions ranging from 1 to 14 tons per year could be generated for a 500-cow dairy, from 1 to 19 tons per year for a 705-cow dairy, from 4 to 54 tons per year for a 2,000-cow dairy, and from 10 to 136 tons per year for a 5,000-cow dairy. The fugitive dust emission from corrals is the dominant source of PM<sub>10</sub> emissions at dairy facilities. (FPEIR Vol. 1B, p. 4.2-59.)

***PM<sub>10</sub> Emissions from Fugitive Dust during Vehicular Use along Unpaved/Gravel Paved Roadways and Other Unpaved Areas*** (FPEIR Vol. 1B, p. 4.2-60.)

PM<sub>10</sub> emissions will also be generated from vehicular use along potentially unpaved or gravel paved roadways and from other unpaved areas at new or expanded dairies. The amount of PM<sub>10</sub> emissions that can be generated from vehicular use along roadways at a Dairy Facility will be dependent on various factors, including the road type, vehicle miles traveled along the roadway, number of vehicular trips, vehicle type (number of wheels and weight), travel speed, silt content of the roadway, and vehicle weight. Similarly, the amount of PM<sub>10</sub> emissions that can be generated from unpaved areas throughout a Dairy Facility will be dependent on several factors, including area size and silt content of the area. Since these factors can vary widely with each dairy, PM<sub>10</sub> emissions from vehicular use along unpaved or gravel paved roadways at new or expanded dairies cannot be estimated. PM<sub>10</sub> emissions from vehicular use are typically minimal compared to PM<sub>10</sub> emissions generated from unpaved corrals. (FPEIR Vol. 1B, p. 4.2-60.)

***PM<sub>10</sub> Emissions from Fugitive Dust during Cropland-related Activities*** (FPEIR Vol. 1B, p. 4.2-60.)

PM<sub>10</sub> emissions from fugitive dust during cropland-related activities will continue to be generated

under future conditions. Fugitive dust sources will be from land preparation, harvesting, and from wind blowing across exposed agricultural land. PM<sub>10</sub> emissions generated under future conditions will be less than current conditions since the size of the agricultural cropland will be less under future conditions because of the conversion of existing cropland into new or expanded dairies. (FPEIR Vol. 1B, p. 4.2-60.)

PM<sub>10</sub> emissions from land preparation activities were estimated for future conditions, assuming the maximum capacities of cattle are housed in the County. The emissions were estimated using a PM<sub>10</sub> emission factor published in the August 1997 CARB Emission Inventory Procedural Manual, Volume III, Section 7.4, Agricultural Land Preparation. (FPEIR Vol. 1B, p. 4.2-60.)

The amount of PM<sub>10</sub> emissions from cropland preparation depends on the crop type grown and the acreage used for each crop type. Under future conditions, the crop types that will be grown were assumed to be consistent with the crop types harvested in 1999 countywide. The theoretical maximum cropland acreage available will be 235,483 acres, based on the maximum theoretical capacity of Kings County to host dairies. PM<sub>10</sub> emissions from land preparation under future conditions will decrease from 1,241 tons per year (existing conditions) to 1,191 tons per year (maximum buildout of new or expanded dairies). Potential future PM<sub>10</sub> emissions generated from cropland preparation reflects approximately ten percent of the total PM<sub>10</sub> emissions estimated for Kings County in 2000. (FPEIR Vol. 1B, pp. 4.2-60 to 4.2-61.)

PM<sub>10</sub> emissions from wind blowing across the agricultural cropland were estimated for future conditions, assuming the maximum capacities of cattle are housed in the County. The emissions were estimated using a PM<sub>10</sub> emission factor for non-pastureland in Kings County. PM<sub>10</sub> emissions for future conditions will reduce from 1,577 tons per year (existing conditions) to 1,514 tons per year (maximum buildout of new or expanded dairies). Potential future PM<sub>10</sub> emissions generated from windblown dust reflect approximately 11 percent of the total PM<sub>10</sub> emissions estimated for Kings County in 2000. (FPEIR Vol. 1B, p. 4.2-61.)

In addition, crop-harvesting activities will also generate PM<sub>10</sub> emissions. PM<sub>10</sub> emission factors for all the crop types were not available. However, similar to land preparation and wind blowing, PM<sub>10</sub> emissions from crop harvesting activities under future conditions will decrease compared to existing conditions due to the reduction of crops harvested in the future. (FPEIR Vol. 1B, p. 4.2-61.)

***PM<sub>10</sub> Emissions from Agricultural and Dairy Equipment Exhaust*** (FPEIR Vol. 1B, p. 4.2-61.)

PM<sub>10</sub> emissions will also be generated from the use of agricultural and dairy equipment. Under existing conditions, approximately 245,300 acres subject to the Element are currently used for cropland and approximately 4,756 acres are occupied by existing dairies. Land preparation, planting, cultivation, harvesting, and post harvesting activities on the cropland will involve the use of diesel-fueled equipment, such as stalk cutters, cultivators, discing equipment, seeder, dressing- and mulch-related equipment, tractors, trucks, and miscellaneous equipment. Similarly,

dairy operations will also involve the use of diesel-fueled equipment, including diesel-fueled dairy equipment such as feed trucks, tractors, and miscellaneous equipment. Ozone precursors (ROG and NOx) and PM<sub>10</sub> emissions are generated from the use of diesel-fueled equipment. (FPEIR Vol. 1B, p. 4.2-61.)

Based on the theoretical capacity of Kings County to host dairies, approximately 9,817 acres of existing cropland will be converted into new or expanded dairy facilities under the Element. The net increase in PM<sub>10</sub> emissions generated for an area converted from cropland to dairy facilities will depend on the specific types of equipment used, length of equipment operation, equipment rating, equipment annual operating hours, and crop type originally grown. (FPEIR Vol. 1B, p. 4.2-61.)

For example, if approximately 100 acres of cropland growing corn and wheat are converted into a 5,000-milk cow Dairy Facility, a net increase of 0.4, 4.6, and 0.3 tons per year of ROG, NOx, and PM<sub>10</sub> emissions, respectively, could be generated from diesel exhaust at the Dairy Facility. This estimate assumes that one tractor, one manure truck, and two pieces of miscellaneous equipment are used at the dairy on a daily basis. Quantification of the potential exhaust emissions that could result from all dairies subject to the Element can be approximated by assuming that the remaining available capacity (257,312 milk cows) for full dairy development under the Element could be accommodated by the operation of approximately 52 additional 5,000-milk cow dairies. Under this assumption, operational equipment exhaust from 52 additional 5,000-cow dairies would contribute a total of approximately 14 tons per year of additional PM<sub>10</sub>. (FPEIR Vol. 1B, pp. 4.2-61 to 4.2-62.)

***PM<sub>10</sub> Emissions from Additional Vehicular Exhaust*** (FPEIR Vol. 1B, p. 4.2-62.)

Operation of new or expanded dairies under the Element will create a slight increase in vehicular traffic. Increased vehicular traffic will result in an increase in regional air pollutant emissions, including PM<sub>10</sub>. (FPEIR Vol. 1B, p. 4.2-62.)

The increase in vehicular traffic associated with dairy operations will be from employee vehicles, manure haul trucks, feed trucks, milk trucks, and other miscellaneous vehicle use. The Element proposes that approximately 257,312 additional milk cows can be accommodated on land within designated Dairy Development Overlay Zones (DDOZs) and Nutrient Spreading Overlay Zones (NSOZs) in Kings County. Assuming an average dairy size of approximately 5,000 milk cows, the number of new dairies that can be accommodated is about 52. Since the theoretical dairy herd is the factor limiting dairy development, development of larger dairies will result in fewer dairies being constructed. (FPEIR Vol. 1B, p. 4.2-62.)

Average daily truck traffic due to each new 5,000-cow dairy is assumed to be approximately 84 one-way vehicle trips per day. This estimate is based on information provided by recent dairy applicants for milk delivery trucks, feed delivery trucks, dry manure trucks, and workers/visitors for large dairy facilities. It is also assumed that each new dairy will include at least one new

residence. Truck trips will account for approximately 38 percent of the total estimated additional vehicular trips generated by the new dairies. (FPEIR Vol. 1B, p. 4.2-62.)

The projected regional air pollutant emissions (NO<sub>x</sub>, ROG, and PM<sub>10</sub>) from additional traffic generated by the 52 new 5,000-cow dairy facilities were calculated using the URBEMIS7 computer model developed by CARB. The emissions were calculated for the year 2020, a trip generation rate of 84 vehicle trips per day for each of the new dairies, and a vehicle distribution of 40 percent heavy duty trucks, 30 percent light duty trucks, and 30 percent light duty automobiles. The estimated emission of PM<sub>10</sub> would be 0.02 ton per year per dairy and a total PM<sub>10</sub> emission from additional dairy related vehicle trips of 0.79 ton per year. (FPEIR Vol. 1B, p. 4.2-62.)

*Potential Additional PM<sub>10</sub> Emissions Related to Secondary PM<sub>2.5</sub> Emissions* (FPEIR Vol. 1B, p. 4.2-63.)

Ammonium nitrate particles in the PM<sub>2.5</sub> range can form as the result of reactions between ammonia emissions and nitrates available in the environment. These secondary PM<sub>2.5</sub> emissions are generated as the organic nitrogen contained in cattle fecal manure decomposes and the urea manure hydrolyzes. PM<sub>2.5</sub>, known as fine particulates, comprises a fraction of PM<sub>10</sub>. (FPEIR Vol. 1B, p. 4.2-63.)

As indicated in the discussion of existing conditions, limited information about PM<sub>2.5</sub> secondary particulate emissions from ammonia reactions is currently available. In the San Joaquin Valley, ammonia is believed to be more abundant than nitrates, indicating that the generation of ammonium nitrate is dependent on the availability of nitrates in the environment rather than the availability of ammonia. Potential PM<sub>2.5</sub> emissions from ammonium nitrate formation cannot be accurately estimated for new and expanded dairies. (FPEIR Vol. 1B, p. 4.2-63.)

Fugitive dust from unpaved corrals at new or expanded dairies will likely be the largest contributor of PM<sub>10</sub> emissions from fugitive dust. Crop production and exhaust from dairy equipment and vehicular traffic will also contribute additional PM<sub>10</sub> emissions. Formation of secondary PM<sub>2.5</sub> will also produce an unknown but potentially significant amount of additional PM<sub>10</sub> emissions. The increase of PM<sub>10</sub> emissions from a new or expanded dairy, compared to existing conditions, can exceed 15 tons per year (the PM<sub>10</sub> significance threshold level for SJVUAPCD), depending on the cattle capacity of a new or expanded dairy. (FPEIR Vol. 1B, p. 4.2-63.)

#### Health Impacts of PM<sub>10</sub> and PM<sub>2.5</sub>

In an article by the Environmental Working Group submitted to the County entitled "Particle Civics," the authors extend support for the new proposed air quality standards for PM<sub>10</sub>, as well as for the new annual standards for PM<sub>2.5</sub>. The authors state that relatively small increases in airborne particulates can significantly increase respiratory disease and death (*Particle Civics*, p. 25), and that the new rules could extend more than 6,500 lives per year. In order to improve the

air quality and, subsequently, human health in California, the authors recommend the following actions: 1) Adopt annual and short-term PM<sub>10</sub> and PM<sub>2.5</sub> standards recommended by state scientists; 2) Eliminate the exemption from PM regulations for most agricultural activities; 3) Set shorter-term levels for PM<sub>10</sub> and PM<sub>2.5</sub>, on the model of the state's 8-hour standard for ozone pollution.

Despite the above report, however, evidence exists that the studies of PM<sub>10</sub> and PM<sub>2.5</sub> from diesel engines and power plants may have *overstated the number of death rates* and hospital stays. New research has cut by half the previous estimate about the rate of increase in the death rate when measured by increases in the number of particles in the air. Specifically, research by investigators at Johns Hopkins University's biostatistics department indicates the software used for the study of 90 large American cities was overestimating the rise in the typical mortality rate. The software in question was used in many of the 100 studies the EPA is examining as it prepares to issue regulations next year. (John Heilprin, Associated Press, The Fresno Bee, Thursday, June 5, 2002.) Due to the software glitch, the Air Resources Board said it will take a year of additional research before it can recommend daily average standards for PM<sub>2.5</sub> pollution. (Andrew Bridges, Associated Press Science Writer, The Fresno Bee, June 19, 2002.)

In addition, the Secretary's Agricultural Air Quality Task Force recently made its recommendations on research priorities. In so doing, the Task Force found that current knowledge does not fully describe particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) emissions from agricultural practices, and that further study of both the PM<sub>10</sub> NAAQS and the PM<sub>2.5</sub> NAAQS was top priority. (Priority #1, Air Quality Task Force.) Similarly, according to J.P. Cativiela, CARES, the "overall emissions from dairies related to air quality are not well understood. This is not only the opinion of the dairy industry, but one shared by groups as diverse as USEPA, the San Joaquin Valley Unified Air Pollution Control District, the California Air Resources Board, the US Department of Agriculture's Agricultural Air Quality Task Force and others." (Letter dated May 3, 2002 to Bill Zumwalt from J.P. Cativiela., p. 5.) Without accurate information, the health risks associated with air quality cannot be assessed beyond what was provided in the FPEIR. (FPEIR, Vol. 1b, 4.2-12.) The information on the health impacts of PM<sub>10</sub> and PM<sub>2.5</sub> in the PEIR is thus adequate.

#### Mitigation for PM<sub>10</sub> Emissions in the Element

Policy DE 3.1a adequately requires that air quality, including dust control from construction and operation, be addressed in the technical report submitted with each new dairy or expansion of existing dairy application. (FPEIR Vol. 1B, p. 4.2-63.)

Under Policy DE 3.1g, an applicant for a new dairy or an expansion of an existing dairy will submit a technical report from the Kings County Regional Transportation Agency to evaluate the effect of the project on surrounding highways and roadways. If the project-generated traffic will degrade LOS on adjacent roadways to a LOS E or lower or to a LOS D on State highways, a CUP will be required. Thus, projects so large as to create LOS downgrades will not be able to process

applications via SPR. This will limit PM<sub>10</sub> emissions from vehicular traffic.

Policy DE 5.1e sufficiently requires the control of fugitive dust emissions from cattle movement and maintenance activities at the unpaved corrals, perimeter roadways, and other unpaved areas throughout dairy facilities. This policy's PM<sub>10</sub> reduction control efficiencies are based on the control efficiencies in SJVUAPCD's listed in Regulation VIII. (FPEIR Vol. 1B, p. 4.2-63.)

PM<sub>10</sub> emissions for future conditions were estimated based on the implementation of Policy DE 5.1e. The emissions reflect a 50 percent reduction of PM<sub>10</sub> emissions through implementation of a stabilizer throughout unpaved corrals at new and expanded dairies only. No reduction was considered for existing dairies. Similar to existing conditions, four scenarios were considered in the estimation. The emissions accounted for natural PM<sub>10</sub> reduction from rainfall from December through March for scenarios 1 and 3. The reduction of PM<sub>10</sub> emissions from implementation of a 50 percent effective stabilizer at new and expanded dairies ranges from 202 to 3,503 tons per year. Table 4.2-6 of the PEIR provides a breakdown of the PM<sub>10</sub> emissions from unpaved corrals for new and expanded dairies with and without the 50 percent effective stabilization. (FPEIR Vol. 1B, pp. 4.2-63 to 4.2-64.)

The Element includes two additional measures to support Policy DE 5.1e. Policy DE 5.1g requires the identification of fugitive dust sources and control measures in the Fugitive Dust Emissions Control Plan (FDECP) (see Appendix J, Component 9). The FDECP must describe and demonstrate conformance with Policy DE 5.1e and DE 5.1h. (FPEIR Vol. 1B, p. 4.2-64.)

Policy DE 5.1h requires compliance with the control measures for fugitive dust emissions from agricultural sources as established by the most recently adopted SJVUAPCD Regulation VIII. The SJVUAPCD estimates the control efficiency for control measures for unpaved roads ranges from 37 percent (reduced speed) to 75 percent (apply chemical treatment). The control efficiency of control measures for bulk materials range from approximately 60 to 80 percent. (FPEIR Vol. 1B, p. 4.2-64.)

Policies DE 6.2c, and 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. Objective DE 6.1 provides for continuous monitoring of dairies to determine whether operations are being operated within the limits of the standards specified in the Element. Policy DE 6.2c requires the preparation of a dairy system monitoring program. Policy DE 6.3a provides for a continuous testing program to demonstrate that a Dairy Facility is operating within its approved parameters. Policy DE 6.2c has been included in the Element to require establishment of specific monitoring standards for dust control monitoring at dairy facilities. At a minimum, the standards shall provide for the following:

- Performance of periodic visual inspections at dust sources throughout the dairy (i.e., cattle movement at unpaved corrals and all other unpaved or gravel paved areas).

- Visual inspections shall be conducted and documented by the dairy operator to determine the effectiveness of dust control measures required under Policy DE 5.1e and presence/absence of breeding of mosquitoes and other vectors due to the implementation of dust control measures.
- Visual inspections shall be conducted at the dairy site boundaries and shall be conducted at least on a weekly basis during the dry season (April through October) and on a monthly basis during the remainder of the year. During periods of high winds and dry conditions, more frequent inspections shall be conducted, as deemed necessary by the Dairy Monitoring Office.
- All visual inspections shall be documented by the dairy operator in documentation maintained at the Dairy Facility.
- Performance of inspection and documentation on the implementation of the Fugitive Dust Emissions Control Plan (FDECP) and control measures required by the most recently adopted SJVUAPCD Regulation VIII by the dairy operator at the dairy shall be done no less frequently than monthly.

(FPEIR Vol. 1B, p. 4.2-65.)

Policies DE 6.1a.A, 6.1a.B, and 6.1a.C provide a mechanism for the County to track and evaluate monitoring data (Policy DE 6.1a.A), address dairy operational problems encountered (Policy DE 6.1a.B), and compile general results of the monitoring program specified under the Element for submittal to the Planning Commission (Policy DE 6.1a.C). The Element provides Policy DE 6.1b to ensure that Code Compliance staff includes a qualified compliance specialist to review all monitoring control plans, including FDECPs prepared for and implemented at the dairies. The policy requires that the compliance specialist be familiar with air issues associated with dairy operations so that he/she can determine whether the practices described in the FDECPs are appropriate, whether they are being implemented correctly, and whether modifications of the practices are necessary. (FPEIR Vol. 1B, pp. 4.2-65 to 4.2-66.)

Because individual dairy operators lack the resources to accurately estimate the anticipated net increase in ROG, NO<sub>x</sub> and PM<sub>10</sub> as was required by former Policy DE 5.1i, the Board has determined that the policy is infeasible and has therefore deleted it from the Element. Compliance with the performance standards required by the Element and by the SJVUAPCD will ensure that ROG, NO<sub>x</sub> and PM<sub>10</sub> emissions from equipment during dairy operations will not exceed the SJVUAPCD's threshold limits.

Policies DE 3.1a, 6.2d, and 6.3a, and other policies under Goal DE 6 will help reduce ammonia emissions and the related potential for the formation of secondary PM<sub>2.5</sub> from cattle manure decomposition. Policy DE 4.1b.B requires that the timing and method of application of manure



and process water to land minimize unnecessary contact with air to minimize the release of ammonia into the atmosphere. Policy DE 6.2d requires that the County set standards for implementation of the Odor Management Plan (OMP) and minimally requires that quality assurance/quality control be implemented and documented. Policy DE 6.1b requires that the Code Compliance division include a compliance specialist capable of technically reviewing monitoring programs required by the Element, including the OMP. (FPEIR Vol. 1B, p.4.2-66.)

The Board specifically rejects as infeasible the use of offsets as a mitigation measure for PM<sub>10</sub> emissions. As discussed in Response to Comment 24-36, there is no offsets program in place for agricultural sources of PM<sub>10</sub> and the County could not feasibly implement its own offsets program. (See FPEIR Vol. 1a, pp. 4-118 to 4-119.) The Board also specifically rejects as infeasible the placement of support stock at pasture rather than in corrals as a mitigation measure for PM<sub>10</sub> emissions. As discussed in Response to Comment 24-35, placement of support stock in pastures could create a host of other environmental impacts and would not necessarily reduce PM<sub>10</sub> emissions. (See FPEIR Vol. 1a, p. 4-118.)

**Mitigation:**

Mitigation Measure 4.2-3a (Fugitive Emissions from Unpaved Areas):

No additional feasible mitigation measures are available for the control of fugitive dust. (FPEIR Vol. 1B, p. 4.2-67.)

Implementation of Policies DE 3.1a, 4.1b.B, 5.1e, 5.1g, 5.1h, 6.1a, 6.2c, and 6.1b of the Element will reduce and control PM<sub>10</sub> emissions from fugitive dust at future or expanded dairies. Implementation of Policy DE 5.1e (stabilization) can reduce PM<sub>10</sub> emissions from unpaved corrals at new and expanded dairies between 202 and 3,503 tons per year. Monitoring under Policy DE 6.3a, and 6.1a will ensure that mitigation measures are effectively implemented. However, even after implementation of this mitigation measure, PM<sub>10</sub> emissions generated from a dairy may still exceed the SJVUAPCD PM<sub>10</sub> threshold of 15 tons per year. Therefore, PM<sub>10</sub> emissions from fugitive dust generated during project operations are conservatively considered to constitute a significant and unavoidable impact. (FPEIR Vol. 1B, p. 4.2-67.)

Mitigation Measure 4.2-3b (Secondary PM<sub>2.5</sub>):

No additional feasible mitigation measures are available. (FPEIR Vol. 1B, p. 4.2-67.)

Implementation of Policies DE 3.1a, 5.1b, 5.1e, 6.1a, 6.2d, 6.3a, and 6.1b will be expected to reduce ammonia generated from dairy facilities and will also reduce other air pollutants generated from cattle manure. As a result, PM<sub>2.5</sub> emissions (as ammonium nitrate) will also be reduced. The impact will remain significant and unavoidable. (FPEIR Vol. 1B, p. 4.2-67.)

Mitigation Measure 4.2-3c (Equipment Exhaust):

No additional feasible mitigation measures are available. (FPEIR Vol. 1B, p. 4.2-67.)

Implementation of Policy DE 3.1g will reduce PM<sub>10</sub> emissions from vehicular traffic.

No additional feasible mitigation is available to reduce PM<sub>10</sub> emissions from exhaust sources. PM<sub>10</sub> emissions are already considered to constitute a significant and unavoidable impact due to fugitive dust sources from dairy operations. (FPEIR Vol. 1B, p. 4.2-67.)

Significance after Mitigation

Significant and unavoidable. (FPEIR Vol. 1B, p. 4.2-57.) Changes or alterations have been required in, or incorporated into, the Project that substantially lessen, but do not avoid, the potentially significant environmental effect associated with impacts due to increases in PM<sub>10</sub> during operation. No feasible mitigation is available to render the effect less than significant. The effect therefore remains potentially significant and unavoidable.

**Impact 4.2-4:**            **Operation of new or expanded dairies can generate adverse odors.**  
(FPEIR Vol. 1B, p. 4.2-69.)

**Finding:**                **This is a significant and unavoidable impact.**

**Explanation:**

New or expanded dairies under the Element will include management of cattle manure generated at the site. Cattle manure contains complex organic compounds and simple organic and inorganic compounds and will anaerobically decompose under natural conditions. During anaerobic decomposition, gases are formed, some of which include odorous compounds. Odorous compounds include ammonia, hydrogen sulfide, and ROG. To a lesser degree, odor can also be directly associated with the dairy animals. (FPEIR Vol. 1B, p. 4.2-69.)

Manure management operations at dairies will necessarily include collection, treatment, storage, and reuse of the manure. New dairy facilities will typically consist of freestall barns and unpaved corrals. Expanded dairy facilities will typically consist of unpaved corrals as freestall barns generally house dairy cows. Manure generated at freestall barns will generally be collected in drive lanes and flushed with process water into on-site storage ponds. Some dairy facilities may first separate out (via gravity) the heavier, dense particles from the manure waste stream using mechanical solid separators, prior to storage in the ponds. The collected solids will typically be removed periodically, stockpiled on-site, and applied to on-site agricultural fields or transported off-site to other agricultural fields. The manure waste in the storage ponds will typically be mixed with irrigation water and applied to on-site agricultural fields. (FPEIR Vol. 1B, p. 4.2-69.)

Manure generated at the unpaved corrals of a new or expanded dairy can be managed using a flushed system or can be physically mechanically scraped off from the corral on a scheduled

basis; a combination of these two techniques can also be employed. Similar to the freestall system, flushed manure will typically be deposited in storage ponds; manure may undergo gravity separation. Scraped manure will typically be removed on a scheduled basis, stockpiled on-site, and loaded onto trucks for transport or for application to on-site agricultural fields. (FPEIR Vol. 1B, p. 4.2-69.)

Manure placed in the storage ponds will naturally undergo anaerobic decomposition. In addition, stockpiled manure can naturally undergo anaerobic decomposition, depending on several factors, including moisture content and solids particle size. As a result, odorous compounds can be released into the environment, especially when the surface layer of the manure is agitated. Stockpiled manure can release odorous compounds when the material is agitated prior to, and during, application on to agricultural fields. Manure liquid waste will not be expected to generate significant odors during land application since the waste is typically mixed with irrigation water prior to application. (FPEIR Vol. 1B, p. 4.2-69.)

Manure odor is strongest at its sources and dissipates with increasing distance. The offensiveness and degree of manure odor is ultimately dependent on the sensitivity of the receptors exposed to the odor. Temperature, wind, dust conditions, topography, and the presence of physical obstructions affect the degree of odor impacts on nearby receptors. The average summer temperature in Kings County is in the upper 90 degrees F; therefore, odorous compounds will tend to travel greater distances within the county compared to cooler conditions. During windy conditions, odor compounds are diluted with fresh air and, as a result, odors disperse more quickly and are not as noticeable at a distance. However, wind direction also defines the direction that odor travels. (FPEIR Vol. 1B, p. 4.2-70.)

Fugitive dust particles act as a transport mechanism for odor, enabling odorous compounds to be transported by air currents, even during windy conditions. Dust particles carrying odorous compounds can potentially deposit within human olfactory cells, exposing a person to the odorous compounds for an extended duration. However, physical obstructions, such as windbreaks or topographical changes, cause more rapid dilution of odorous compounds and also capture odor-containing fugitive dust. (FPEIR Vol. 1B, p. 4.2-70.)

#### Advanced Manure Treatment as Mitigation for Odor and Other Impacts

Treatment technologies are currently available to reduce the release of odors into the environment from manure storage/collection systems. As indicated in the PEIR, treatment technologies to reduce odors include the biological waste supplements, chemical additives, placement of covers over waste storage systems, composting, aerobic treatment, and anaerobic treatment of collected manure. Except for the inclusion of biological waste supplements and chemical additives, these treatment technologies may also reduce or prevent the release of ROG emissions; aerobic and anaerobic treatment systems may also reduce or prevent the release of other air pollutants generated from manure storage/collection systems, such as methane, ammonia, and hydrogen

sulfide. In composting operations, reduction of methane and hydrogen sulfide will also be expected. (FPEIR Vol. 1B, p. 4.2-70.)

However, the use of aerobic and anaerobic technologies at dairy facilities is currently not common in California and there are few examples of use in the San Joaquin Valley. An aerobic treatment system was operated at two dairy facilities in the San Joaquin Valley, one in Kings County and another in Kern County. The system operated in Kings County was a six-month pilot study and the system operated in Kern County was only recently implemented in May 1999. There are no anaerobic digesters in use at any dairy in Kings County. In addition, implementation of composting may require large land areas to appropriately handle the manure. (FPEIR Vol. 1B, pp. 4.2-70 to 4.2-71.)

At its public hearings on adoption of the Element, the Planning commission heard overwhelming opposition to including advanced manure treatment as a requirement in the Element. After listening to the testimony and reviewing the written evidence submitted, the Planning Commission found the advanced manure treatment technology to be infeasible for the following reasons: 1) there is insufficient data to show that the technology reduces criteria air pollutants in a commercial dairy; 2) there is no infrastructure to support the construction and operation of such technology; 3) advanced manure treatment will result in an unknown level of expense for an unknown level of air quality protection; 4) there is no guarantee that the electricity produced from anaerobic digesters can be sold; and 5) aerobic digestion is energy intensive and may produce undesirable emissions. (Resolution No. 02-03, Planning Commission Recommendation (h).) After careful consideration of testimony and evidence received at the Planning Commission and at the Board hearings and the recommendation of the Planning Commission, the Board has determined that advanced manure treatment is not feasible, as defined by CEQA, and therefore should not be required by the Element. (Pub. Resources Code, § 21061.1.) Therefore, Policy DE 5.1c has been deleted. In its annual review of the General Plan, the County will review the feasibility of advanced manure treatment and make changes to the Element as necessary. (See Gov. Code, § 65307.) The Board's determination of infeasibility is based on the following considerations and other evidence in the Record:

### *Economic Considerations*

Economic considerations weigh against the feasibility of advanced manure treatment at this time.

Although the mere fact that a mitigation measure is not profitable does not necessarily render the measure infeasible, economic considerations comprise an element of a feasibility analysis. One of the major issues regarding the anaerobic digesters is the problem of generator interconnection. Specifically, when a dairy puts self-generated electricity into its electrical system, it must get an interconnection contract from the local utility, and it must generally be financially compensated for the excess electricity it produces. However, if the generator is 100 kW or more, there are currently no utilities willing to buy the power. An article by Ken Krich, Sustainable

Conservation, discusses the problem of generator interconnection. PG&E has stated that it will not sign any new "qualifying facility" contracts, which means that there is currently "no way for a dairy with a generator nameplate over 100kW to be compensated for any excess electricity that it produces." (Methane Digesters and Interconnection Barriers, p. 1.) Western United Dairymen is working with the legislature to attempt to get net metering extended to methane digesters; if passed, AB 2228, which provides for net metering through 2005 for biogas generators of less than 1000 kW, will provide more incentive to export electricity. (Western United Resource Development Inc. ("WURD"), letter dated April 23, 2002 to WURD dairy power program applicants, p.2.) However, such legislation has not yet been passed. This lack of compensation for exported electricity contributes to the infeasibility of the anaerobic digesters.

The comments of Bill Zumwalt, Kings County Planning Director, further explained that Edison Company and the Public Utilities Commission have indicated there is no market for any electricity that could be generated by an anaerobic digestion system. In fact, the rules prohibit the sale of electricity by generators who generate between 100 and 1000 kilowatts. "Electric distribution companies, such as Southern California Edison and PG&E, while being required to buy electricity from generators of less than one hundred kilowatts, apparently are not entering into new contracts. The utility companies are prohibited from purchasing electricity from generators with a capacity of over 100 kilowatts. . . thus the 100 to 1000 range, which these dairy generators tend to fall within. . . [apparently have] no way to sell the electricity." (Planning Commission hearing May 13, 2002, transcript at pp. 19:9 - 20:7.) Similar testimony was provided by Mr. Longfellow, representing the Farm Bureau. (See *id.*, at pp. 123:10 - 124:6.)

Mr. Cativiela, representing CARES, testified that the economics of anaerobic digestion are "uncertain at best." There is no guarantee that the electricity can be sold, and the up front costs run anywhere from \$250,000 to \$500,000 for installation. (*Id.*, at p. 91:28.)

Mr. Longfellow, representing the Farm Bureau, addressed the large start up costs for digesters, which run "between \$400 and \$800 per cow for a thousand cow dairy." (*Id.*, at p. 121:5-6.) The management or maintenance of the digesters is also complicated and expensive. (*Id.*, at p. 122:1-8.)

Other written evidence on feasibility submitted to the Planning commission included a document entitled: "The Cost Feasibility of Constructing a Methane Digester Used to Convert Dairy Manure Into Electricity on a 5,000 Cow Dairy Facility," prepared by Genske, Mulder and Company, Certified Public Accountants, for Diamond H. Dairy, Escalon, California. This document concludes that the total proposed cost of the methane digester used to convert dairy manure into usable electricity is \$7,225,000 - a cost that no lender will be willing to finance because projected returns from the dairy are uncertain due to lack of income from the sale of energy. Because there may or may not be a viable buyer of the power that will be generated, there is no price or guarantee that the excess electricity can be sold. Finally, there is concern over how effective the methane digester will be since "the effective production of electricity has not been established except in laboratory situations." Methane digesters and generation of electricity from cow

manure is in its infancy, and today present risks for a dairy farmer that render use of the digesters inefficient and cost prohibitive.

In Madera County, the Board of Supervisors also rejected anaerobic digester/aerobic treatment/bio gas recovery systems as infeasible mitigation for air quality impacts because “[s]uch systems are not economically feasible.” (Resolution No. 2001-183, Board of Supervisors of Madera County, certifying an EIR for the Diamond H. Dairy, p. 17:24.) The Board relied in part upon testimony of Genske Mulder and Company, LLP, which concluded that such a system would adversely affect the applicant’s equity value in the dairy herd because commercial lending institutions will not lend on experimental and unproven anaerobic digester technology.” (*Id.*, at p. 18:1-8.)

According to representatives of the dairy industry, the economics of requiring advanced manure treatment “present a serious competitive disadvantage for any new or expanding dairy projects. . . such a disadvantage would tend to drive location of new dairy facilities away from counties with [advanced manure treatment systems], or to allow those dairies large enough to overcome the competition through economy of scale.” (Letter dated May 3, 2002, to Bill Zumwalt from J.P. Cativiella, CARES, p. 4.) Moreover, anaerobic systems present the “potential for offsetting revenue to cover costs, but also present economic obstacles and uncertainties.” Although sale of the gas itself or electricity generated through combustion of the gas presents an opportunity for revenue to the producer to offset the capital costs, “an inability to actually market the electricity has rendered the biogas essentially valueless except for generating electricity for use on the farm.” (*Ibid.*) The amount of energy produced by an anaerobic system on an average sized dairy would exceed the amount of electricity needed on site.

For aerobic treatment of manure, the primary constraint on wider use is the high energy costs required to continuously aerate the treatment volume sufficiently. (FPEIR, Vol. 1B, p. 4.2-20, citing P.W. Westerman and R.H. Zhang, *Aeration of Livestock Manure Slurry and Lagoon Liquid for Odor Control: A Review* (1996); see also explanation of PEIR project manager, Kevin O’Dea, Planning Commission transcript, May 13, 2002, p. 33:17-20.)

### *Technological Considerations*

Technological considerations weigh against the feasibility of advanced manure treatment at this time.

Mr. Cativiella, representing CARES, testified that CARB and the EPA have concluded that the technology requires more study. (Planning Commission hearing May 13, 2002, transcript at p. 88:22-25.) “Patrick Gaffney of [CARB] told us all . . . that existing estimates are based on outdated data for ROG and incomplete data for ammonia.” (*Id.*, at p. 96:10-17.) Regarding aerobic digestion, Mr. Cativiella testified that even less evidence exists regarding whether or not aerobic digestion is effective in controlling emissions. (*Id.*, at p. 95:1-5.)

In one Planning Commission meeting, Commissioner Gregory addressed a letter received from NRCS stating that in the United States there are 15 digester operational dairies, and only one operates with a flush system. Commissioner Gregory does not feel comfortable requiring all new permitting and expansion permits in Kings County "to utilize the technology which is not being used nationwide on flush dairies with one exception, that being a research school. (Planning Commission hearing May 14, 2002, transcript at pp. 178:17-179:9.) In the same hearing, Dr. Mitloenher, U.C. Davis Department of Animal Science, cautioned that the two mitigation techniques proposed were "never tested scientifically in the dairy environment" and thus are not reliable techniques that can be imposed upon farmers. (*Id.*, at p. 84:5-7.) Many of the technical reports analyzing anaerobic digesters were generated in other states. According to Mr. O'Dea, Baseline Environmental Consulting, it is difficult to accurately assess emissions because the climate in other states is different than in California. (Planning Commission hearing May 14, 2002, transcript p. 153:14-23.)

According to CARES, there remain "serious questions as to whether these technologies work, how well they work, and whether they produce negative constituents even as they reduce others." (Letter dated May 3, 2002, to Bill Zumwalt from J.P. Cativiella, CARES, p. 6.) The California Air Resources Board recommends more study before regulation, thus "it makes sense to allow time to develop that data that will help us determine how effective aerobic and anaerobic systems are before mandating their use." (*Ibid.*) Similarly, U.S. EPA Administrator Christina Todd-Whitman has stated that "we currently do not have sound emission estimates to support regulatory determinations for animal agriculture." (Letter dated November 9, 2001, to the Honorable John Boehner, p. 1.)

In Madera County, the Board of Supervisors also rejected anaerobic digester/aerobic treatment/bio gas recovery systems as infeasible mitigation for air quality impacts because "[s]uch systems are not capable of being accomplished in a successful manner given the current state of technology." "[W]hile anaerobic digesters have experienced limited success in pilot projects. . . the commercial use of such technology is currently not feasible." As for aerobic treatment systems, "the board concurs with the conclusion of the FEIR that there is no data available to evaluate the success of such systems. At the same time, the Board concurs with the FEIR that such systems would substitute carbon dioxide, another greenhouse gas, for methane production. Thus, there is no evidence that such systems are feasible mitigation for air quality impacts." (Resolution No. 2001-183, Board of Supervisors of Madera County, certifying an EIR for the Diamond H. Dairy, pp. 16:22 - 17:22.) In making its determination, the Madera County Board of Supervisors relied on written testimony of Deanne Meyer, Livestock Waste Management Specialist, John Beyer, Air Quality Coordinator for the USDA, applicant's written evidence entitled *Methane Recovery From Animal Manures: The Current Opportunities Casebook*, and the evidence in the FEIR.

Experience in California "suggests a high failure rate for digesters. A 1996 UC research paper noted that 5 of 6 digester projects at California dairies failed for engineering or economic reasons. . . As recently as June 2001, John Beyer of the USDA's Natural Resources Conservation Service

noted: “. . .the reality of anaerobic digester use is that approximately 50 percent of the installed systems have failed. These failures have been attributed to poor design, faulty construction, improper operation and lack of service infrastructure. There are also potential concerns with nitrogen and ammonia emissions from the system, air emissions from combusting biogas, and barriers to acquiring financial backing for installation of a system. . . .” (Letter dated May 3, 2002, to Bill Zumwalt from J.P. Cativiella, CARES, p. 3.)

Aerobic treatment systems have been historically used to treat municipal sewage, and have not yet been widely applied at dairies.

#### *Environmental Considerations*

Environmental considerations weigh against the feasibility of advanced manure treatment at this time.

The effectiveness of potential advanced manure treatment systems is not known. Additionally, implementation of advanced manure treatment could actually have its own impacts. According to Dr. Mitloenher, U.C. Davis Department of Animal Science, aerobic treatment can actually lead to the release of ammonia. “So instead of mitigating ammonia release, it would actually potentially increase it.” (Planning Commission hearing May 13, 2002, transcript at p. 81:7-9.) Similarly, the effectiveness of anaerobic systems in reducing target emissions has not been demonstrated at this time. Also, the Board has considered information that was included in the EIR on the Diamond H Dairy Project in Madera County indicating that aerobic systems would substitute carbon dioxide, another greenhouse gas, for methane production expected from implementation of anaerobic treatment systems.

#### *Social Considerations*

Social considerations weigh against the feasibility of advanced manure treatment at this time.

The rapidly changing regulatory structure makes the imposition of advanced manure treatment infeasible. It is not clear when USEPA, CARB or the SJVUAPCD will mandate further control of air emissions from dairies. A recent settlement agreement between the Association of Irrigated Residents and USEPA mandates that EPA begin permitted agricultural sources of air pollution. By mandating one of the two technologies listed in former Policy DE 5.1c, the County would risk requiring a costly technology that may not meet future mandates from agencies specifically charged with protecting air quality. In the words of one dairyman, “We just don’t think we can afford to spend the money on this system and not really know what it’s going to do for us, and six months later somebody will come along and say . . . here’s another issue you need to deal with, this system is not taking care of it; now you’ve got to go back and put another system in, and that’s not our problem. We have to pay our bills. . . . we can’t be asked to spend this kind of money when the return is questioned. . . . We don’t have anything proven at this point.” (Testimony of George Longfellow, Planning Commission meeting, June 13, 2002, transcript p.



126:2-17.) Another industry concern is that “by mandating a particular technology or group of technologies. . . you tend to stifle entrepreneurial innovation and ignore other technologies that may become more successful.” (Testimony of Paul Martin, Planning Commission meeting, May 14, 2002, transcript p. 203:4-9.)

Requiring advanced manure treatment would also make Kings County a less desirable destination for dairy development. No other counties have required all dairy development This would hinder the ability of the County to decrease its unemployment rate and address the social problems that stem from such a high unemployment rate. Mr. LaSalle, Griswold LaSalle law firm in Hanford, representing seven Kings County farmers, expressed similar concerns that “if this Dairy Element is adopted as written, I don’t think any dairies are going to want to come here. And if you were just planning on expanding your dairy, this would just seem so terrifying and expensive you just. . . abandon your thoughts. Where would they go elsewhere? Right now Fresno County looks like the place to go.” (*Id.*, at p. 206:19-25.)

#### Mitigation of Odor in the Element

The policies under Goal 1 address siting requirements for dairies. Policy DE 1.2g requires that dairies (including manure and dairy process water storage areas) be located more than one-half mile from any existing public or private school site although, manure used as fertilizer and dairy process water used to irrigate cropland may be transported to and used within the one-half mile buffer zone but must be scheduled during weekends or summer vacation when the schools are closed. Policy DE 1.2h requires a minimum distance of one-quarter mile between dairy facilities and other dairies and confined animal feeding operations. The Element also requires a minimum buffer zone of one-half mile between a dairy and an existing residential zone (Policy DE 1.2i). (FPEIR Vol. 1B, p. 4.2-71.)

The Element also provides siting restrictions for new or expanded dairies near individual residences within the agricultural zoned areas. Policy DE 3.1b requires that no new Dairy Facility is constructed within ¼ mile of any existing residence that is not associated with that dairy; and Policy DE 3.1c requires that when residences not associated with the dairy are within ¼ mile of the proposed expansion of an existing dairy, the improvements will be located so that the existing separation is not reduced. (FPEIR Vol. 1B, p. 4.2-71.)

Policy DE 3.1a requires that air quality, including odor control from construction and operation, be considered during the preparation of the countywide policy required under Goal DE 3. Policy DE 5.1b requires the preparation of an Odor Management Plan (OMP) as part of a technical report to be submitted with each new or expanded dairy application. This plan will be reviewed for compliance with the standards in the Element by Kings County. Policy DE 5.1b requires the OMP to address standard operating practices for livestock handling, manure collection, management, storage, and land application. The policy also requires that practices be identified and implemented to reduce or control odors released from dairy operations. (FPEIR Vol. 1B, p. 4.2-71.) The OMP minimum components include the provision that manure separation pits and

process water lagoons be maintained and operated to minimize odors. Most dairies within California operate anaerobic lagoons for manure treatment and storage. In order to meet the requirements of the Element, such lagoons would need to be designed and operated to optimize anaerobic treatment of manure to minimize the release of odorous gases. Optimizing anaerobic treatment requires that the storage system is designed to handle the organic solids loading of the lagoons. Under anaerobic treatment, odors are generated as intermediary products of manure decomposition. In a properly maintained process water lagoon, odor would be minimized by complete digestion of manure. As discussed in the Response to Comment 21-21 (FPEIR Vol. 1A, pp. 4-58 to 4-59), organic acids formed during the intermediate stage of anaerobic digestion are converted to methane and carbon dioxide. If the digestion of these acids is not complete, organic gases that can contribute to odor may be released. However, if the loading lagoons are designed and maintained to optimize complete anaerobic decomposition, odor would be minimized.

Policy DE 3.2d requires immediate incorporation of treated manure into soil at the time of application. This requirement would promote the aerobic decomposition of organic acids, which may remain in the manure following anaerobic treatment. Under aerobic decomposition, the organic acids would be converted to carbon dioxide and water and the formation of organic gases that create odor would be minimized. Additionally, Policy DE 4.1a.B4 required that manure be managed to reduce odors.

As indicated in Impact 4.2-3, Policies DE 6.2a and 6.2b 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. Although these policies specifically address odor control, the effectiveness of the OMP in the reduction of odor cannot be determined. Therefore, Policy DE 6.2d was included in the Element to ensure that standards were established for OMP monitoring. At a minimum, the following requirements will apply to implementation of OMPs at dairy facilities.

- The dairy operator shall conduct quality assurance/quality control on the implementation of the standard operating procedures described in the OMP.
- Quality assurance/quality control shall be conducted by the dairy operator in a manner that will determine whether the specified standard operating procedures indicated in the OMP are effectively reducing or controlling odors generated from livestock handling, manure collection, treatment, storage, and land application.
- Quality assurance/quality control shall be conducted by the dairy operator when odor release/migration occurs, and corrective action shall be taken.
- The results of all quality assurance/quality control shall be documented by the dairy operator in logs maintained at the dairy facilities.

(FPEIR Vol. 1B, pp. 4.2-72 to 4.2-73.)

The policies under Objective DE 6.4 will establish a mechanism to evaluate and respond to public complaints regarding nuisances or permit violations due to dairy operations. A common nuisance at dairies is odor. Policy DE 6.1b specifically indicates that the County will review the implementation of the OMP. (FPEIR Vol. 1B, p. 4.2-73.)

**Mitigation:**

Mitigation Measure 4.2-4:

No additional feasible mitigation measures are available. (FPEIR Vol. 1B, p. 4.2-73.)

Implementation of Policies DE 1.2g, 1.2h, 1.2i, 3.1a, 3.1b, 3.1c, 3.2d, 4.1a.B4, 5.1b, 5.1g, 6.1a, 6.2d, 6.1b, and 6.4a through 6.4c will significantly reduce odor impacts from dairy facilities operated in conformance with the Element. However, even with the implementation of the OMP and the establishment of a nuisance complaint system, receptors may continue to be exposed to adverse odor, specifically since the degree of manure odor is ultimately dependent on the sensitivity of the receptors exposed to the odor. (FPEIR Vol. 1B, p. 4.2-73.)

Significance after Mitigation

Significant and unavoidable. (FPEIR Vol. 1B, p. 4.2-69.) Changes or alterations have been required in, or incorporated into, the Project that substantially lessen, but do not avoid, the potentially significant environmental effect associated with impacts due to adverse odors during operation. No mitigation is available to render the effect less than significant. The effect therefore remains potentially significant and unavoidable.

**Impact 4.2-5:**            **Operation of new or expanded dairies will generate ozone precursor (ROG and NOx) emissions from cattle manure and combustion engine exhaust. (FPEIR Vol. 1B, p. 4.2-73.)**

**Findings:**            **This is a significant and unavoidable impact.**

**Explanation:**

Manure Decomposition

Similar to existing conditions, new or expanded dairies may emit ROG emissions from cattle manure at any location where cattle manure is present, provided the manure is undergoing natural anaerobic decomposition. These locations can include the freestall drive lanes, storage ponds, unpaved corrals, manure stockpiles, and areas where manure is applied as fertilizer. As indicated earlier, limited data for estimating ROG emissions from cattle manure are currently available. The most recent emission factor is published in CARB's Emission Inventory Procedural Manual, Methods for Assessing Area Source Emissions. (FPEIR Vol. 1B, 4.2-74.)

ROG emissions were estimated for future conditions (assuming the maximum capacity of cattle are housed in the County) and for a typical 500-, 705-, 2,000-, and 5,000- milk cow dairy facility, based on the emission factor developed by CARB. Under future conditions, the number of milk cows and support stock considered in calculating ROG emissions were based on Table 5 of the Element (Theoretical Dairy Herd Capacity of Kings County). In estimating the emissions for the 500-, 2,000-, and 5,000-milk cow dairies, the assumed number of support stock were based on the individual support stock to milk cow ratio provided in Table 5 of the Element (Theoretical Dairy Herd Capacity of Kings County). (FPEIR Vol. 1B, p. 4.2-74.)

Potentially 5,191 tons per year of ROG can be generated from the manure produced under future conditions at maximum buildout if no controls on emissions are implemented. This amount reflects approximately 51 percent of the total ROG emissions and greater than 100 percent of the ROG emissions from livestock waste decomposition estimated by CARB for Kings County in 2000. In addition, 7, 10, 27, and 68 tons per year of ROG can be generated by manure decomposition from a 500-, 705-, 2,000-, and 5,000- milk cow dairy facility, respectively. While ROG is not in itself a regulated pollutant, it is a precursor of ozone, which is a Federal- and State-regulated pollutant. The net increase in ROG emissions generated from cattle manure decomposition at a new or expanded dairy is considered a significant impact since the emissions from each Dairy Facility may exceed the SJVUAPCD significance threshold of 10 tons per year. (FPEIR Vol. 1B, p. 4.2-74.)

As discussed in Impact 4.2-4 above and in the PEIR, certain treatment technologies may reduce or prevent the release of ROG emissions into the environment from manure storage/collection systems. These treatment technologies include placement of impermeable covers over waste storage systems, composting, aerobic treatment, or anaerobic treatment of collected manure. The effectiveness of these technologies in reducing ROG has not been critically evaluated. (FPEIR Vol. 1B, p. 4.2-75.) The Board has determined that because of economic, technological, environmental and social considerations, advanced manure treatment is not feasible at this time and therefore should not be required. (See discussion of infeasibility above, in discussion of Impact 4.2-4.)

#### *Dairy Equipment and Vehicular Traffic Emissions*

As described under Impact 4.2-3, implementation of the Element will result in additional internal combustion engine emissions as the result of dairy equipment operation and increased vehicular traffic generated by the expected new and expanded dairy developments. The exhaust will include increased emission of ROG and NOx. An accurate estimate of these emissions is difficult to make without knowledge of the specific location, size, and operational characteristics of the new dairies. However, a general estimate of these emissions can be made by assuming that the remaining capacity for the maximum theoretical County dairy herd can be accommodated by the development of 52 5,000-milk cow dairies. Using this assumption and the same assumptions and methodologies described for exhaust emission of PM<sub>10</sub> (see Impact 4.2-3), ROG and NOx emissions for dairy equipment and vehicular traffic have been estimated. The estimated

emissions for 500-, 705-, 2,000-, and 5,000-milk cow dairies are shown in Table 4.2-5c of the FPEIR. The ROG and NOx emissions related to exhaust for 52 additional 5,000-milk cow dairies have been included in the estimate of the net increase in emissions associated with implementation of the Element as shown in Tables 4.2-5a (without controls) and 4.2-5b (with controls) of the PEIR. (FPEIR Vol. 1B, p. 4.2-75.) As explained above in the discussion of Impact 4.2-4, controls in the form of advanced manure treatment are infeasible at this time and therefore will not be required.

#### Mitigation of Ozone Precursor Emissions in the Element

Adherence to the policies in the Element that minimize the release of odors would also reduce releases of ROG. Policy DE 5.1b requires dairy applicants to develop a site-specific Odor Management Plan and establishes minimum standards for monitoring of the OMP (Policy DE 6.2d). Component 2c of Appendix J to the Element specifies the minimum components of the OMP. The minimum components include the provision that manure separation pits and process water lagoons be maintained and operated to minimize odors. Most dairies within California operate anaerobic lagoons for manure treatment and storage. In order to meet the requirements of the Element, such lagoons would need to be designed and operated to optimize anaerobic treatment of manure to minimize the release of odorous gases. Optimizing anaerobic treatment requires that the storage system is designed to handle the organic solids loading of the lagoons. Under anaerobic treatment, ROG are generated as intermediary products of manure decomposition. In a properly maintained process water lagoon, ROG emissions would be minimized by complete digestion of manure. As discussed in the Response to Comment 21-21 (FPEIR Vol. 1A, pp. 4-58 to 4-59), organic acids formed during the intermediate stage of anaerobic digestion are converted to methane and carbon dioxide. If the digestion of these acids is not complete, organic gases (including ROG) may be released. However, if the loading lagoons are designed and maintained to optimize complete anaerobic decomposition, the release of organic gases would be minimized.

Under Policy DE 3.1g, an applicant for a new dairy or an expansion of an existing dairy will submit a technical report from the Kings County Regional Transportation Agency to evaluate the effect of the project on surrounding highways and roadways. If the project-generated traffic will degrade LOS on adjacent roadways to a LOS E or lower or to a LOS D on State highways, a CUP will be required. Thus, projects so large as to create LOS downgrades will not be able to process applications via SPR. This will limit ozone precursor emissions from vehicular traffic.

In addition, immediate incorporation of manure as required by the OMP will reduce the release of ROG. A required component of the OMP required under Policies DE 3.1, 5.1b and 6.2d is that manure be incorporated during or immediately after land application by injecting it into the soil or plowing or disking the soil. (See Appendix J, Component 2c.B.9.) This requirement would promote the aerobic decomposition of organic acids which may remain in the manure following anaerobic treatment. Under aerobic decomposition, the organic acids would be converted to carbon dioxide and water and the formation of organic gases would be minimized, thereby

reducing the formation of organic gases. The monitoring required by Policies DE 6.1a, 6.1b and 6.3a will ensure that emissions of ozone precursors are mitigated to the extent feasible.

**Mitigation:**

Mitigation Measure 4.2-5:

No additional feasible mitigation measures are available. (FPEIR Vol. 1B, p. 4.2-77.)

Implementation of Policies DE 3.1g, 5.1b, 6.1a, 6.1b, 6.2d and 6.3a would reduce emissions of ozone precursors. Dairy facilities may continue to exceed the 10 tons per year SJVUAPCD threshold limit for ROG. (FPEIR Vol. 1B, p. 4.2-78.)

Significance after Mitigation

Significant and unavoidable. (FPEIR Vol. 1B, p. 4.2-73.) Changes or alterations have been required in, or incorporated into, the Project that substantially lessen, but do not avoid, the potentially significant environmental effect associated with impacts due to generated ozone precursor (ROG and NOx) emissions from cattle manure and combustion engine exhaust during operation. No mitigation is available to render the effect less than significant. The effect therefore remains potentially significant and unavoidable.

**Impact 4.2-6:            Operation of new or expanded dairies will generate ammonia emissions from cattle manure. (FPEIR Vol. 1B, p. 4.2-78.)**

**Findings:                This is a significant and unavoidable impact.**

**Explanation:**

New or expanded dairies allowed under the Element can potentially generate ammonia emissions from manure generated at the facilities. Ammonia emissions will contribute to odor problems and will be expected to increase PM<sub>2.5</sub> generation. Potential ammonia emissions from cattle manure at the animal housing units and decomposing stored manure for future (assuming the maximum capacity of cattle are housed in the County) and typical dairy facilities (500-, 705-, 2,000-, and 5,000-cow dairies) were estimated. It should be noted, however, that additional ammonia will also be released into the environment during application of process water and stockpiled manure onto agricultural fields. However, ammonia emissions will also be expected with the use of nitrogen-rich manufactured fertilizer that will be necessary if manure were not used as fertilizer. (FPEIR Vol. 1B, p. 4.2-78.)

Similar to existing conditions, a range in emissions was calculated for future and a typical 500-, 705-, 2,000-, and 5,000-cow dairy using emission factors published in the 1994 Development and Selection of Ammonia Emission Factors. Potentially between 7,338 and 29,821 tons per year of ammonia can be generated from future conditions; similarly a range between 10 and 39 tons per

year, 14 and 57 tons per year, 38 and 156 tons per year, and between 96 and 390 tons per year of could be generated at a typical 500-, 705-, 2,000-, and 5,000-milk cow dairy. (FPEIR Vol. 1B, pp. 4.2-78 to 4.2-79.)

The lower ranges reflect the emission factors developed in 1994 and are based on the animal quantity, animal type (applicable only for the 1994 emission factor), and emission factors for decomposition of newly generated manure at the animal housing unit and decomposition of stored manure. The higher ranges reflect the emission factor developed by the University of California at Davis (74 pounds per head per year) and are based on the animal quantity at a Dairy Facility. This emission factor reflects the emission factor from a combination of the different cattle typically housed at a Dairy Facility and is not specific to the cattle type (e.g., cow, heifer, calf). (FPEIR Vol. 1B, p. 4.2-79.)

The number of cattle under future conditions was obtained from Table 5 of the Element (Theoretical Dairy Capacity of Kings County); for the typical dairy conditions, the number of support stock (dry cows, heifers, and calves) was determined using the ratio of milk cow to individual support stock and existing milk cow data provided in Table 5 of the Element. Actual ammonia emissions that can be generated are highly variable and are dependent on site-specific factors as discussed above. (FPEIR Vol. 1B, p. 4.2-79.)

Ammonia is included under the State Air Toxics "Hot Spots" Information and Assessment Act (AB2588, Health & Safety Code § 44300 et seq.) as substances for which emissions must be estimated for facilities that exceed certain thresholds. These thresholds include facilities that emit ten tons or more of PM<sub>10</sub> per year. Prior to December 1998, agricultural and livestock operations were exempted from AB2588. Enforcement of AB2588 requirements is the responsibility of local air quality control districts. The SJVUAPCD is currently not devoting staff time to enforce AB2588 requirements on agricultural or livestock operations. (FPEIR VOL. 1B, p. 4.2-79.)

In the late 1990s, an evaluation of the methods for determining ammonia emissions in the San Joaquin Valley was conducted. The purposes of the study were to review existing literature to determine the most recent understanding that has evolved to date regarding ammonia emission inventories; compile an improved ammonia inventory for the San Joaquin Valley, conduct a pilot-scale field study to test the techniques to quantify ammonia emissions; and develop and demonstrate uncertainty measures. For livestock emissions, the evaluation considered the emission factors developed by Asman in 1992, as published and evaluated in the 1994 Development and Selection of Ammonia Emission Factors, developed by Battye, et al., for the U.S. EPA. The pilot study evaluated livestock, soil, and wastewater plant ammonia emissions since these sources contributed a relatively large fraction of the total inventory and because the contribution from wastewater plants were determined to be less than previously estimated. The ammonia emission inventory concluded that livestock sources contributed 50 percent of the ammonia generated in the valley, natural soil emissions contributed 40 percent, fertilizer application contributed 6 percent, and the remaining 4 percent were from publicly owned treatment waste systems, landfills, mobile sources, miscellaneous solvents, stationary combustion,

industrial sources, ammonia refrigeration, and geothermal emissions. The study indicated that the livestock population was dominated by cattle. (FPEIR Vol. 1B, pp. 4.2-79 to 4.2-80.)

It is unknown whether future regulation of ammonia emissions from livestock operations will occur. While ammonia is an air pollutant of concern and is being studied, the EIR considers conservatively that emissions from the project are a significant and unavoidable impact. (FPEIR Vol. 1B, p. 4.2-80.)

As discussed in Impact 4.2-4 above and in the PEIR, certain treatment technologies may reduce or prevent the release of ammonia emissions into the environment from manure storage/collection systems. These treatment technologies include placement of impermeable covers over waste storage systems, composting, aerobic treatment, or anaerobic treatment of collected manure. The effectiveness of these technologies in reducing ammonia has not been critically evaluated. (FPEIR Vol. 1B, p. 4.2-81.) The Board has determined that because of economic, technological, environmental and social considerations, advanced manure treatment is not feasible at this time and therefore should not be required. (See discussion of infeasibility above, in discussion of Impact 4.2-4.)

#### Mitigation of Ammonia Emissions in the Element

Policy DE 4.1b.B requires that the timing and method of application of manure and process water to land minimize unnecessary contact with air to minimize the release of ammonia into the atmosphere. Policy DE 5.1b requires the preparation of an OMP and Policy DE 6.2d requires that the County set standards for implementation of the OMP. Policy DE 5.1e requires stabilization of dust in the corrals, which would reduce the formation of ammonia. Policies DE 6.1a and 6.1b require that the Code Compliance Division monitor compliance with the policies in the Element and include a compliance specialist capable of technically reviewing monitoring programs required by the Element, including the OMP. Annual evaluation by dairy operators under DE 6.3a will also ensure that ammonia emissions are mitigated as required in the FPEIR. (FPEIR Vol. 1B, p. 4.2-80.)

#### **Mitigation:**

No additional feasible mitigation measures are available. (FPEIR VOL. 1B, p. 4.2-81.)

Implementation of Policies DE 4.1b.B, 5.1b, 6.1b and 6.2d will be expected to reduce ammonia generated from dairy facilities. A significance criterion for ammonia has yet to be established by SJVUAPCD and the significance of the impact of the expected ammonia releases cannot be defined at this time. (FPEIR Vol. 1B, p. 4.2-81.) The effectiveness of the mitigation measures in reducing ammonia at dairies currently cannot be demonstrated since standard testing methods for emissions of this pollutant from manure at dairies are not readily available. Because emission of ammonia will be expected after mitigation and no significance criteria have been developed for this compound, the residual impact is conservatively considered significant and unavoidable.



Significance after Mitigation

Significant and unavoidable. (FPEIR Vol. 1B, p. 4.2-78.) Changes or alterations have been required in, or incorporated into, the Project that substantially lessen, but do not avoid, the potentially significant environmental effect associated with impacts due to generated ammonia emissions from cattle manure during operation. No mitigation is available to render the effect less than significant. The effect therefore remains potentially significant and unavoidable.

**Impact 4.2-7:**            **Operation of new or expanded dairies will generate hydrogen sulfide emissions.** (FPEIR Vol. 1B, p. 4.2-81.)

**Findings:**                **This is a significant and unavoidable impact.**

**Explanation:**

Hydrogen sulfide is an odorous compound that is also produced during anaerobic decomposition of manure. Hydrogen sulfide can cause dizziness, respiratory tract irritation, nausea, and headaches. Hydrogen sulfide emissions generated from decomposition of cattle manure are conservatively considered a significant impact since emissions may adversely affect sensitive receptors and on-site workers (e.g., odor release and health hazard). (FPEIR Vol. 1B, pp. 4.2-81 to 4.2-82.)

Hydrogen sulfide is included under the State Air Toxics "Hot Spots" Information and Assessment Act (AB2588) as substances for which emissions must be estimated for facilities that exceed certain thresholds. These thresholds include facilities that emit ten tons or more of PM<sub>10</sub> per year. As indicated in Impact 4.2-6, enforcement of AB2588 requirements is the responsibility of local air quality control districts. (FPEIR Vol. 1B, p. 4.2-82.)

California has an ambient air quality standard for hydrogen sulfide, although monitoring data are limited statewide and the San Joaquin Valley is yet to be assigned an attainment or nonattainment designation. Significance criteria for hydrogen sulfide for the San Joaquin Valley have not been developed by SJVUAPCD. (FPEIR Vol. 1B, p. 4.2-82.)

As discussed in Impact 4.2-4 above and in the PEIR, certain treatment technologies may reduce or prevent the release of hydrogen sulfide emissions into the environment from manure storage/collection systems. These treatment technologies include placement of impermeable covers over waste storage systems, composting, aerobic treatment, or anaerobic treatment of collected manure. The effectiveness of these technologies in reducing hydrogen sulfide has not been critically evaluated. (FPEIR Vol. 1B, p. 4.2-81.) The Board has determined that because of economic, technological, environmental and social considerations, advanced manure treatment is not feasible at this time and therefore should not be required. (See discussion of infeasibility above, in discussion of Impact 4.2-4.)

Mitigation of Hydrogen Sulfide Emission in the Element

Policies DE 5.1b and 6.2d will reduce hydrogen sulfide emissions from cattle manure. Preparation and implementation of an OMP would be expected to reduce hydrogen sulfide emissions. Monitoring under Policies DE 6.1a, 6.1b and 6.3a would also ensure that hydrogen sulfide emissions are mitigated to the extent feasible. This is a significant impact. (FPEIR Vol. 1B, pp. 4.2-82 to 4.2-83.)

**Mitigation:**

Mitigation Measure 4.2-7:

No additional feasible mitigation measures are available. (FPEIR Vol. 1B, p. 4.2-83.)

Implementation of Policies DE 5.1b, 6.2d, 6.1a, 6.1b and 6.3a would reduce hydrogen sulfide generated from dairy facilities. However, the effectiveness of the mitigation measures in reducing hydrogen sulfide at dairies currently cannot be demonstrated since standard testing methods for emissions of this pollutant from manure at dairies are not available. Because emission of hydrogen sulfide will be expected after mitigation and no significance criteria have been developed for this compound, the residual impact is conservatively considered significant and unavoidable in this EIR. (FPEIR Vol. 1B, p. 4.2-83.)

Significance after Mitigation

Significant and unavoidable. (FPEIR Vol. 1B, p. 4.2-81.) Changes or alterations have been required in, or incorporated into, the Project that substantially lessen, but do not avoid, the potentially significant environmental effect associated with impacts due to generated hydrogen sulfide emissions during operation. No mitigation is available to render the effect less than significant. The effect therefore remains potentially significant and unavoidable.

**Impact 4.2-8:            Operation of new or expanded dairies will generate methane emissions from cattle and cattle manure. (FPEIR Vol. 1B, p. 4.2-73.)**

**Findings:                This is a significant and unavoidable impact.**

**Explanation:**

Similar to existing conditions, new or expanded dairies will also generate methane emissions from cattle and manure management. Potential methane emissions were estimated for future (emissions from all cattle allowed under the Element) and typical 500-, 705-, 2,000-, and 5,000-milk cow dairies. Cattle digestion at new or expanded dairies at the project site can potentially generate on the order of 71,000 tons per year of methane under future conditions if no emission controls are implemented. Potentially 93, 131, 372, and 929 tons per year of methane can be emitted from cattle digestion at a 500-, 705-, 2,000-, and 5,000-milk cow dairy. The emissions were estimated based on EPA-developed emission factors for dairy cattle in the western United

States and the projected number of cows at the dairies. However, the actual amount of methane generated by cattle depends on the feed quality, feeding level and schedule, and animal health. (FPEIR Vol. 1B, pp. 4.2-83 to 4.2-84.)

Cattle that are productively efficient generate less methane. The EPA-developed voluntary Ruminant Livestock Efficiency Program provides beneficial practices to improve the production efficiency of ruminant livestock and, consequently, reduce methane emissions. Methane-reducing measures recommended in the program include ensuring proper herd health, nutritional feed quality, and selecting cattle that are known to be efficiently productive. The owner/operator may implement some of the methane-reducing measures, such as providing on-site cattle with a balanced ration of feed containing proper nutrients and vitamin/mineral additives, in an effort to reduce methane emissions at the dairies. (FPEIR Vol. 1B, p. 4.2-84.)

Cattle manure generated at the dairies will also release methane during the decomposition process. The amount of methane that can be released from decomposing manure under future conditions at maximum buildout (emissions from all cattle allowed under the Element) can be on the order of 45,360 tons per year; approximately 59, 84, 238, and 594 tons per year of methane can be generated from cattle manure at a 500-, 705-, 2,000-, and 5,000-milk cow Dairy Facility. The estimates were based on the projected number of cows at each proposed dairy and emission factors for natural manure decomposition available from the Emission Inventory Procedural Manual, Methods for Assessing Area Source Emissions developed by the California Air Resources Board. (FPEIR Vol. 1B, p. 4.2-84.)

Although the contribution to global increases of greenhouse gases by the methane generated from dairy cattle and manure decomposition from new or expanded dairies under the Element cannot be quantified due to the complexities of global climatology, additional methane released to the environment will contribute to the problem of worldwide increase in greenhouse gases and will be considered a significant impact. Although Federal, State, and local regulations to enforce methane emissions have not been developed, voluntary programs established by the U.S. EPA, in coordination with other agencies, are a means to minimize or reduce methane emissions. (FPEIR Vol. 1B, p. 4.2-84.)

#### Mitigation of Methane Emissions in the Element

Policies DE 3.1a, 5.1b and 6.2d will reduce methane emissions from cattle manure. One required component of the OMP required under Policies DE 3.1, 5.1b and 6.2d is that manure be incorporated during or immediately after land application by injecting it into the soil or plowing or disking the soil. (See Appendix J, Component 2c.B.9.) Immediate incorporation of manure will reduce methane emissions. Monitoring under the policies under Goal 6 will also ensure that methane emissions are reduced as required in the Element.

**Mitigation:**

Mitigation Measure 4.2-8:

No additional feasible mitigation measures are available. (FPEIR Vol. 1B, p. 4.2-85.)

Implementation of Policies DE 3.1a, 5.1b, 6.1a, 6.2d, 6.3a, and 6.1b will reduce methane generated from ruminant livestock and manure. However, methane will continue to be released by the dairy cattle and temporarily stockpiled manure even after the mitigation measures are implemented. Increase of methane in the atmosphere contributes to worldwide increases in greenhouse gases. To date, a numerical significance criterion for the impact of increases in greenhouse gases has not been established. Therefore, the residual impact of increased methane emissions after mitigation is considered significant and unavoidable. (FPEIR Vol. 1B, p. 4.2-85.)

Significance after Mitigation

Significant and unavoidable. (FPEIR Vol. 1B, p. 4.2-83.) Changes or alterations have been required in, or incorporated into, the Project that substantially lessen, but do not avoid, the potentially significant environmental effect associated with impacts due to generated methane emissions from cattle and cattle manure during operation. No mitigation is available to render the effect less than significant. The effect therefore remains potentially significant and unavoidable.

**Impact 4.2-9:**            **Increased localized carbon monoxide will be generated from vehicular traffic during operation of new or expanded dairies.** (FPEIR Vol. 1B, p. 4.2-86.)

**Findings:**                **This is a less-than-significant impact.**

**Explanation:**

The Element proposes approximately 257,312 additional milk cows and 285,654 head of support stock on land within designated DDOZs and NSOZs in Kings County. Assuming an average dairy size of approximately 1,000 milk cows, the number of new dairies that can be accommodated is about 257 new dairies, or an increase of 172 percent from the County's existing inventory of 149 dairies. Since the theoretical dairy herd is the factor limiting dairy development, development of larger dairies will result in fewer dairies being constructed. (FPEIR Vol. 1B, p. 4.2-86.)

Average daily truck traffic due to each new 1,000-cow dairy is assumed to be approximately 26 one-way vehicle trips per day. This estimate is based on information provided by recent dairy applicants on milk delivery trucks (two trips), feed delivery trucks (four trips), dry manure trucks (four trips), and workers/visitors for large dairy facilities. It is also assumed that each new dairy will include at least one new residence (16 trips). Truck trips will account for approximately 38 percent of the total estimated additional vehicular trips generated by the new dairies. (FPEIR Vol. 1B, p. 4.2-86.)

As indicated in the PEIR, construction of approximately 257 new dairy facilities will generate approximately 6,682 daily trips to the local and regional roadway system, which will be distributed according to where each new dairy will be located. The traffic added by each dairy project to any given roadway will be approximately 25 to 30 vehicle trips per day. The addition of this small amount of new dairy traffic will not exceed the capacity of the existing roadways in the agricultural areas of the County. (FPEIR Vol. 1B, pp. 4.2-86 to 4.2-87.)

The SJVUAPCD considers that a project will have no potential to create a violation of the CO standard if the level of service at intersections in the project vicinity will not be reduced to LOS E or F and if the project will not substantially worsen an already existing LOS F on one or more streets or intersections in the project vicinity. (FPEIR Vol. 1B, p. 4.2-87.)

The only roadways in Kings County that are operating near capacity are located in urban areas, such as Hanford, where new dairy development will not be allowed. Therefore, based on the estimated traffic increase resulting from construction of approximately 257 new dairy facilities, the Project will not be considered to violate the CO standard, according to the District's guidelines. Therefore, the increase in CO emissions is considered a less-than-significant impact. (FPEIR Vol. 1B, p. 4.2-87.)

Under Policy DE 3.1g, an applicant for a new dairy or an expansion of an existing dairy will submit a technical report from the Kings County Regional Transportation Agency to evaluate the effect of the project on surrounding highways and roadways. If the project-generated traffic will degrade LOS on adjacent roadways to a LOS E or lower or to a LOS D on State highways, a CUP will be required.

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.2-87.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

Implementation of Policy DE 3.1g will reduce the potential for adverse queuing of traffic generated by dairy development and the potential for a significant increase in CO emissions. (FPEIR Vol. 1B, p. 4.2-87.)

**Impact 4.2-10:** Implementation of the Element will result in a cumulative increase in PM<sub>10</sub> emissions. (FPEIR Vol. 1B, p. 4.2-87.)  
**Finding:** This is a significant and unavoidable cumulative impact.  
**Explanation:**

The San Joaquin Valley is currently in nonattainment for PM<sub>10</sub> Federal and State standards. Construction and operation of new or expanded dairies within the county will adversely

contribute to the air basin's PM<sub>10</sub> attainment problem from dairy and agricultural operations. The SJVUAPCD has recently amended the Regulation VIII rules and is also conducting on-field agricultural research projects to determine appropriate control strategies. Until the research projects are completed, SJVUAPCD is strongly recommending that the voluntary conservation practices developed by SJVUAPCD and the Natural Resource Conservation Service be implemented to reduce emissions from on-field agricultural activities, including livestock management. Rule 8081 deals with off-field agricultural activities. (FPEIR Vol. 1B, p. 4.2-87.)

Under the Element, dairies must implement measures to control PM<sub>10</sub> emissions beyond that required by CARB or the SJVUAPCD. Thus, dairies on Kings County will do more to mitigate cumulative PM<sub>10</sub> emissions than other dairies in the Basin.

**Mitigation:**

None available. (FPEIR Vol. 1B, p. 4.2-76.)

Although implementation of Policies DE 3.1a, 5.1b, 5.1d, 5.1e, 5.1g, 5.1h, 6.1a, 6.1b, 6.2c, 6.2d, 6.3a and 6.1b of the Element will reduce PM<sub>10</sub> emissions from cumulative project operations, PM<sub>10</sub> emissions can continue to be generated during cumulative operations; therefore, the impact will constitute a significant and unavoidable adverse cumulative impact. (FPEIR Vol. 1B, pp. 4.2-87 to 4.2-88.)

Significance after Mitigation

Significant and unavoidable adverse cumulative impact. (FPEIR Vol. 1B, p. 4.2-88.) Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the project's cumulative contribution to significant cumulative effects associated with increase in PM<sub>10</sub> emissions due to dairy development. The effect therefore remains significant and unavoidable.

**Impact 4.2-11:**        **Implementation of the Element will result in a cumulative increase in ozone precursor emissions.** (FPEIR Vol. 1B, p. 4.2-88.)

**Finding:**            **This is a significant and unavoidable cumulative impact.**

Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the project's cumulative contribution to significant cumulative effects associated with increase in ozone precursor emissions due to dairy development. The effect therefore remains significant and unavoidable.

**Explanation:**

Existing dairies, as well as new or expanded dairies under the Element, are or will be generating ROG and NOx emissions during operations. ROG and NOx are ozone precursors and the San

Joaquin Valley is currently in nonattainment for both the Federal and State ozone standards. Additional ozone precursor emissions will exacerbate the valley's nonattainment conditions. Therefore, the cumulative projects will be considered to have a significant and unavoidable adverse cumulative impact on regional air quality. (FPEIR Vol. 1B, p. 4.2-88.)

Under the Element, dairies must implement measures to control ozone precursor emissions beyond that required by CARB or the SJVUAPCD. Thus, on a program level in Kings County, dairies will do more to mitigate cumulative ozone precursor emissions than other dairies in the Basin.

**Mitigation:**

None available. (FPEIR Vol. 1B, p. 4.2-88.)

Although implementation of Policies DE 3.1a, 5.1b, 6.1a, 6.1b, 6.2d, and 6.3a will reduce or prevent the release of ozone precursor emissions into the environment from manure storage or collection systems, ozone precursor emissions will continue to be generated from existing, new, or expanded dairies in the County (i.e., exhaust emissions, manure stockpile, initial deposition of manure). Therefore, this impact will constitute a significant and unavoidable adverse cumulative impact. (FPEIR Vol. 1B, p. 4.2-88.)

*Significance after Mitigation*

Significant and unavoidable adverse cumulative impact. (FPEIR Vol. 1B, p. 4.2-88.)

**Impact 4.2-12:**            **Implementation of the Element will result in a cumulative increase in methane emissions.** (FPEIR Vol. 1B, p. 4.2-88.)

**Finding:**                    **This is a significant and unavoidable cumulative impact.**

Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the project's cumulative contribution to significant cumulative effects associated with increase in methane emissions due to dairy development. The effect therefore remains significant and unavoidable.

**Explanation:**

Increases in greenhouse gases, such as methane, to the atmosphere are an international environmental air quality problem. Manure decomposition and ruminant animal digestive systems are considered two major methane generating sources as identified by the U.S. EPA. None of the existing or approved animal feed operations in Kings County is known to be designed to prevent methane emissions. Therefore, existing, new, or expanded dairy-related feed operations will most likely be generating methane emissions from dairy operations. New or

expanded dairies under the Element will further increase the amount of methane generated within the County from confined animal facility operations. (FPEIR Vol. 1B, p. 4.2-88.)

Under the Element, dairies must implement measures to control methane emissions beyond that required by CARB or the SJVUAPCD. Thus, on a program level in Kings County, dairies will do more to mitigate cumulative methane emissions than other dairies in the Basin.

**Mitigation:**

None available. (FPEIR Vol. 1B, p. 4.2-88.)

Even with the implementation of Policies DE 3.1a, 5.1b, 6.1a, 6.2d, 6.3a, and 6.1b of the Element, some methane emissions will still be generated from cumulative projects. Therefore, methane emissions generated from the cumulative projects will be considered to result in a significant unavoidable and adverse cumulative impact. (FPEIR Vol. 1B, p. 4.2-89.)

Significance after Mitigation

Significant and unavoidable cumulative impact. (FPEIR Vol. 1B, p. 4.2-88.)

**Impact 4.2-13:**            **Implementation of the Element will result in a cumulative increase in hydrogen sulfide emissions.** (FPEIR Vol. 1B, p. 4.2-89.)

**Finding:**                    **This is a significant and unavoidable cumulative impact.**

Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the project's cumulative contribution to significant cumulative effects associated with increase in hydrogen sulfide emissions due to dairy development. The effect therefore remains significant and unavoidable.

**Explanation:**

New and expanded dairies under the Element, as well as existing animal feed operations in the County will or are generating hydrogen sulfide emissions during operation activities. None of the existing confined animal facility operations in Kings County are designed to prevent hydrogen sulfide emissions. The cumulative projects will further increase the amount of hydrogen sulfide generated in the project vicinity from confined animal facility operations. (FPEIR Vol. 1B, p. 4.2-89.)

Under the Element, dairies must implement measures to control hydrogen sulfide emissions beyond that required by CARB or the SJVUAPCD. Thus, on a program level in Kings County, dairies will do more to mitigate cumulative hydrogen sulfide emissions than other dairies in the Basin.



**Mitigation:**

None available. (FPEIR Vol. 1B, p. 4.2-89.)

Hydrogen sulfide emissions will continue to be generated from cumulative project operations even with the implementation of Policies DE 3.1a, 5.1b, 6.1a, 6.2d, 6.3a, and 6.1b in the Element. Therefore, this impact will constitute a significant and unavoidable adverse cumulative impact. (FPEIR Vol. 1B, p. 4.2-89.)

Significance after Mitigation

Significant and unavoidable cumulative impact. (FPEIR Vol. 1B, p. 4.2-89.)

**Impact 4.2-14: Implementation of the Element will result in a cumulative increase in ammonia emissions. (FPEIR Vol. 1B, p. 4.2-89.)**

**Finding: This is a significant and unavoidable cumulative impact.**

Changes or alterations have been required in, or incorporated into, the project that substantially lessen, but do not avoid, the project's cumulative contribution to significant cumulative effects associated with increase in ammonia emissions due to dairy development. The effect therefore remains significant and unavoidable.

**Explanation:**

New and expanded dairies under the Element, in addition to existing animal feed operations in the County, will or are generating ammonia emissions during operation. None of the existing or approved confined animal facility operations in Kings County is known to be designed to prevent ammonia emissions. The cumulative projects will further increase the amount of ammonia generated in the project vicinity from confined animal facility operations. (FPEIR Vol. 1B, p. 4.2-89.)

Under the Element, dairies must implement measures to control ammonia emissions beyond that required by CARB or the SJVUAPCD. Thus, on a program level in Kings County, dairies will do more to mitigate cumulative ammonia emissions than other dairies in the Basin.

**Mitigation:**

None available. (FPEIR Vol. 1B, p. 4.2-89.)

Ammonia emissions will continue to be generated from cumulative project operations even with the implementation of Policies DE 3.1a, 4.1b.B, 5.1b, 5.1e, 6.1a, 6.1b, 6.2d, and 6.3a in the Element. Therefore, this impact will constitute a significant and unavoidable adverse cumulative impact. (FPEIR Vol. 1B, p. 4.2-90.)

Significance after Mitigation

Significant and unavoidable cumulative impact. (FPEIR Vol. 1B, p. 4.2-89.)

**C. WATER RESOURCES**

**Standards of Significance**

The CEQA guidelines indicate that the Project may have a significant effect on the environment, if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;
- Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam;
- Inundation by seiche, tsunami, or mudflow.

(FPEIR Vol. 1B, pp. 4.3-13 to 4.3-14.)

**Impact 4.3-1**

**Construction activities associated with new or remodeled dairies can result in degradation of water quality in receiving waters by reducing the quality of storm water runoff. (FPEIR Vol. 1B, p. 4.3-14.)**

**Finding:**

**This is a less-than-significant impact.**

**Explanation:**

Construction and grading associated with new or remodeled dairies will require temporary disturbance of surface soils and may result in removal of existing soil cover. During the construction period, grading and excavation activities will result in exposure of soil to runoff and wind, potentially causing erosion. Soil stockpiles and excavated areas of the project site may be exposed to wind erosion and runoff and, if not managed properly, the eroded materials can increase sedimentation at and away from the site. (FPEIR Vol. 1B, p. 4.3-14.)

The potential for chemical releases is present at most construction sites. Once released, substances such as fuels, oils, paints, and solvents can be transported to ditches and/or groundwater in wash water and dust control water, potentially reducing the quality of the receiving waters. Any runoff from the project (expected to be limited, if occurring at all) will be collected in the ditches and process water ponds at the project site and will not be expected to discharge to surface water canals. Potential chemical releases at the construction sites that may result in water quality impacts are regulated by the NPDES permitting process. (FPEIR Vol. 1B, p. 4.3-14.)

Prior to the initiation of grading, the owner/operator of the proposed dairies will be required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to water quality during construction of the project. The SWPPP will include:

- Specific and detailed BMPs designed to mitigate construction-related pollutants. These controls will include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP will specify properly designed centralized storage areas that keep these materials out of the rain and/or protected from the wind.

Dust control BMPs generally stabilize exposed surfaces and minimize activities that suspend or track dust particles. For heavily traveled and disturbed areas, wet suppression (watering), chemical dust suppression, gravel or asphalt surfacing, temporary gravel construction entrances, equipment wash-out areas, and haul truck covers can be employed as dust control applications. Permanent or temporary vegetation and mulching and sand fences can be employed for areas of occasional or no construction traffic. Preventive measures will include minimizing surface areas to be disturbed, limiting on-site vehicle traffic to 15 miles per hour, and controlling the number and activity of vehicles on a site at any given time.

The SWPPP is required to specify a monitoring program to be implemented by the construction site supervisor. RWQCB personnel, who may make unannounced site inspections, are empowered to levy appropriate fines if it is determined that the SWPPP has not been properly prepared and implemented.

(FPEIR Vol. 1B, p. 4.3-15.)

Implementation of existing regulations (including the construction period SWPPP) will reduce this potential impact to a less than significant level without additional mitigation. (FPEIR Vol. 1B, p. 4.3-15.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.3-15.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.3-2:**            **Projects implemented under the Element can modify surface water drainage patterns, potentially causing localized off-site migration of runoff, erosion, and/or flooding.** (FPEIR Vol. 1B, p. 4.3-15.)

**Finding:**

**This is a less-than-significant impact.**

**Explanation:**

The Element includes several policies that will reduce the potential impacts associated with alteration of drainage patterns. Policy DE 1.2c restricts dairy facilities to locations outside the 100-year flood hazard area and, therefore, grading projects associated with construction of dairies and process water storage ponds will not be conducted in the 100-year flood plain. This policy will effectively minimize alteration of drainage patterns in areas subject to flooding. In addition, Policy DE 1.2f restricts dairies in the southwestern upland area (west of Interstate-5 and the California Aqueduct) where grading can create drainage and process water containment problems in areas of excessive slopes. (FPEIR Vol. 1B, p. 4.3-16.)

The area designated as acceptable for location of dairy facilities is relatively flat and, therefore, minor changes in grade can alter the direction of surface water runoff. Grading associated with development or redevelopment can cause runoff to be directed away from a dairy site, toward an adjacent property, or into a surface water feature potentially affecting water quality. Site-specific drainage control is necessary to ensure that runoff is properly managed. Policy DE 3.2c establishes a minimum setback of 150 feet between manured areas and water wells or surface water bodies. Policy DE 3.2d requires that no process water be discharged to surface water features. To ensure that irrigated fields are properly drained, Policy DE 4.1b.C requires dairy operators to present an irrigation management program to the County Planning Department that ensures that irrigation water and runoff from fields at each dairy unit will not be allowed to migrate away from the site or into surface water bodies (i.e., features other than tailwater ponds).

(FPEIR Vol. 1B, p. 4.3-16.)

Conformance with State Confined Animal Facility regulations and implementation of Policies DE 1.2c, 1.2f, 3.2c, 3.2d, 4.1b, and 4.1c will reduce impacts associated with runoff from dairy facilities to a less-than-significant level. (FPEIR Vol. 1B, p. 4.3-16.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.3-16.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.3-3:**            **Implementation of the Project will result in an increase in impervious surfaces, potentially increasing runoff volumes and velocities.** (FPEIR Vol. 1B, p. 4.3-16.)

**Finding:**                **This is a less-than-significant impact.**

**Explanation:**

The construction of roofed structures (e.g., barns, support buildings, and residences) and pavement (e.g., roads, manure storage pad, parking lots) will result in an increase in impervious surfaces at each of the facilities developed under the Element. Impacts related to an increase in impervious surfaces generally relate to increases in runoff volume and velocity. However, in the case of confined animal facilities, there are also water quality implications. (FPEIR Vol. 1B, p. 4.3-16.)

Under existing State regulations, confined animal facilities shall be designed and constructed to retain all facility wastewater generated, together with all precipitation on, and drainage through, manured areas during a 25-year, 24-hour storm event (CCR Title 27, Division 2, Subdivision 1, Chapter 7, Subchapter 2 Section 22562(a)). All precipitation and surface drainage outside of manured areas shall be diverted away from manured areas unless it would be fully retained (CCR Title 27, Division 2, Subdivision 1, Chapter 7, Subchapter 2, Section 22562 (b)). (FPEIR Vol. 1B, p. 4.3-17.)

The runoff from increased impervious surfaces outside of manured areas may be substantial during intense storm events. However, the annual rainfall amount for the County is relatively low, and under normal circumstances, little runoff will be expected. Further, the County Public Works Department maintains minimum requirements for storm drainage facilities and will ensure that any project implemented under the Element will include an adequate drainage system. (FPEIR Vol. 1B, p. 4.3-17.)

Compliance with existing regulations and programs will reduce the impact to a less-than-significant level without additional mitigation. (FPEIR Vol. 1B, p. 4.3-17.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.3-17.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.3-4:** Dairies located in flood-prone areas can be damaged or rendered temporarily inoperable during a flood event. In addition, floodwaters can inundate dairy facilities (manured areas and/or process water storage facilities) and fields where wet or dry manure had been recently applied causing impacts to surface water quality. (FPEIR Vol. 1B, p. 4.3-17.)

**Finding:** This is a less-than-significant impact.

**Explanation:**

A substantial portion of the County, particularly along the Kings and Tule rivers and Cross Creek, and in the Tulare Lake Bed area, is located in the 100-year flood hazard zone as mapped by FEMA. Dairy facilities located within flood hazard zones can be damaged by floodwaters or be required to shut down for extended periods. Flood waters can mingle with wet or dry manure storage areas at the facilities, cause releases of process water from ponds, and/or come into contact with freshly applied manure on fields, impacting surface water quality. (FPEIR Vol. 1B, p. 4.3-17.)

Policy DE 1.2c of the Element restricts dairy facilities to locations outside the 100-year flood hazard area and, therefore, effectively reduces potential flood-related impacts associated with new dairy facilities to a less-than-significant level. (FPEIR Vol. 1B, p. 4.3-17.)

Under Policy DE 3.2g, existing dairies in the 100-year flood hazard zone will be allowed only if a site-specific hydraulic analysis (performed by a licensed engineer) demonstrates that the Dairy Facility is not in the 100-year flood zone (i.e., is at an elevation above the 100-year flood elevation at that location). Alternatively, the policy will allow dairies within the zone if 100-year flood protection is provided by constructing levees or other flood control structures. (FPEIR Vol. 1B, p. 4.3-18.)

The Element will allow application of wet and dry manure to fields (i.e., as a soil amendment/fertilizer) within the 100-year flood hazard zone if specific safeguards were to be established to prevent pollution (Policies DE 1.2c and 3.2d), including:

- No spreading of manure or process water in flood plains during flooding or threat of flooding;
- Ensure that manure is worked into the soil immediately upon application.

(FPEIR Vol. 1B, p. 4.3-18.)

Manure and process water applied to fields may contain substantial quantities of nutrients (i.e., nitrogen and phosphorus) and microorganisms, including pathogens (disease causing organisms). If these substances enter the surface or groundwater environments in sufficient concentrations, they can cause water quality degradation. Potential impacts to groundwater quality from excess nutrients and pathogens are described under Impact 4.3-7. Potential impacts to surface water quality associated with flooding of manure-fertilized agricultural fields will be mitigated by the Element and existing conditions as follows:

- The Element will require operational practices that will keep flood waters from coming into contact with recently applied manure or process water;
- A significant amount of adsorption to soil particles and inactivation of pathogenic organisms will be expected to occur in the fields prior to contact with any flood waters;
- Neither the floodwater nor the receiving waters will be used as a drinking water source without prior treatment and, therefore, any pollutants contained in the floodwater will not be expected to be ingested by the public.
- During widespread regional flooding, all surface waters are expected to be degraded and precautions are already in place that minimizes the likelihood of inadvertent ingestion of pollutants by the public (i.e., public advisories to boil water before use, maintenance and disinfection of wells after flood waters recede).

(FPEIR Vol. 1B, pp. 4.3-18 to 4.3-19.)

Implementation of the pollution prevention actions required by the Element, including Policies DE 1.2c, 3.2d, and 3.2g, will minimize the potential for degradation of water quality during flood events and reduce the impact to a less-than-significant level. (FPEIR Vol. 1B, p. 4.3-19.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.3-19.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.3-5:**            **Operation of existing and new dairies can result in releases of pollutants (including nutrients such as nitrogen and phosphorus), impacting the quality of surface waters. (FPEIR Vol. 1B, p. 4.3-19.)**

**Finding:**                **This is a less-than-significant impact.**

**Explanation:**

Dairies must manage large volumes of manure and manure-laden process water (each milking cow excretes approximately 85 pounds of manure each day). Releases of process water to the environment and/or exposure of dry manure to uncontrolled rainfall and runoff can substantially

impact the quality of receiving waters. Release of dairy process water or water that has come into contact with manure, feed, or dead animals can transport nutrients and other pollutants to receiving waters. Of particular concern, will be the release of substantial amounts of nitrogen and phosphorus into surface waters from dairy sites. (FPEIR Vol. 1B, p. 4.3-19.)

Excess nutrients (i.e., nitrogen and phosphorus) in surface waters have been associated with several environmental problems, including eutrophication and altering the productivity of natural ecosystems. While the effects of nitrogen (as nitrate) in drinking water are a human health concern (the U.S. EPA recommends the maximum concentration of 10 parts per million of nitrates in drinking water), phosphorus is not toxic. The environmental problems related to nitrogen and phosphorus is mainly associated with the control of unwanted nutrient levels in surface waters. In nutrient-enriched surface waters, excessive plant growth may cause impacts. Plant growth in surface waters requires light, carbon dioxide, and nutrients (nitrogen and phosphorus, among others). Since light and carbon dioxide are readily available in plentiful quantities in shallow waters, it is typically the amount of nutrients available that limits plant growth. (FPEIR Vol. 1B, p. 4.3-19.)

It has been demonstrated that, in freshwater systems, phosphorus tends to be the limiting nutrient, while in marine systems nitrogen more often limits plant growth. This phenomenon may be explained by the presence of cyanobacteria in freshwater systems that are capable of fixing nitrogen from the atmosphere. In freshwater systems, there is no such source for phosphorus. Conversely, nitrogen-fixing bacteria in marine systems are of relatively little importance. Based on this tendency, the County (which has no direct discharges to marine waters) should be particularly vigilant in controlling discharges of phosphorus to surface waters. (FPEIR Vol. 1B, pp. 4.3-19 to 4.3-20.)

Regardless of the type of degradation (whether from phosphorus or nitrogen loading), for an impact to occur, the nutrients must reach the receiving waters. Several existing State regulations and numerous policies of the Element are designed to minimize potential impacts to surface water quality. Under existing State regulations, confined animal facilities shall be designed and constructed to retain all facility process water generated, together with all precipitation on, and drainage through, manured areas, feed storage areas, and dead animal storage areas during a 25-year, 24-hour storm event. All precipitation and surface drainage outside of manured areas shall be diverted away from these areas unless it would be fully retained (CCR Title 27, Division 2, Subdivision 1, 22562(a)). This State regulation is reiterated in the Element under Policy DE 4.1a.B.3. (FPEIR Vol. 1B, p. 4.3-20.)

The Element contains policies designed to minimize the potential impacts to surface water quality associated with existing and new dairies, including consideration of surface water quality when siting new dairies (Policies DE 1.2f and DE 3.1a.A) and construction methods and operational procedures designed to prevent leakage of pollutants (Policy DE 4.1a.B.2). Policy DE 4.1b will establish requirements for manure management, including maintenance of nutrient balance between land application and crops. Under Policy DE 4.1c, operators will be required to



implement appropriate land management techniques to minimize the potential runoff of soil, nutrients, organic matter, and pathogens. In addition, Policy DE 4.1d will mandate appropriate management of dead animals to protect surface (and groundwater) quality. Implementation of existing State regulations and policies of the Element will adequately mitigate potential impacts associated with nutrients transported in surface water to a less-than-significant level. (FPEIR Vol. 1B, p. 4.3-20.)

Existing State regulations and policies of the Element do not directly address the potential for atmospheric fallout of nutrients to surface waters. It has been demonstrated that fallout of nitrogen compounds can affect surface water quality. In addition to molecular nitrogen (which comprises 78 percent of the atmosphere), trace amounts of nitrogen oxides, nitric acid vapor, gaseous ammonia, and organic nitrogen circulate through the atmosphere. There are many human activities that represent sources of nitrogen compounds to the atmosphere. Motor vehicles, electric utilities, and industrial boilers are the largest sources of nitrogen oxides and agriculture accounts for approximately 80 percent of the ammonia emissions in the United States. (FPEIR Vol. 1B, pp. 4.3-20 to 4.3-21.)

Once in the atmosphere, ammonia has three possible fates: 1) dry deposition, 2) wet deposition, or 3) movement into the upper atmosphere. Movement into the upper atmosphere represents a very small percentage of the total volatilized nitrogen and will not have direct effect on surface water quality. Most volatilized ammonia is dissolved in water vapor in the lower atmosphere and washed to earth by rainfall (wet deposition). Wet deposition of ammonia can be viewed as another source of fertilizer for agricultural crops, but it can also be an unwanted input of fertilizer to sensitive ecosystems. Monitoring of the wet deposition of nitrogen from nitrate and ammonium indicates that the San Joaquin Valley receives a moderate amount of fallout at 3.0 to 4.0 kilograms per hectare (kg/ha) (0.027 to 0.036 pound/acre) annually. Alaska and some parts of Oregon receive less than 1.0 kg/ha (0.009 pound/acre), while several states in the Midwest receive more than 7.0 kg/ha (0.06 pound/acre) annually. The direct impacts to surface water quality from atmospheric fallout associated with dairy operations in the County are difficult to measure, but will be related to the quantity of these compounds released to the air. The areas receiving the highest levels of fallout will be expected to be nearest to the dairy facilities and, in general, these areas will be in cultivated agriculture that may benefit from the nutrient input. Once the compounds enter the air column and move miles to tens of miles away from the source, they are more appropriately considered a potential air quality issue. The Air Quality section of the EIR includes mitigation measures designed to reduce emissions of nitrogen-containing compounds, and these measures will be expected to reduce potential indirect impacts to surface water quality of distant water bodies to a less-than-significant level. (FPEIR Vol. 1B, p. 4.3-21.)

Compliance with existing regulations and programs and Policies DE 1.2f, 3.1a, 4.1a, 4.1b, 4.1c, and 4.1d proposed by the Element will reduce potential impacts to surface water quality to a less-than-significant level without additional mitigation. (FPEIR Vol. 1B, p. 4.3-21.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.3-21.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.3-6:**           **Implementation of the project can result in depletion of water resources.** (FPEIR Vol. 1B, p. 4.3-21.)

**Finding:**               **This is a less-than-significant impact.**

**Explanation:**

Overdraft (i.e., pumping in excess of recharge) of the groundwater resources has been a problem within the San Joaquin Valley, which includes most of the County. Overdraft has been of particular concern in some of the Coast Range valleys (e.g., the Kettleman Plain and Sunflower Valley) in the western portion of the County. Use of water at dairy facilities in the County can result in an increase in aquifer overdrafting. However, in a conjunctively managed basin, where surface water supplies are routinely used to recharge regional aquifers, the distinction between overuse of groundwater versus overuse of surface water is less meaningful. Supplemental surface water is used to recharge the aquifer for later recovery. In such a system, an impact to water supply may be interpreted to occur if a considerable increase in the quantity of water to be used relative to the existing condition were proposed, or water use was interpreted to be wasteful. The focus of this discussion is on efficient use of water, regardless of its source. (FPEIR Vol. 1B, p. 4.3-22.)

Water use associated with dairies can be divided into two main categories: 1) water used at the Dairy Facility (including milk cow washing, drinking, flushing, and residential uses) and 2) water used to irrigate support crops. (FPEIR Vol. 1B, p. 4.3-22.)

***Dairy Facility Water Use***

Some of the water used at a Dairy Facility is consumed (i.e., lost to evaporation or converted to milk by cows), but most of the water is recycled for use in flushing the facilities or applied to crops as irrigation water. The PEIR shows the relationships of the difference between total and actual dairy water demand. (FPEIR Vol. 1B, 4.3-22.)

It has been demonstrated that acre-for-acre, dairy facilities consume less water than irrigated cropland. Impacts associated with water demand at the dairy facilities that currently maintain double-cropped acreage will be less than significant. However, new dairies in those areas that may not be able to sustainably and economically support selected crops (as defined in the Element) because of insufficient water supply (e.g., the Kettleman Plain and Sunflower Valley), may result in overdraft of local groundwater supplies; compliance with Policy DE 3.2h proposed by the Element will reduce potential impacts to the groundwater supplies to a less-than-significant level without additional mitigation. (FPEIR Vol. 1B, p. 4.3-22.)

### *Cropland Water Use*

Most of the arable land within the County is under cultivation. Essentially all crops grown in the County are irrigated. The Element estimates that approximately 314,313 acres of cropland are available within the County for support of the dairy facilities. Based on current cropping patterns, 84 percent of the cropland is single-cropped (grows one crop per year) and 16 percent is double-cropped. (FPEIR Vol. 1B, p. 4.3-23.)

Dairy designs often consider the cropland acreage available to manage the wet and dry manure as a limiting factor for the size of the dairy herd. In general, the goal is to maximize the herd size to increase profitability. Since double cropping increases the amount of nitrogen and salt uptake, more manure can be applied (at agronomic rates) to double cropped-lands than single-cropped lands. Consequently, double cropping is often specified in a dairy design to manage the nutrients and salts generated by the herd. If a substantial increase in the amount of double-cropped lands were to occur within the County, water demand to irrigate the additional crops will be expected to increase, potentially resulting in a significant impact. However, the Element based the size of the maximum herd (for the entire County) on the amount of nitrogen that can be managed on the land available using existing cropping patterns. Therefore, the methodology used by the Element to determine the maximum herd size for the County effectively mitigates any potential increase in water use since cropping patterns are assumed to remain similar to existing conditions (there will be no reason to increase double cropping since current cropping patterns and available land can accommodate the generated manure). This is a less-than-significant impact. (FPEIR Vol. 1B, p. 4.3-23.)

#### **Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.3-23.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.3-7:**      **Activities associated with dairy facilities and support cropland can result in an increase in the rate of salt and nitrogen loading, and the release of pathogens in the basin, degrading groundwater quality.**  
(FPEIR Vol. 1B, p. 4.3-23.)

**Finding:**              **This is a less-than-significant impact.**

#### **Explanation:**

According to the EPA's National Water Quality Inventory, agriculture (including animal feeding operations) is the leading source of water quality impairment in rivers and lakes in the United States, and has been identified as a major contributor to groundwater quality degradation in the Central Valley. Dairy operations can cause environmental degradation of groundwater quality unless the manure generated is collected, stored, and used in an environmentally sound manner.

Substances contained in animal manure that, if not properly managed, can become pollutants include nutrients (i.e., nitrogen and phosphorus), pathogens, and salts. Although salt loading in the closed system of the Tulare Lake Basin is a natural phenomenon, any introduction of additional sources of salts to the basin may increase salt loading rates, impacting groundwater quality. (FPEIR Vol. 1B, pp. 4.3-23 to 4.3-24.)

Essentially all the arable land in the County is under cultivation, and current agricultural practices in the County (and elsewhere) dictate that some sort of soil amendment/fertilizer be added to the land on a regular basis to provide plants with the nutrients and trace elements essential to growth. The typical soil amendment/fertilizer used is either a manufactured fertilizer or manure, which contains salts and nitrogen (commercial fertilizers will be expected to have a substantially lower pathogen content, if any). Each of these potential pollutants is considered below. (FPEIR Vol. 1B, p. 4.3-24.)

### *Salt*

Implementation of the Element may introduce more salts to the County than introduced under existing conditions. Dairy manure contains a significant quantity of salts (generally more than manufactured fertilizers. Import of irrigation water to the County, which contains dissolved salts, will represent an additional source of salt input (although it is assumed that this is a current source that will remain essentially unchanged). Significant outputs of salt associated with agriculture from the basin will include only the salts contained in those products that are transported out of the basin (e.g., milk, meat, and crops). Therefore, under existing conditions, salt loading is probably already occurring in the County. Since no proven method exists to allow ongoing human activity in the basin and maintain groundwater salinity at current levels, the RWQCB supports controlling the rate of increase by prudent practices and source control. (FPEIR Vol. 1B, p. 4.3-24.)

### *Nitrogen*

Nitrogen is an essential nutrient for plant growth. The nitrogen contained in dairy cow manure is a valuable commodity and a benefit provided by the dairy industry, if managed properly. Nitrogen will be applied to the cultivated crops in the County by application of commercial fertilizer (or some other type of animal manure) if the dairy manure supply was not available. The leaching of nitrates into groundwater depends on the solubility of the nitrogen-based fertilizer or manure, the rate at which the nitrate-containing leachate percolates into the soil, and the depth to the groundwater table. Sandy soils tend to permit greater percolation while clay-based soils inhibit infiltration and leaching to groundwater. Under most circumstances, the majority of the nitrates is taken up by the crops or resides in the root zone, since manufactured fertilizers and manures are a valuable commodity and overapplication will not be cost effective. However, elevated nitrate levels have been documented in groundwater underlying dairies, including dairies in the Central Valley. (FPEIR Vol. 1B, p. 4.3-24 to 4.3-25.)

## ***Pathogens***

When infected with disease, dairy cattle, like other animals, can shed infective organisms or pathogens in their manure. However, four steps need to occur for waterborne transmission of pathogens from dairy cows to humans. First, the cow must shed the pathogens. Second, the pathogen must reach the water supply by the animal defecating into surface water, overland flow of tainted water to a surface water supply, or by infiltration to groundwater supplies. Third, the pathogen must remain active (infective) during transport in the environment. Fourth, upon ingestion by a human, an adequate concentration of infective organisms must be present to initiate an infection. Potential impacts to surface water quality from pathogens were discussed under Impacts 4.3-5 and 4.3-6. This analysis focuses on the infiltration to groundwater transmission pathway. (FPEIR Vol. 1B, p. 4.3-25.)

In general, the types of measures that limit the migration of one potential pollutant tend to limit the migration of others. For example, siting a Dairy Facility in an area underlain by clayey soils will tend to restrict the infiltration of salts, nitrogen compounds, and pathogens (hereafter referred to as pollutants). Adequate mitigation of pollutant loading should consider each of the following:

- Facility siting (i.e., favor siting dairies in areas where hydrogeologic conditions tend to limit or reduce pollutant migration and persistence);
- Source control (i.e., limiting the production and release of pollutants to levels that can be assimilated by the system without violating water quality objectives);
- Monitoring (i.e., monitoring of dairy operations to ensure that practices are maintained that minimize pollution potential and implementing a soil and groundwater quality monitoring program that provides feedback on the effectiveness of mitigation);
- Data evaluation (i.e., monitoring data must be evaluated in a way that allows early identification of potential impacts); and
- Response action (i.e., when data indicate an impact has occurred, a mechanism must be available to implement an appropriate response to eliminate the impact).

(FPEIR Vol. 1B, p. 4.3-25.)

The Element is largely organized to address the items presented above. (FPEIR Vol. 1B, p. 4.3-25.)

## ***Dairy Siting***

Section III of the Element establishes general areas suitable for the location of dairies. Several of the criteria are based on the hydrogeology of the County and the goal to protect water quality. (FPEIR Vol. 1B, p. 4.3-26.)

- Policy DE 1.2c states that dairy facilities, including manure and dairy process water storage areas, shall not be located in Special Flood Hazard Areas (as designated by

FEMA). However, dairy manure and process water can be transported into the flood hazard areas and applied to land if appropriate safeguards are implemented.

Specific safeguards identified in the Policy DE 3.2d include avoiding spreading manure and process water during periods of flooding and immediate incorporation of manure into soil. Policy DE 3.2g requires existing dairies that propose to expand within the 100-year flood zone to demonstrate that the Dairy Facility is not actually in the flood hazard zone or to provide 100-year flood protection. These policies minimize the potential for water quality impacts related to inundation of flood-prone dairy facilities. Policy DE 1.2f prohibits dairy development in areas of excessive slope, reducing the potential for dairy runoff into surface water and ultimate infiltration to groundwater.

Policy DE 1.2d restricts the development of dairies within areas underlain by shallow (perched) groundwater. The policy requires that minimum vertical separation of five feet between the bottom of dairy process water ponds or corral surfaces and the highest groundwater level. Proposed dairy facilities not meeting these criteria must present demonstrated site-specific mitigation measures that are approved by the RWQCB before an SPR approval can be considered. A minimum separation of five feet between groundwater and waste has been applied for storage or disposal of wastes that present a potential threat to groundwater (e.g., septic system design). However, the exclusion of dairies from areas with a separation between manured areas and storage ponds does not ensure that the potential for groundwater quality degradation will be reduced to a less-than-significant level. Pollutant migration toward the groundwater is controlled not only by the vertical distance that the pollutants must travel but also the hydraulic conductivity and chemistry of the media through which they must travel (i.e., soil and sediment) and the hydraulic gradient.

Addressing this point, Policy DE 3.1a requires that ground and surface water quality and quantity must be considered by the County when reviewing and evaluating proposals for new and expanded dairies. This policy is supported by Policy DE 3.2a, which requires that specific information regarding hydrogeologic conditions (i.e., depth to first groundwater and groundwater usable for human consumption) must be provided to determine any constraints on dairy development related to water quality. Policy DE 3.2b addresses the suitability of a proposed dairy site with respect to use of nutrients in manure and process water as fertilizer and irrigation. The policy requires evaluation of the capacity of the soils at the site for assimilating nutrients and the crop production requirements for the applied nutrients to ensure that excess nutrients are not released. Other policies of the Element that address the control of pollutant migration from dairy facilities are evaluated under the discussion of source control in the following section.

- Policy DE 3.2h further addresses the potential impact of infiltrating pollutants on shallow groundwater quality. The policy requires that a qualified professional (certified hydrogeologist or professional engineer) conduct a Hydrogeologic Sensitivity Assessment

(HSA) for new or modified dairies in areas where drinking water wells are screened in shallow groundwater areas, specifically, in areas where groundwater is being pumped within ½ mile of the dairy site which is underlain by karst, fractured bedrock, or gravel (e.g., the Kettleman Plain and Sunflower Valley). For a proposed dairy project to be approved, the HSA is required to prove that adequate hydrogeologic barriers are present to prevent migration of pathogens or nitrates to drinking water supplies. The measure further specifies that the HSA be conducted in conformance with the principles contained in the U.S. EPA's Ground Water Rule. (See 65 FR 90.91 (May 10, 2000).) A report of the findings of the HSA, including conclusions and recommendations, will be submitted to the County for review and approval prior to issuance of permits to construct the proposed dairy. Therefore, site-specific hydrogeologic analysis of pollutant migration is required for all dairy facilities proposed in areas of relatively shallow groundwater.

(FPEIR Vol. 1B, pp. 4.3-26 to 4.3-27.)

In the process of developing the Element, Policy DE 3.2h was slightly modified to be consistent with EPA's proposed groundwater rule. (See 65 FR 90.91 (May 10, 2000).) Thus instead of requiring an HSA based on placement of wells in relation to the E clay, Policy 3.2h now tracks the requirements of EPA's proposed groundwater rule. The rule focuses on geologic conditions creating the potential for rapid migration of contaminants. The change in Policy DE 3.2h does not render it any less effective in preventing impacts to groundwater.

Each of these siting criteria provides additional protection of groundwater quality. (FPEIR Vol. 1B, p. 4.3-27.)

### *Source Control*

Section II of the Element calculates the maximum theoretical herd size that the County can accommodate based on the assimilative capacity of the system to process the nitrogen and salt load and maintain water quality objectives. The assumption is that, if the manure generated from the theoretical herd is properly managed, impacts to groundwater quality can be avoided. The Element concludes that nitrogen loading will be the limiting factor for the herd size, and that associated salt loading will be expected to be well below recommended guidelines. The calculations accurately incorporate the guidelines provided by the RWQCB for sizing dairies. (FPEIR Vol. 1B, pp. 4.3-27 to 4.3-28.)

An additional important component of source control is proper management of the manure and process water generated at each dairy. The manure and process water generated at the dairy facilities will present a potential pollutant source. Degradation of groundwater quality (in the form of nitrogen, salt, or pathogen loading) can occur if the source is released into the environment at a rate greater than the assimilative capacity of the system. Pollutant loading associated with dairies can occur at the dairy facilities or at the support croplands where manure

is applied as a soil amendment. Following is a discussion of existing regulations and policies of the Element that will act to limit pollutant loading to groundwater. (FPEIR Vol. 1B, p. 4.3-28.)

### *Source Control at the Dairy Project Cropland*

Some nitrogen and salt are essential to plant growth and, therefore, the support crops associated with the dairies have the capacity to process at least a portion of these substances contained in the manure generated at the dairy facilities. However, if the amount of nitrogen and salts applied to the crops exceeds crop uptake potential, infiltration of nitrogen and salt below the root zone (perhaps eventually reaching groundwater) can occur, causing degradation of groundwater quality. The Element, which addresses salt and nitrogen loading at the support croplands, is further described below. (FPEIR Vol. 1B, p. 4.3-28.)

Under normal circumstances, when manure and process water are applied to a field, pathogens are expected to be adequately rendered harmless by natural processes (i.e., sorption or retention to soil particles, inactivation/degradation or "die-off"). Adsorption and retention of viruses (typically the smallest and longest-lived of the pathogens) in the soil column occur nearly instantaneously. Those pathogens stranded in the soil column will pose no threat to groundwater quality. Only those pathogens that travel with the infiltration water (a significantly reduced quantity) will be of concern. Inactivation times for mobile pathogens in water are extremely variable and depend on the type of pathogen and the water chemistry and temperature. Many states establish setbacks (ranging from 50 to 500 feet) between pathogen sources and drinking water supply wells. However, "the complexity of the processes that govern virus and bacteria transport in groundwater and the variability of groundwater velocity in sensitive hydrogeologic settings make it difficult, if not impossible, for EPA to specify setback distance that will be protective of public health for all hydrogeologic settings. Thus, EPA concluded that there was insufficient scientific data to mandate national setback distances..." (U.S. EPA, 2000, page 30226). The EPA does recognize that site specific hydrogeologic conditions may be capable of effective pathogen inactivation, such as sufficient thickness of unsaturated materials (vadose zone), vertical and horizontal groundwater travel times sufficiently long to inactivate pathogens, and/or a confining layer isolating the drinking water resource (e.g., the E clay). Essentially all of the County where dairies can be located is underlain by E clay at a depth ranging from 250 to 900 feet below the surface. The exception to this condition is the isolated valleys in the southwestern portion of the County (e.g., Kettleman Plains and Sunflower Valley) where the E-clay was not deposited. (FPEIR Vol. 1B, pp. 4.3-28 to 4.3-29.)

Policy DE 3.2h addresses the potential of infiltrating pollutants on shallow groundwater quality. The policy requires that a qualified professional (certified hydrogeologist or professional engineer) conducts a Hydrogeologic Sensitivity Assessment (HSA) for new or modified dairies in areas where groundwater is being pumped within ½ mile of the dairy site which is underlain by karst, fractured bedrock, or gravel. The HSA is required to demonstrate that adequate hydrogeologic barriers are present to prevent pathogen or nitrate migration to drinking water



supplies. The measure further specifies that the HSA be conducted in conformance with the principles presented in the U.S. EPA Ground Water Rule. (See 65 FR 90.91 (May 10, 2000)). A report of the findings of the HSA, including conclusions and recommendations, will be submitted to the County prior to the approval of SPRs for proposed dairy facilities. Therefore, site-specific hydrogeologic analysis is required by the Element for dairy facilities that present a potential impact to shallow drinking water sources. Policy DE 3.2i requires that all existing wells at dairy sites be inspected to ensure the appropriate well seals are in place to minimize the potential for vertical contaminant migration. (FPEIR Vol. 1B, p. 4.3-29.)

In addition to these policies, Policy DE 6.2f requires that each new and expanded dairy implement a groundwater-monitoring program. The program will be developed on the basis of site-specific hydrogeologic conditions. A minimum of three monitoring wells, and possibly lysimeters will be required. All wells and/or lysimeters will be sampled prior to dairy operation and annually thereafter, and tested for total dissolved solids, electrical conductivity, general mineral content, nitrogen (as ammonia, nitrate, and nitrite), phosphorus, and coliform (or other indicators of biological contamination). The required testing parameters can be modified at the request of the RWQCB. (FPEIR Vol. 1B, p. 4.3-29.)

The confined animal facility regulations (CCR Title 27, Section 22563) and the General Waste Discharge Requirements for Milk Cow Dairies (Order No. 96-270) require that "application of manure and wastewater to disposal fields or cropland shall be at rates that are reasonable for the crop, soil, climate, special local situations, management system, and type of manure." The policy requires that nutrient management shall ensure that the application rate of nutrients does not exceed the capability of the soil and crops to assimilate the applied nutrients. (FPEIR Vol. 1B, pp. 4.3-29 to 4.3-30.)

In addition, the Element includes several objectives and policies designed to provide additional protection to groundwater from excessive nitrogen and salt inputs (among other constituents).

- Objective DE 4.1 will require that a *Manure Nutrient Management Plan* be submitted with each new or expanded dairy application. Careful application of manure and process water to fertilize and irrigate agricultural crops is necessary to prevent the potential for the infiltration or runoff of excess nutrients. Policy DE 4.1b of the Element sets guidance for the appropriate reuse of the manure and process water. The policy identifies the primary purpose of nutrient management as the need to balance the available nutrients in site soils, in manure and process water, and commercial fertilizer with the nutrient requirements of the crops to be grown. The policy states that nutrients must be applied at rates that ensure that excess nutrients are not released to surface water or groundwater. The policy further states that soils and manure must be sampled to accurately determine nutrient levels. The policy also requires that manure application equipment must be calibrated to ensure that the planned rates of application are achieved. The policy also requires that dairy owner/operators submit an Irrigation Management Program, which ensures that irrigation water and runoff from fields within dairy units is not allowed to migrate away from the

project site. In addition, Policy DE 4.2a requires that each dairy develop and implement a Comprehensive Dairy Process Water Application Plan.

(FPEIR Vol. 1B, p. 4.3-30.)

### ***Source Control at the Dairy Facilities***

The potential for releases of nitrogen and salts (among other constituents) from dairies facilities is regulated by specific Federal and State legislation designed to protect water quality. Specific regulation of large dairy operations and other “Confined Animals Facilities” (CAF) is provided by Title 27, Division 2, Chapter 7, Subchapter 2, Article 1 (“Confined Animals Facilities”) of the California Code of Regulations commencing with Section 22560. These regulations were promulgated by the State Water Resources Control Board in 1984 and are enforced in the County by the RWQCB. The regulations specify that certain minimum standards shall either be implemented in the Waste Discharge Requirements (WDRs) for a particular CAF or made a condition to the waiver of such requirements. The requirements of Subchapter 2, Article 1 (“Confined Animals Facilities”) of the California Code of Regulations that relate to protection of water quality at the Dairy Facility include (when appropriate, Element policies that address the stated regulation are provided):

- *The discharger shall prevent animals at a confined animal facility from entering any surface water within the confined area. (22561)*
- *Confined animal facilities shall be designed and constructed to retain all facility process water generated, together with all precipitation on, and drainage through, manured areas during the 25-year, 24-hour design storm. (22562(a))*

(FPEIR Vol. 1B, pp. 4.3-30 to 4.3-31.)

The Element contains a policy (Policy DE 4.1a.B.3) that is consistent with this regulation.

- *All precipitation and surface drainage outside of manured areas, including that collected from roofed areas, and runoff from tributary areas during the storm events described in (a), shall be diverted away from manured areas, unless such drainage is fully retained. (22562(b))*

(FPEIR Vol. 1B, p. 4.3-31.)

The Element contains a policy (Policy DE 4.1a.B.1) that is consistent with this regulation.

- *Retention ponds and manured areas at confined animal facilities in operation on or after November 27, 1984 shall be protected from inundation or washout by overflow from any stream channel during 20-year peak stream flows. (22562(c)(1))*

(FPEIR Vol. 1B, p. 4.3-31.)

The Element contains a policy (Policy DE 4.1a.B.3) that is more stringent than this regulation, requiring that dairy facilities be located outside the 100-year flood hazard zone and that manured areas be setback a minimum of 150 feet from surface waters, recharge basins, and flood plains (Policy DE 3.2c).

- *Retention ponds shall be lined with, or underlain by, soils which contain at least 10 percent clay and not more than 10 percent gravel or artificial materials of equivalent impermeability. (22562(d))*

(FPEIR Vol. 1B, p. 4.3-31.)

The soil survey indicates that many of the soils in the County are well drained and may not meet these criteria. In addition, based on studies and regulatory experience gained since these regulations were adopted, it appears that these criteria may not be adequately protective of groundwater quality. Pollutants (nitrates and salts) have been documented to migrate through retention ponds and from corral areas at dairies in Merced and Stanislaus counties. (FPEIR Vol. 1B, p. 4.3-31.)

The minimum standard requiring a soil lining composed of at least 10 percent clay (and not more than 10 percent gravel) may not be adequate to prevent significant infiltration of process water from storage ponds at all sites. A soil with 10 percent clay, 10 percent gravel, and 80 percent coarse sand could be moderately to highly permeable. (FPEIR Vol. 1B, p. 4.3-31.)

The *Geotechnical, Design, and Construction Guidelines* published by the National Resource Conservation Service provide a more comprehensive approach to addressing potential impacts related to infiltration of process water from livestock process water management systems. Rather than set specific grain size requirements for soils surrounding process water storage facilities, the NRCS guidelines specifically address the ability of the soil to transmit water. The rate of flow through a porous medium (such as soil and sediment) is partially controlled by the hydraulic conductivity or permeability of the material. Flow rate is also affected by the hydraulic gradient. The NRCS Guidelines establish a maximum hydraulic conductivity (permeability) of  $1 \times 10^{-7}$  cm/s for soils lining retention ponds that will reduce infiltration to acceptable levels. From this hydraulic conductivity value, the NRCS Guidelines derive a standard for acceptable seepage losses (specific discharge) of  $1 \times 10^{-6}$  cm/s, which takes into account the thickness of the liner and the depth of water in the pond (hydraulic gradient), as well as the hydraulic conductivity of the liner. The NRCS Guidelines acknowledge that a certain amount of physical and chemical sealing of the pond sides and bottom occurs as the manure solids settle. One order of magnitude of hydraulic conductivity is credited to the manure solids sealing effect and, therefore, the pond liner must uniformly meet or exceed the standard of  $1 \times 10^{-5}$  cm/s (specific discharge) when installed,

but in subsequent operation would be expected to quickly establish a specific discharge of  $1 \times 10^{-6}$  cm/s. (FPEIR Vol. 1B, p. 4.3-32.)

Significant infiltration of process water stored in the pits and ponds may occur. Ultimately, the infiltrating water will migrate downward to the shallow groundwater table. Although some pollutants in the water will be removed or geochemically treated as the water moves through the unsaturated zone, it is possible that the contaminants may reach the uppermost water-bearing zone. Therefore, mitigation to reduce infiltration is required to comply with Subchapter 2, Article 1 ("Confined Animals Facilities") of the California Code of Regulations, which states that:

- *Regulations are Minimum Standards - The RWQCB shall impose additional requirements, if such additional requirements are necessary to prevent degradation of water quality or impairment of beneficial uses of waters of the state. (22560(c))*

(FPEIR Vol. 1B, p. 4.3-32.)

Calculations have been prepared to determine whether the dairy facilities (specifically the process water ponds within the facilities) will be expected to comply with the per-acre salt loading guidelines recommended by the RWQCB if the facilities were required to comply with the NRCS *Geotechnical, Design, and Construction Guidelines* for construction of the process water ponds. Results indicate that the salt loading rate at dairy facilities will be on the order of 500 to 1,000 pounds/acre/year, substantially lower than the RWQCB guidelines for manure application. In addition, the fine-grained pond liners will provide an effective mitigation that will be expected to reduce or eliminate pathogen migration (depending on the mobility of the pathogen) into the subsurface. Policy DE 4.1a of the Element sets requirements for the Manure Nutrient Management Plan (MNMP) required for all new and expanded dairies. These requirements include the following provisions (Policy DE 4.1aB.2.), which address the potential for infiltration of pollutants from process water ponds and manure separation pits:

- *All manure separation pits and process water ponds shall be constructed so that the bottoms of the pits and ponds are at least five feet above the highest expected groundwater levels.*
- *The pits and ponds shall be maintained so that the integrity of the liners is ensured.*
- *The specific discharge of process water through the bottom and sides of the manure separation pits and lagoons shall not be greater than  $1 \times 10^{-6}$  centimeters per second in compliance with the *Geotechnical, Design, and Construction Guidelines* published by the National Resource Conservation Service (1997).*
- *A qualified professional (i.e., Professional Engineer or Certified Engineering Geologist) shall certify that the liner system of a lagoon or pit is installed according to the NRCS design standards.*

- *The soil sampling and permeability testing program shall be designed to be representative of all soils underlying all proposed pond areas.*
- *Construction of the lagoons shall be inspected by a qualified professional to ensure that geologic heterogeneities (e.g., channel deposits and sandy lenses) are identified and properly mitigated to ensure integrity of the liner in compliance with the NRCS standards. The liner must be protected against damage during operation and maintenance activities.*

(FPEIR Vol. 1B, pp. 4.3-32 to 4.3-33.)

The corrals can be locations of significant manure accumulation. Leaching and infiltration may result in introduction of salts to the subsurface. However, since the hydraulic pressure of standing water (which will tend to drive nutrients into the subsurface at the pond locations) will not occur in the corrals or storage areas and annual precipitation is very low, the risk to groundwater quality is reduced relative to infiltration at the ponds. Detailed studies on the fate and transport of nitrogen and salts in feedlots have been conducted by many investigators. It has been demonstrated that, in an active feedlot, a layer (typically two to four inches thick) of trampled manure/soil forms an "excellent moisture seal." The sealing layer (typically dark brown to black, often resembling charcoal) is very thin, however, and essentially eliminated when the upper inch is removed. Continued disturbance of this layer, requiring that it be reformed often, may allow substantial infiltration of nutrients. Another study conducted at a level feedlot underlain by silty loam indicated that the feedlot contributed no more nitrate or ammonia to the shallow water table than the adjacent cropland. Soils underlying the areas of heaviest manure accumulation appear to be least impacted by leaching of nitrates, apparently explained by the creation of conditions unfavorable to nitrogen transformation to leachable forms. The results of investigations indicate that, at properly managed dairies (particularly in arid environments where infiltration of precipitation is minimal), the corrals should not contribute any more nitrates or salts to the subsurface than the adjacent cropland. In addition, if vertical moisture migration is controlled at the corrals and manure storage areas, substantial vertical pathogen migration will be reduced or eliminated. (FPEIR Vol. 1B, pp. 4.3-33 to 4.3-34.)

Policy DE 4.1a.B.2. of the Element provides measures to reduce the potential water quality impacts related to dairy cattle corrals. The following specific measures are included in the policy:

- *At the corrals, naturally-occurring or imported clayey (not less than 20% clay and silt) soils shall underlie the corrals and dry manure storage areas. Site drainage shall be included in the project design and construction of any manured area, including but not limited to, dairy surroundings, corrals, and ramps, pursuant to Title 3, Division 2, Chapter 1, Article 22, §646.1 of the California Code of Regulations to ensure that ponding does not occur.*

- *Regular maintenance of corrals and dry manure storage areas shall include filling of depressions. Care shall be taken not to disturb the seal layer in the corrals. Dairy personnel shall be taught to correctly use manure collection equipment.*

(FPEIR Vol. 1B, p. 4.3-34.)

## **Monitoring**

Monitoring is a critical requirement that must be included in any water quality mitigation program to provide the means of determining whether the siting and source control measures are effective in protecting groundwater quality. Section V of the Element describes the proposed monitoring program. Goal DE 6 will implement a monitoring program to demonstrate the effectiveness of the provisions of the Element and associated mitigation measures, and will allow for adjustments in dairy operations, if deemed necessary, to protect the environment (Objective DE 6.2). Policies DE 6.2a will establish baseline environmental conditions, monitor the bovine carrying capacity of the county, and develop a database on dairy characteristics. (FPEIR Vol. 1B, p. 4.3-35.)

Policy DE 6.2f specifically addresses water quality monitoring. The policy requires that the Dairy Monitoring Program (established under Objective DE 6.1) establish monitoring requirements for each Dairy Facility. The minimum requirements include:

- *Installation of groundwater monitoring wells at each dairy adequate to characterize the variations in depth to uppermost groundwater at the facility and chemical quality of the uppermost groundwater zone. If non-continuous perched groundwater zones underlie the facility, deeper aquifers may require monitoring. Vadose zone monitoring using lysimeters shall be required to monitor the quality of soil water, particularly in the vicinity of the lagoons. The design and installation of water quality monitoring system shall be performed under the direction of a Registered Geologist or a Professional Engineer in accordance with California Well Standards.*
- *Groundwater and soil water samples shall be analyzed, at minimum, for TDS, electrical conductivity, general mineral content, nitrogen as nitrate and nitrite, phosphorus, and coliform, or other appropriate indicator of biological contamination. This list of constituents to be analyzed may be modified at the request of the RWQCB. All samples should be analyzed by a State-certified analytical laboratory.*
- *Sampling of all wells and lysimeters shall be conducted prior to dairy operation to establish background levels and thereafter on an annual basis. In addition, the depth to water in each well shall be measured to within an accuracy of 0.01 foot twice each year, once in the spring and once in the fall.*
- *Reporting requirements shall be according to the RWQCB and Policy DE 6.4d, below.*

(FPEIR Vol. 1B, p. 4.3-35.)

These goals, objectives, policies and standards establish the requirement for a monitoring program, and provide minimum standards for what should be included in the monitoring program (i.e., areas and constituents to be monitored, frequency of monitoring, organization of monitoring reports). (FPEIR Vol. 1B, p. 4.3-36.)

### ***Data Evaluation***

Appropriate evaluation of the monitoring data is critical to the success of the Element. A program that does not provide meaningful data evaluation will not ensure protection of groundwater quality. (FPEIR Vol. 1B, p. 4.3-36.)

The purpose of data evaluation will be to determine whether the potential contribution to nitrogen and salt loading that may occur under the Element represents a significant increase relative to existing conditions. There are two main quantitative considerations when determining significance of potential impacts to water quality: 1) toxicity, and 2) violation of water quality objectives, standards, and/or criteria. Clearly, minor to moderate increases in TDS or EC levels will not result in toxicity. There are no primary drinking water standards (which are designed to protect human health) for TDS or EC; only secondary standards that tend to address aesthetics of water (e.g., taste, odor) not health concerns. The only pertinent regulatory water quality objective available that addresses salt loading in the basin is found in the Basin Plan, which provides numerical criteria for allowable increases in electrical conductivity (salinity) for each of the subbasins within the Tulare Lake Basin. The average annual increase will be determined from monitoring data by calculating a cumulative average annual increase over a 5-year period. The limits of Kings County include four subbasins within the Tulare Lake Basin, including Tulare Lake, Westside North, Kaweah River, and the Kings River subbasins. Table 4.3-1 of the PEIR summarizes the numerical criteria for each of the subbasins. (FPEIR Vol. 1B, p. 4.3-36.)

Concurrent with adoption of the Element, the Board adopts compliance with the water quality objectives of the Tulare Lake Basin as the threshold of significance for cumulative water quality impacts from implementation of the Element. (Policy DE 4.4a.) Therefore, the analysis of whether project-related salt loading is significant was based on a determination of whether operation of the dairies would be expected to result in violation of the water quality objectives stated in Table 4.3-1 of the PEIR. (FPEIR Vol. 1B, p. 4.3-36.)

The Element includes goals, objectives and policies concerning water quality data evaluation. Goal DE 6 and Objective DE 6.1 delineate the responsibilities of the Code Compliance Division in enforcing the Element. Policy DE 6.4d is included in the Element to specifically address the need to provide meaningful evaluation of groundwater data collected at Kings County dairies. The policy requires that each dairy operator performing required groundwater testing (Policy DE 6.2f) retains a qualified professional (certified hydrogeologist or professional engineer) to compile and evaluate groundwater data collected as part of the water quality-monitoring program.

The professional will be required to compare the water quality data to applicable State water quality objectives (as defined in the Basin Plan) to whether violations of the objectives have occurred and mitigation is required. The policy specifies that evaluation of salinity testing results include statistical analysis of variations in concentration over time. An acceptable statistical methodology for determining trends in data will be established by the Code Compliance. In recognition that the performance of such a test of the data requires a set of data, the policy requires that the first trend analysis be performed after five years of data collection, and then each year thereafter. In recognition of evolving water quality criteria and objectives, the policy states that "when considering response action for identified violations, Code Compliance personnel shall ensure that water quality criteria and Basin Plan objectives used in the evaluation of the site-specific data are appropriate and current and consult with the RWQCB to confirm that a violation has occurred and that remedial action is required." The data evaluation provided for in Policy DE 6.4d appropriately addresses the need for professional analysis of water quality results. (FPEIR Vol. 1B, pp. 4.3-36 to 4.3-38.)

### *Response Action*

The purpose of data collection and evaluation is to determine whether groundwater contamination may be occurring. Response action is required to mitigate any identified problems. The Element includes policies that address impact resolution, including:

- Policy DE 4.2d, which provides the County with the authority to find a dairy operation in violation of its site plan review approval (and potentially revoke the approval) if a dairy operator fails to obtain approval for changes to process water and manure use agreements.
- Policy DE 6.3a, which requires new and expanded dairies to conduct annual tests to demonstrate that the facility is operating within established guidelines. If guidelines are exceeded, the operator will be required to bring the facility into compliance or face potential modification or revocation of his permit.
- Policy DE 6.1a.A, which states that the Code Compliance Division will prepare specific reports, as necessary, on a case by case basis to address problems and work with dairy operators to solve problems in a timely manner.
- Policy DE 6.4d, which requires the Code Compliance Division to evaluate the data collected by dairy operators against applicable water quality standards and require corrective action in consultation with the RWQCB when necessary.

(FPEIR Vol. 1B, pp. 4.3-38 and 4.3-39.)

These policies indicate that the Kings County Planning Agency will be empowered and willing to modify or revoke the SPR approval or use permit of any and all dairies operating under the Element that do not meet the requirements established by the Element to protect groundwater quality. This appears to be an appropriate mechanism for enacting change if an impact is identified. (FPEIR Vol. 1B, p. 4.3-39.)



Therefore, the implementation DE Policies 1.2c, 1.2d, 1.2f, 3.1a, 3.2a, 3.2b, 3.2c, 3.2d, 3.2g, 3.2h, 3.2i, 4.1a, 4.1b 4.1c, 4.1a.A, 4.1a.B, 4.2d, 6.2a, 6.2f, and 6.4d reduces localized and regional groundwater quality impacts to a less-than-significant level. (FPEIR Vol. 1B, p. 4.3-39.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.3-39.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.3-8:** Existing water supply wells may represent preferred pathways for pollutant migration to the subsurface. (FPEIR Vol. 1B, p. 4.3-39.)

**Finding:** This is a less-than-significant impact.

**Explanation:**

Existing irrigation and water supply wells (either active or abandoned) that do not meet current wells standards of construction may act as conduits for pollutant migration to the subsurface. If any of the wells were not constructed with effective sanitary seals upon construction, or have been damaged since installation, or were to be damaged during grading and construction of the new or modified dairies, surface water may seep into the wells and the underlying aquifer, causing water quality degradation. (FPEIR Vol. 1B, pp. 4.3-39 to 4.3-40.)

Two policies included in the Element address the specific issue of potential pollutant migration into wells. Policy DE 3.2c establishes a minimum setback of 150 feet between any manured areas and water wells. This setback exceeds the California Well Standards, which require a minimum setback of 100 feet between water wells and an animal enclosure. (FPEIR Vol. 1B, p. 4.3-40.)

Policy DE 3.2i requires that all existing water supply wells at a proposed new or modified dairy site (including those located away from the dairy facilities in the cropland areas) shall be inspected by a qualified professional to ensure that each well is properly sealed at the surface to prevent infiltration of waterborne contaminants into the well casing or surrounding gravel pack. If any of the wells are found not to comply with the California Well Standards, the applicant or dairy operator shall retain a qualified well driller to install the required seal or functional equivalent certified by a licensed engineer or other qualified registered professional. Documentation of the inspections and seal installations, if any, shall be provided to the County Planning Department prior to commencement of dairy operations. (FPEIR Vol. 1B, p. 4.3-40.)

Implementation of Policies DE 3.2c and 3.2i will reduce the impacts associated with potential direct migration of pollutants into wells to a less-than-significant level. (FPEIR Vol. 1B, p. 4.3-40.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.3-40.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.3-9:**            **Implementation of the Element can result in cumulative impacts to water quality.** (FPEIR Vol. 1B, p. 4.3-40.)

**Finding:**                **This is a less-than-significant impact.**

**Explanation:**

The area covered by the Element is located within the Tulare Lake Basin, a hydrologic basin that covers approximately 10.5 million acres. The Regional Water Quality Control Board designates beneficial uses within the basin and sets water quality objectives to protect those uses. The Water Quality Control Plan for the Tulare Lake Basin ("Basin Plan") describes water quality concerns identified for the basin. Concurrent with adoption of the Element, the Board adopts compliance with the Basin Plan as the threshold of significance for cumulative impacts to water quality resulting from implementation of the Element. (Policy DE 4.4a.) Increased salinity in groundwater is identified as the most significant problem within the basin. Considered a natural condition in a closed basin in an arid environment, elevated salinity is exacerbated by human activities that result in discharges of dissolved solids to the surface and subsurface. (FPEIR Vol. 1B, p. 4.3-40.)

Irrigated agriculture and confined animal facilities, land uses proposed under the Element, are recognized in the Basin Plan as significant potential contributing sources for salt loading within the basin. The Element specifically addresses the potential water quality impacts associated with implementation of the theoretical dairy herd. The theoretical herd size was determined on the basis of estimated capacity of croplands within the DDOZ and NSOZ to accommodate the nutrient loading associated with manure and process water generated by the herd. In addition, the theoretical herd estimate accounted for land required to accommodate the nutrient load from manure generated at existing nondairy confined animal facilities and approved biosolids disposal facilities. Therefore, the basis of the Element accounts for cumulative impacts of nutrient loading associated with the use of dairy manure and process water in Kings County. (FPEIR Vol. 1B, p. 4.3-41.)

Potential surface water impacts are essentially eliminated by dairy design and provisions of the Element (Policies DE 1.2c, 1.2f, 3.1a, 3.2c, 3.2d, and 3.2g). Cumulative water supply impacts will not be expected to occur since water use will be expected to be similar to existing conditions. The method used by the Element to size the theoretical herd is based on mitigating the potential cumulative impact to groundwater quality associated with nitrogen and salt loading, and ensures that, overall, the County will be in compliance with RWQCB estimates of assimilative capacity of the subsurface. Coupled with careful controls on siting of dairies (Policies DE 1.2c, 1.2d, and 3.2c), required assessment of site-specific hydrologic conditions (Policies DE 3.2a, 3.2b, and

3.2h), management of the manure (Policies DE 3.2e, 4.1a, 4.1b, and 4.1c), ongoing monitoring and data evaluation (Policy DE 3.2f, 6.2f and 6.4d), and adoption of compliance with water quality objectives of the Basin Plan as a threshold of significance for impacts of the Element to water quality (Policy DE 4.4a), the cumulative impact to groundwater quality is reduced to a less-than-significant level. (FPEIR Vol. 1B, p. 4.3-41.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.3-41.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**D. BIOLOGICAL RESOURCES**

**Standards of Significance**

According to the CEQA Guidelines, potentially significant environmental effects on biological resources include:

- Substantial adverse effect on a population or essential habitat of special-status plant or animal species.
- Substantial adverse effect on any riparian habitat or other sensitive natural community type, such as native grasslands and scrub.
- Substantial adverse effect on federally protected wetlands.
- Substantial interference with the movement of any native resident or migratory fish or wildlife species, their wildlife corridors, or nursery sites.
- Conflict with an adopted habitat conservation plan, natural community conservation plan, or other local, regional, or state conservation plan.
- Conflict with any local ordinances protecting biological resources, including relevant policies of the Resource Conservation Element of the County General Plan.

(FPEIR Vol. 1B, p. 4.4-7.)

**Impact 4.4-1:** Dairy development can result in conversion of existing vegetative cover and associated wildlife habitat, including habitat for special-status species or sensitive natural communities. (FPEIR Vol. 1B, p. 4.4-7.)

**Finding:** This is a less-than-significant impact.

**Explanation:**

Future dairy use allowed under the proposed Element will result in the conversion of primarily agricultural crops to dairy-related facilities, which generally will not affect any significant vegetation resources or sensitive wildlife habitat. Most of the anticipated future dairy use will occur in areas of existing intensively managed agricultural use, which has only limited temporary value as vegetation resources and habitat for sensitive species. The construction of required improvements and irrigation associated with dairy use would generally not result in significant impacts on biological resources when located on existing agricultural fields. (FPEIR Vol. 1B, pp. 4.4-7 to 4.4-8.)

Compatibility zones identified as part of the theoretical dairy herd capacity for the County encompass numerous known occurrences of special-status plant and animal species, as well as locations with remaining natural community types, such as valley saltbush scrub, valley sink scrub, riparian woodland and scrub, and grasslands. Conversion of remaining natural habitat to dairy facilities and irrigated agriculture will have a significant impact on wildlife resources and can result in the take of one or more listed species. Of particular concern is the potential for conversion of essential habitat for tipton kangaroo rat, blunt-nosed leopard lizard, and San Joaquin kit fox in the remaining natural habitat between Stratford, Lemoore, and Guemsey. There is also a potential for inadvertent entrapment or killing of individual kit fox during construction of dairy facilities. Similarly, construction activities can also result in the destruction of raptor nests in trees or ground nests of burrowing owl, which will be a violation of the Migratory Bird Treaty Act and Section 3503.5 of the State Fish and Game Code. (FPEIR Vol. 1B, p. 4.4-8.)

Policy DE 1.2e prohibits approval of dairy development via the SPR process in designated wetlands and habitat for sensitive species. Policy DE 3.3a states that it is the County's policy that land continuously cultivated since 1985 does not qualify as wetlands or sensitive wildlife habitat. The potential for occurrence of special-status species on natural habitat, or the indirect effects (e.g., additional nighttime light and glare) of potential development adjacent to sensitive habitat, must be considered. This includes essential habitat for special-status species, riparian corridors and other natural community types, and seasonal or freshwater marsh habitat, which can all be affected by indirect effects, such as water quality degradation and increased human activity. The presence or absence of sensitive resources on or adjacent to individual dairy developments is addressed by Objective DE 3.3 of the Element. The objective is supported by Policy DE 3.3a, which requires that site-specific biological and wetland surveys be conducted prior to approval of new or expanded dairy developments. The policy requires that the CUP process be completed if the site-specific biological resources survey identifies habitat for sensitive species. (FPEIR Vol. 1B, pp. 4.4-8 to 4.4-9.)

Implementation of Policies DE 1.2e and 3.3a will reduce the impacts to less-than-significant levels by requiring site-specific biological and wetland surveys for all new and expanded dairy developments. (FPEIR Vol. 1B, p. 4.4-9.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p.4.4-9.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.4-2:**            **Loss and modification of wetlands.** (FPEIR Vol. 1B, p. 4.4-9.)  
**Finding:**                    **This is a less-than-significant impact.**  
**Explanation:**

According to Policy DE 1.2e of the Element, any land conversion associated with future dairy facilities will be prohibited on wetlands and no significant adverse impacts are anticipated. If surveys conducted in accordance with Policy DE 3.3a confirm the presence of wetlands, the applicant will be required to complete the CUP process. (FPEIR Vol. 1B, p. 4.4-9.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.4-9.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**E. NOISE**

**Standards of Significance**

Based on the Kings County General Plan Noise Element goal, objective, and policies and the recently amended environmental checklist recommended in the CEQA *Guidelines*, project-generated noise would be considered to result in a significant noise impact on the environment if it would result in any of the following:

- exposure of persons to, or generation of, noise levels in excess of standards established in local general plan or noise ordinance;
- exposure of people to, or generation of, excessive ground borne vibration or noise levels;
- a substantial permanent increase in ambient noise levels in the project vicinity above existing levels without the project; or
- for a project in the vicinity of an airport, exposure of people to excessive noise levels.

(FPEIR Vol. 1B, p. 4.5-9.)

**Impact 4.5-1:**            **Construction activities associated with new or expanded dairies will result in short-term noise increases.** (FPEIR Vol. 1B, p. 4.5-9.)  
**Finding:**                    **This is a less-than-significant impact.**

**Explanation:**

Construction of new and expanded dairies will typically include soil excavation, soil grading, site preparation, construction of structures (e.g., freestall barns, manure management system, milking center, hospital, entry court), and installation of utilities and paving. Construction noise will depend on the equipment used, the distance from the noise source to a sensitive receptor, phasing of construction equipment use, and presence or absence of noise barriers. (FPEIR Vol. 1B, p. 4.5-9.)

Construction equipment that may be used at new or expanded dairies will likely include scrapers, water trucks, bulldozers, backhoes, and miscellaneous equipment (e.g., pneumatic tools, generator, portable air compressor). Noise levels generated by these types of construction equipment at various distances from the noise source are shown in Table 4.5-4 of the FPEIR. (FPEIR Vol. 1B, p. 4.5-9.)

Nearby receptors, if present in the vicinity of a future Dairy Facility, can potentially be affected by construction noise, depending on the distance of the receptor to the noise source and the actual noise levels observed by the receptor. Potential nearby receptors will likely be rural residences throughout the agricultural-zoned areas. Exterior noise levels greater than 70 dB day/night noise level ( $L_{dn}$ ) and interior noise levels greater than 45 dB  $L_{dn}$  will be considered unacceptable for rural farm residences, respectively, according to the noise and land use compatibility standards of the General Plan (Table 4.5-3 of the FPEIR). (FPEIR Vol. 1B, 4.5-10.)

Although the Element does not specifically address noise control from dairy construction activities, Policy 40b of the Kings County General Plan requires developers to mitigate excessive noise effects on existing land uses for projects that are expected to produce excessive noise. Policy 40a of the General Plan refers to the Noise and Land Use Compatibility Standards Table 18 (Table 4.5-3 of the FPEIR) for determining compatible land use noise levels. Compliance with policies 40a and 40b of the General Plan would reduce this potential impact to a less-than-significant level without additional mitigation. (FPEIR Vol. 1B, p. 4.5-10.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.5-10.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.5-2:**            **Operation of a new or expanded dairy can increase noise levels generated by additional vehicular traffic.** (FPEIR Vol. 1B, p. 4.5-11.)

**Finding:**                **This is a less-than-significant impact.**

**Explanation:**

New or expanded dairies will generate an increase in vehicular trips from milk trucks, supply feed

trucks, employee/visitor vehicles, manure haul trucks, and other miscellaneous vehicle use. The increase in vehicular trips associated with dairy operations is considered to be minimal since heavy traffic volumes typically do not result from dairy operations, even for large dairies. Typically, additional vehicular traffic from dairy operations will likely result in an increase in noise level of less than two decibels along the major roadways within the project vicinity. This minimal increase in existing traffic noise levels is not generally detectable and will not be expected to result in a significant noise impact or adverse community response. (FPEIR Vol. 1B, p. 4.5-11.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.5-11.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.5-3:** New or expanded dairies can be exposed to adverse existing noise sources. (FPEIR Vol. 1B, p. 4.5-11.)

**Finding:** This is a less-than-significant impact.

**Explanation:**

New or expanded dairies can be exposed to noise generated from existing noise sources throughout the County, including aircraft noise from existing airports (i.e., Hanford, Corcoran, and Lemoore), roadway noise, railroad operations, industrial operations, auto racing, and agricultural activities. According to the Kings County General Plan, noise levels estimated in 1992 and projected for 2005 for several of these noise sources can reach levels greater than 75 dBA (unacceptable noise threshold), depending on the distance of the receptor to the noise source. (FPEIR Vol. 1B, p. 4.5-11.)

Policy DE 1.2b of the Element prohibits the siting of actual animal concentration facilities within the exclusive agricultural zone district. The policy indicates that it is “designed to protect the Lemoore Naval Air Station from encroachment of uses that are not compatible with the noise generated from the jet aircraft operations at the air station...” (FPEIR Vol. 1B, p. 4.5-11.)

In addition, Goal 40 of the Kings County General Plan requires that the noise levels of proposed land uses are compatible. Policy 40c of the General Plan requires developers of noise-sensitive projects to mitigate for existing excessive noise sources that may be expected to impact the project. Policy 40a refers to the Noise and Land Use Compatibility Standards Table 18 (Table 4.5-3 of the FPEIR) for determining compatible land use noise levels. Compliance with the policies of the General Plan and Element will be adequate to reduce this potential impact to a less than significant level without additional mitigation. This is a less-than-significant impact. (FPEIR Vol. 1B, pp. 4.5-11 to 4.5-12.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.5-12.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.5-4:** Noise levels generated by project operations. (FPEIR Vol. 1B, p. 4.5-12.)

**Finding:** This is a less-than-significant impact.

**Explanation:**

In addition to traffic noise, project operations will generate outdoor noise levels from dairy operations and cattle above the existing ambient conditions. However, the area in the site vicinity is agricultural in nature and cattle noise is not generally considered offensive in rural agricultural areas. (FPEIR Vol. 1B, p. 4.5-12.)

Potential nearby receptors, such as rural farm residences that can be located near a new or expanded dairy, may be subject to noise from dairy operational activities. According to the Noise and Land Use Compatibility Standards of the Kings County General Plan (Table 4.5-3 of the FPEIR), rural residences exposed to exterior or interior noise levels or less than 60 and 45 dB  $L_{dn}$ , respectively, will be considered "acceptable"; noise levels between 60 and 70 dB  $L_{dn}$  will be considered "conditionally acceptable" and interior and exterior noise levels greater than 70 and 45 dB  $L_{dn}$  will be considered "unacceptable," respectively. (FPEIR Vol. 1B, p. 4.5-12.)

The Element does not provide specific noise control measures for dairy operations. However, Objective DE 6.4 establishes a formal complaint response system for any public complaints regarding dairy operations. The objective is supported by Policies DE 6.4a through 6.4c, which define the requirements of the complaint response system. In addition, Policy 40b of the General Plan requires developers of noise-sensitive projects to mitigate for existing excessive noise sources that may be expected to impact the project; Policy 40a refers to the Noise and Land Use Compatibility Standards (Table 4.5-3 of the FPEIR) for determining compatible land use noise levels. Compliance with the policies of the General Plan and Element will be adequate to reduce this potential impact to a less than significant level without additional mitigation. (FPEIR p. 4.5-12.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.5-12.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)



Implementation of Policies 6.4a through 6.4C of the element will ensure that conditions leading to complaints related to dairy operations will be investigated and corrected. In addition, compliance with Policies 40a and 40b of the General Plan will reduce noise impacts related to dairy operations to a less-than-significant level. (FPEIR Vol. 1B, p. 4.5-13.)

## F. VISUAL RESOURCES

### Standards of Significance

The CEQA environmental checklist questions indicate that the Project could have a significant adverse impact if it would:

- Have a substantial, adverse effect on a scenic vista;
- Substantially damage scenic resources in a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare.

(FPEIR Vol. 1B, p. 4.6-3.)

**Impact 4.6-1:**            **The general height, scale, lighting, and design of typical dairy facilities that will be allowed under the Element will be consistent with other farming operations in the agricultural zones of Kings County. (FPEIR Vol. 1B, 4.6-3.)**

**Finding:**                **This is a less-than-significant impact.**

**Explanation:**

The flat, irrigated agricultural areas of Kings County that are designated for development of additional dairies are characterized by open agricultural fields with low rise (one- and two-story) agricultural structures and houses, with occasional tall structures such as grain silos. The site plan layout for a typical new Dairy Facility with several thousand milking cows will include freestall barns, shaded corrals, and several other barns. The shaded corrals will be approximately 18 to 20 feet in height; the main dairy barn, the calf barn, the commodity barn, and the hospital milk barn will range in height from 20 to 24 feet. If holding ponds are proposed for construction on-site, a typical design will be to excavate the ponds to below the ground surface. In areas of shallow groundwater, it may be necessary to construct embankments above the ground surface to impound the ponds. (FPEIR Vol. 1B, p. 4.6-3.)

The Kings County Zoning Ordinance specifies no height limit for structures within the Agricultural zone districts. The scale of the typical Dairy Facility described above will include

project structures and buildings that are of a similar scale to other agricultural and residential buildings in the agricultural areas of Kings County. Views experienced by motorists traveling on nearby roads will be of the dairy structures, the main dairy barn, and shaded corrals in front of the property. The other structures toward the back of the typical Dairy Facility, such as the sides of the ponds and commodity barn, may not be readily visible to passing vehicles and occupants. (FPEIR Vol. 1B, p. 4.6-3.)

The zoning regulations for the Agricultural zone districts do not require any landscaping, although a 50-foot front yard is required for structures abutting a public road (Section 406(D)(1)). (FPEIR Vol. 1B, p. 4.6-3.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.6-4.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.6-2:**            **There is a potential for outdoor lighting and glare associated with dairies allowed under the Element to affect nearby rural residences.**  
(FPEIR Vol. 1B, p. 4.6-4.)

**Finding:**                **This is a less-than-significant impact.**  
**Explanation:**

New dairy facilities allowed under the Element will typically include nighttime lighting of the freestall barns and corral areas. A potential impact of outdoor lighting constructed to illuminate the dairy buildings is a slight loss of darkness in the night sky, which can be experienced by any rural residents in the area of a new dairy. (FPEIR Vol. 1B, p. 4.6-4.)

The approval process outlined in the Element contains Policy DE 3.1a, which requires that light and glare be addressed in the Technical Report for dairy applications. In addition, Section 2102.C.3 of the Kings County Zoning Ordinance requires that "In approving the site plan, the zoning administrator shall find that ... proposed lighting is so arranged as to reflect the light away from adjoining properties." In addition, Policy DE 3.1h requires that the Technical Report includes a design of outdoor lighting that ensures that lighting is directed away from adjoining properties. (FPEIR Vol. 1B, p. 4.6-4.)

The Kings County Right to Farm Ordinance protects agricultural operations from the encroachment of incompatible, nonagricultural uses such as rural residences in agricultural areas of the County. The Right to Farm Ordinance does not address impacts of proposed agricultural operations on existing residences. Night lighting associated with new dairy facilities permitted under the Element is not expected to significantly impact existing nearby residences, since Element Policy DE 1.2i requires that new dairies be sited at least one-half mile from all residentially zoned lands, including isolated rural communities. In addition, Policy DE 3.1b of

the Element requires that no new Dairy Facility is constructed within ¼ mile of any existing residence that is not associated with that dairy. Policy DE 3.1c requires that when residences not associated with the dairy are within ¼ mile of a proposed expansion of an existing Dairy Facility, the new improvements shall be located so that the existing separation is not reduced. These policies minimize the potential for land use conflicts. (FPEIR Vol. 1B, p. 4.6-4.)

However, nearby residents may experience a slight brightening in the night sky due to the project lighting. Lighting and glare impacts are considered significant since the homes are already exposed to outdoor lighting from the other agricultural operations in the area. (FPEIR Vol. 1B, p. 4.6-4.)

Implementation of Policies DE 1.2h, 3.1a, 3.1b, 3.1c, and 3.1h will reduce the potential for light and glare impacts. In addition, Objective DE 6.4 and Policies 6.4a through 6.4c will provide a formal process for responding to any complaints (including complaints associated with lighting) regarding dairy operations. (FPEIR Vol. 1B, p. 4.6-5.)

Implementation of Policies DE 1.2i, 1.2h, 1.2j, 3.1a, 3.1b, 3.1c, 3.1h, and 6.4a through 6.4c will ensure that the potential site-specific impacts of lighting and glare are mitigated in the dairy development application review process, reducing the potential impacts to a less-than-significant level. (FPEIR Vol. 1B, p. 4.6-5.)

#### **Mitigation:**

None required. (FPEIR Vol. 1B, 4.6-5.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

### **G. LAND USE AND POLICIES**

#### **Standards of Significance**

The CEQA Environmental Checklist Form indicates that the Project could normally have significant adverse land use impacts if it:

- Physically divides an established community;
- Conflicts with any applicable land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect;
- Induces substantial population growth; or
- Displaces substantial numbers of existing housing or people.

(FPEIR Vol. 1B, p. 4.7-11.)

A project could also have significant adverse policy and land use impacts if it conflicts with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. (FPEIR Vol. 1B, p. 4.7-11.)

Other portions of the CEQA checklist indicate that significant impacts may also occur due to lighting and glare, noise, odors, design issues, or public health and safety issues. (FPEIR Vol. 1B, p. 4.7-11.)

**Impact 4.7-1:** Since the Element goals, policies, and programs will be consistent with applicable policies of the Kings County General Plan; there are no significant impacts. (FPEIR Vol. 1B, p. 4.7-11.)

**Finding:** This is a less-than-significant impact.

**Explanation:**

The General Plan indicates that "animal concentrations" such as dairies are allowed in General Agriculture areas. The goals and policies in the proposed Element are consistent with the existing General Plan Land Use Map and all of the relevant Land Use, Resource Management, and Open Space policies addressing land use and agricultural issues. (FPEIR Vol. 1B, p. 4.7-11.)

Other General Plan goals and policies address issues related to other aspects of the proposed dairy operations. For example, policies in the Resource Conservation Element focus on avoiding pollution to water resources in the County. The consistency of the project with other General Plan policies was analyzed in the other topical sections of the PEIR, e.g., water quality. The separate analyses indicate that there are no identified inconsistencies between the Element policies and programs and any General Plan policies. (FPEIR Vol. 1B, p. 4.7-11.) Certain amendments to the Land Use Element, however, are necessary to correctly cross reference the new Dairy Element of the General Plan.

**Mitigation:**

None required. Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

Mitigation Measure 4.7-1:

A new goal, new objective, and two new policies shall be added to the Kings County Land Use Element under "III. Policies for Rural Areas," which cross-references the Element, to direct readers to the additional policies in the adopted Element. The proposed new Land Use Element goal and policies recommended to be added are as follows:

- “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.”

(FPEIR Vol. 1B, p. 4.7-10.)

- Impact 4.7-2:** Since some of the Element policies and programs supercede and are more restrictive than dairy regulations in the Kings County Zoning Ordinance, there are no significant impacts. (FPEIR Vol. 1B, p. 4.7-12.)
- Finding:** This is a less-than-significant impact.
- Explanation:**

Under State law, counties must maintain their zoning regulations in a manner consistent with their General Plans. When a General Plan amendment is adopted (such as a new element) that makes the zoning inconsistent, the zoning must be changed to reestablish consistency “within a reasonable time.” (FPEIR Vol. 1B, p. 4.7-12.)

State law does not prescribe what constitutes “a reasonable time” for reconciling the zoning ordinance with the General Plan. The Governor’s Office of Planning and Research (OPR) recommends that, when possible, General Plan amendments and necessary related zone changes be heard concurrently. When concurrent hearings are not feasible, OPR recommends that zoning changes to reflect consistency with extensive General Plan amendments dealing with large geographic areas be completed within two years. In addition, case law has supported the consistency doctrine with specific regard to the issuance of conditional use permits. (FPEIR Vol. 1B, pp. 4.7-12 to 4.7-13.)

Specific policies and programs of the Element supercede and are more restrictive than the dairy regulations in the Kings County Zoning Ordinance. Section 1903 of the Zoning Ordinance details the application process and requires preparation of a site plan. The site plan for a conditional use shall be prepared “to enable the planning commission to find that all applicable provisions of this ordinance are complied with.” Section 1903(9) of the Zoning Ordinance requires that process water and manure management and disposal plans be prepared by a professional engineer, which determines that the design of the new dairy will comply with the standard process water discharge requirements of the Regional Water Quality Control Board. This section of the Zoning Ordinance

should be deleted and replaced with a reference to the new, more restrictive requirements of the Element policies. (FPEIR Vol. 1B, p. 4.7-13.)

Section 1908(F)(2)(a) and (b) of the Zoning Ordinance requires that the site plans of proposed dairy facilities be designed so that the dairy facilities are "located a sufficient distance from the city limits or community or municipal service-type district boundaries of an urban area," and "the barns, corrals and waste disposal systems are located a sufficient distance from residences not associated with the dairy," so that "a conflict of land uses does not occur." This section of the Zoning Ordinance should be deleted and replaced with a reference to the new, more restrictive siting requirements of the Dairy Development Overlay Zone and the Element policies. (FPEIR Vol. 1B, p. 4.7-13.)

Section 1908(F)(2)(c) and (d) requires that a dairy application demonstrate that "there is sufficient land under the control of the applicant to provide for management and disposal of liquid wastes produced by the dairy," and that "pollution and nuisance conditions will not occur as a result of discharge, stockpiling, handling or storage of wastes generated by the dairy." Section 1908(F)(2)(e) requires that the design and operation of the ponds for proposed dairy facilities comply with eleven specific findings. These sections of the Zoning Ordinance should also be deleted and replaced with a reference to the new, more extensive design and engineering requirements of the Element policies. (FPEIR Vol. 1B, p. 4.7-13.)

Section 1909 lists typical conditions of approval that may be attached to conditional use permits. The conditions may include "special yards, spaces and buffers," "regulation of noise, vibration, odors, and similar characteristics," and "mitigation measures, identified in the environmental documentation evaluating the application, determined to be necessary to avoid or lessen significant environmental effects that may result from the construction or operation of the approved use." (PEIR, p. 4.7-14.)

**Mitigation:**

None required. Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

Measure 4.7-2:

New text shall be added to the Kings County Zoning Ordinance, Section 2102, site plan review application and fee, as follows:

**"Sec. 2102. Site plan review application and fee.**

"A. ...

16. Applications for proposed new bovine dairies, or dairy calf and heifer raising facilities, and expansions of existing bovine dairies, or dairy calf and heifer

raising facilities exceeding the baseline capacity of the dairy, shall be approved through the site plan review process if the application meets all of the specified criteria of the *Dairy Element* of the *Kings County General Plan*.”

Section 1908(F) of the Kings County Zoning Ordinance shall be deleted in its entirety and replaced with the following text:

”F. When an application is submitted for an expansion of a bovine dairy in the AL-10 zone district, or other application for a dairy project as required by the *Dairy Element* of the *Kings County General Plan*, or this ordinance, the following findings shall be made before granting a conditional use permit:

1. That the zoning administrator has included in his or her report to the planning commission the results of consultation with representatives of the county agricultural commissioner, the county farm and home advisor, the county health officer, the Kings Mosquito Abatement District, the Central California Regional Water Quality Control Board and the Kings County Farm Bureau Dairy Committee before the planning commission may grant the application.
2. The planning commission finds that the Technical Report accompanying the conditional use permit application, which will include its own additional environmental review, demonstrates that the alternative dairy project design or process will accomplish the same or higher level of performance as required by the *Dairy Element*.”

**Impact 4.7-3:** New and expanded dairy facilities allowed under the Element can cause impacts to natural resources and sensitive land uses. (FPEIR Vol. 1B, p. 4.7-12.)

**Finding:** This is a less-than-significant impact.

**Explanation:**

The Element includes eight policies that set criteria for limiting new dairy facilities to certain areas of the County. However, the mapping of the Dairy Development Overlay Zones has not incorporated data for all the criteria. (FPEIR Vol. 1B, p. 4.7-14.)

Policy DE 1.2d prohibits dairy facilities in shallow or perched groundwater areas of the County, unless the applicant can demonstrate that the minimum separation between the bottom of proposed lagoons/corral areas and highest groundwater is at least five feet. The Dairy Development Overlay Zones in the Element include areas of the County that have shallow or perched groundwater. In recognition that vertical separation is not the only critical condition related to groundwater quality protection, the Element contains numerous policies related to reducing the potential for water quality degradation. (FPEIR Vol. 1B, pp. 4.7-14 to 4.7-15.)

In addition, Policy DE 1.2e prohibits approval of dairy facilities in designated wetlands and on habitat for sensitive species under the SPR process. In addition, Policy DE 3.3a requires that biological and wetland surveys be conducted for dairy development sites. Implementation of the policies of the Element will reduce the potential adverse impacts to biological and water resources to a less-than-significant level. (FPEIR Vol. 1B, p. 4.7-15.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.7-15.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.7-4:**            **Implementation of the Element will prevent or minimize impacts to residentially zoned lands within the four cities, rural communities, and other sensitive uses. (FPEIR Vol. 1B, p. 4.7-15.)**

**Finding:**                **This is a less-than-significant impact.**

**Explanation:**

The Element notes that certain sensitive land uses can be affected by dairy operations. Policies DE 1.2a, 1.2b, 1.2g, 1.2h, and 1.2i restrict the siting of new dairies close to cities, rural communities, Lemoore Naval Air Station, schools, and other dairies. (FPEIR Vol. 1B, p. 4.7-15.)

The prohibition of new dairies within one-half mile of residential zones includes unincorporated lands that are zoned for rural housing on large lots, as well as medium and high density housing on smaller lots within unincorporated communities, such as Armona, Home Garden, Kettleman City, the Santa Rosa Rancheria, and Stratford. However, the Element policies that refer to "residential zones" also include lands within the incorporated cities. Newly incorporated lands that are annexed into the cities from the County and developed with new residential subdivisions can experience impacts from dairy development. (FPEIR Vol. 1B, p. 4.7-15.)

The Element maps one-half mile buffers around residential zoning districts that are within incorporated cities and also designates a "compatibility zone" boundary that excludes dairies in the "fringe area," designated by the AL-10 zone district, around each of the three cities. The "compatibility zone" boundary around the cities includes unincorporated lands that are within some parts of the cities' Spheres of Influence, which are planned for future urban growth according to each of the cities' General Plans. Thus, homeowners in new subdivisions planned within the cities of Corcoran, Hanford, and Lemoore will not be subject to impacts related to dairy development. The County will examine the necessity of changing the AL10 zone district north of Corcoran, north of Hanford, and around the Santa Rosa Rancheria to provide more protection for residential areas in the next comprehensive General Plan update. (FPEIR Vol. 1B, pp. 4.7-15 to 4.7-16.)



The "compatibility zone" boundary around the city of Hanford also includes unincorporated lands in the rural communities of Armona and Grangeville. If changes to the community plan of unincorporated communities occur in the future, the "compatibility zone" boundaries should be re-evaluated. (FPEIR Vol. 1B, p. 4.7-16.)

Policy DE 1.2j requires that the "compatibility zone" boundaries presented in the Element for Corcoran, Hanford, and Lemoore be updated periodically to ensure that any changes in spheres of influence of the General Plan are reflected in the boundaries. (FPEIR Vol. 1B, p. 4.7-16.)

Implementation of Policies DE 1.2a, 1.2b, 1.2g, 1.2i, and 1.2j of the Element will reduce the potential noise, lighting, and odor impacts of dairy facility operations and process water irrigation on new subdivision residents within the three cities. (FPEIR Vol. 1B, p. 4.7-16.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.7-16.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.7-5:** New and expanded dairy facilities allowed under the Element can cause impacts to adjacent individual rural residences in the agricultural areas. (FPEIR Vol. 1B, p. 4.7-16.)

**Finding:** This is a less-than-significant impact.

**Explanation:**

Land use conflicts between dairies and nearby rural residences can be caused by various characteristics of dairy operations, such as generation of animal manure odors, night-time lighting of outdoor dairy stalls or parking lots, noise, traffic, and spreading of manure and process water on agricultural fields. The residents can be adversely affected by odors from the dairy operations as well as from the periodic application of manure and process water on the adjacent fields. Dairy equipment noise and traffic noise from trucks entering and exiting the dairy can also impact the residents. (FPEIR Vol. 1B, p. 4.7-16.)

The issue of odors generated by the dairy cows and by spreading effluent on agricultural fields is analyzed in more detail in the PEIR. Noise impacts, visual and lighting impacts, and traffic and circulation impacts are discussed in more detail in the PEIR. The following discussion summarizes some of the impact analysis in those other sections. (FPEIR Vol. 1B, p. 4.7-16.)

Individual residences that are located adjacent to new dairies permitted by the Element can be subject to direct impacts from the dairy operations. Policy DE 1.2i limits dairy development within one-half mile of existing residential zone districts. The Element also includes policies related to siting of new dairy facilities close to individual residences that are within agricultural zones. (Policies DE 3.1b and 3.1c). (FPEIR Vol. 1B, pp. 4.7-16 to 4.7-17.)

The Kings County Right to Farm Ordinance (Ordinance No. 546.1) addresses issues related to land use compatibility when new residences are located in agricultural areas, but not when new agricultural uses are located adjacent to existing rural residences. The ordinance states that it is the policy of the County to “protect agricultural land, operations, and facilities from conflicting uses due to the encroachment of incompatible, non-agricultural uses of the land,” and to “advise developers, owners, and subsequent purchasers of property in the County of the inherent potential inconveniences and discomforts often associated with agricultural activities and operations, including, but not limited to, ...odors from manure, fertilizers, pesticides, chemicals, or other sources...” The ordinance states that no lawful agricultural activity, operation or facility “shall be or become a nuisance, public or private, due to any changed condition in or about the locality, including, but not limited to, the encroachment of non-agricultural uses such as rural residences.” (FPEIR Vol. 1B, p. 4.7-17.)

Existing County zoning regulations do require a minimum setback between residences and livestock structures. Section 406 of the Zoning Ordinance lists standards applicable to all agricultural zoning districts. Section 406(F)(1) requires that “The minimum distance between a residence and a structure housing livestock or poultry shall be 40 feet.” (FPEIR Vol. 1B, p. 4.7-17.)

The Element contains two policies that address the need to assess and minimize impacts to nearby residences. The section of the Element devoted to “General Restriction of Siting Dairies in Kings County” contains Policy DE 3.1a, which states “A technical report shall be prepared and shall address the following siting issues.” The policy is followed by twelve criteria, which include “air quality, including odors, dust and PM<sub>10</sub> control during construction and operation,” “traffic and road conditions,” “light and glare,” “proximity to the nearest residences.” (FPEIR Vol. 1B, pp. 4.7-17 to 4.7-18.)

Also, Objective DE 6.1 calls for the establishment of a dairy monitoring program that will gather data for all dairies. This monitoring program is to include data regarding “development within one (1) mile” of the dairy. (FPEIR Vol. 1B, p. 4.7-18.)

Implementation of the policies of the Element will reduce the potential noise, traffic, lighting, and odor impacts of dairy facility operations and process water irrigation on nearby residences to a less-than-significant level. (FPEIR Vol. 1B, P. 4.7-18.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.7-18.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

## H. HUMAN HEALTH/RISK OF UPSET

### Standards of Significance

The revised CEQA Guidelines include the following specific criteria for identifying when the Project would result in significant health or safety hazard impacts:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-fourth mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

(FPEIR Vol. 1B, pp. 4.8-5 to 4.8-6.)

**Impact 4.8-1:** Workers can be exposed to hazardous materials during dairy operation, resulting in adverse health impacts. (FPEIR Vol. 1B, p. 4.8-6.)

**Finding:** This is a less-than-significant impact.

**Explanation:**

Hazardous materials will be used for the operation of dairies under the Element and continued agricultural production at the project site. The use of fuel stored in above ground tanks, lubricants, and cleaning solutions will be required for the operation and maintenance of equipment during and after construction of the dairy facilities. Pesticides (for control of vectors) and medicines will be used at the dairy. Agricultural chemicals, including insecticides, herbicides, and fertilizer, will be used for continued farming; however implementation of the Element will result in reduced acreage of cropland and a reduction in agricultural chemical use. (FPEIR Vol. 1B, p. 4.8-6.)

The RWQCB requires that a Water Pollution Prevention Plan (WPPP) be prepared for the dairies in compliance with the provisions of the General Waste Discharge Requirements for Milk Cow

Dairies. The WPPP is required to include provisions for the safe storage, use, and disposal of hazardous materials. The Business Plans for the dairies, which are required to be submitted to Kings County Environmental Health Services (KCEHS), also need to include similar provisions. In addition, all use of restricted agricultural chemicals is controlled by Federal and State laws and regulations enforced by the California Department of Pesticide Regulations (CDP) and KCACO. (FPEIR Vol. 1B, p. 4.8-6.)

Construction workers can be exposed to pesticide residues from past applications and from current pesticide applications in soils during grading and excavation. Agricultural workers (who will continue to farm the row crop portion of the site under the proposed project) can also be exposed to residual contamination in soil from past or current applications or directly exposed to the agricultural chemicals themselves during mixing, application, and harvesting. Use of pesticides and herbicides is strictly regulated to minimize exposure to workers. The regulations prescribe, among other things, times of application and length of time after applications before workers can reenter fields. Reentry restrictions will also apply to dairy construction workers. The potential for exposure of workers associated with project activities will be similar to exposure of farm workers for existing agricultural activities at the site (existing conditions). The Element does not propose significant changes in agricultural chemical use in the County. (FPEIR Vol. 1B, pp. 4.8-6 to 4.8-7.)

The Element specifically addresses the potential exposure of workers and the public to unsafe conditions. Objective DE 4.3 promotes dairy facility management practices that protect worker and public health and the environment; Policy DE 4.3a supports this objective by requiring conformance by dairy facilities with all applicable laws and regulations controlling the management of hazardous materials. (FPEIR Vol. 1B, p. 4.8-7.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.8-7.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.8-2:**           **Potential exposure to residual agricultural chemicals during construction of the dairy facilities, resulting in adverse health impacts.**  
(FPEIR Vol. 1B, p. 4.8-7.)

**Finding:**               **This is a less-than-significant impact.**

**Explanation:**

Construction of the dairies will require extensive grading of areas formerly under agricultural production. Past agricultural activities have included the application of a variety of chemicals (e.g., pesticides) to the surface soils at the site. Agricultural practices in the past and currently include the application of pesticides and herbicides. Until 1972, DDT was widely used throughout the United States. DDT is persistent in the environment and is still found in agricultural soils,

creek and river sediments, and creeks and coastal bays more than 27 years after its ban. The levels of residual DDT (and its breakdown products, such as DDE and DDD) in the environment vary depending on the history of the types of crops grown, the past application rates, and the past location of storage and mixing facilities of the pesticide.] As part of a study prepared by the California Department of Food and Agriculture, soil samples were collected from each county in the State. Two soil samples were collected in Kings County; the samples collected contained relatively low levels of DDT. (FPEIR Vol. 1B, p. 4.8-7.)

The agricultural fields in the County currently receive pesticide and herbicide applications, both ground and aerial. The pesticides and herbicides used today are strictly regulated and generally have short half-lives (the time it takes a chemical to degrade to half its original concentration). (FPEIR Vol. 1B, p. 4.8-7.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.8-8.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.8-3:**            **Operation of the dairies can result in increased vector activity, potentially creating adverse human health impacts.** (FPEIR Vol. 1B, p. 4.8-8.)

**Finding:**                **This is a less-than-significant impact.**

**Explanation:**

The generation and storage of manure and process water at the dairies and use of process water as fertilizer for agricultural fields at a site present the possibility of increased vector activity. Mosquito and fly infestations have been observed at dairies in the past, particularly at manure separation pits and ponds that have not been properly maintained. When vegetation becomes established around the pond perimeter or excessive floatable material persists in pits and ponds (often allowing establishment of vegetation on the floatables), mosquito infestations can occur. Mosquito infestation can create a significant risk to public health. Mosquito species common to Kings County that can feed on dairy cattle can be vectors for several significant infectious diseases, including the Western Equine and St. Louis viruses, forms of encephalitis. (FPEIR Vol. 1B, p. 4.8-8.)

The KMAD has established regulations for mosquito control at dairy facilities. These controls are aimed at preventing the development of mosquito habitat in process water ponds and manure separation pits and providing access for mosquito control equipment. The requirements include the installation of manure separation systems at all dairy facilities to limit the amount of manure solids delivered to process water ponds, reducing the potential for excessive floatable materials. Design requirements for pits and ponds ensure that shallow water habitat is limited. The KMAD inspects dairy facilities throughout the mosquito breeding season to ensure that conditions

promoting mosquito breeding do not develop. Although the KMAD does not provide vegetation or solids removal services, vegetation and solids removal is the responsibility of the dairy operator. (FPEIR Vol. 1B, p. 4.8-8.)

Flies are another potential vector problem at a dairy operation. The KMAD does not provide services related to abatement of flies; but KCEHS responds to complaints regarding nuisance conditions associated with flies. The County has had numerous calls regarding fly problems at existing dairy operations in the County. Typically, complaints are made from residences within 0.5 to 3.0 miles of a dairy (depending on predominant wind direction) with a fly infestation. Most of these complaints have been directed at older dairies where drainage is often a problem and facility design makes maintenance and good housekeeping practices difficult. (FPEIR Vol. 1B, p. 4.8-8.)

Flies (predominantly house flies, but stable flies are also of local concern) typically deposit eggs in wet, decaying organic matter, such as manure and spilled feed. An average female fly will produce about 500 to 600 eggs in her lifetime. The life cycle of the fly includes four stages: the egg, larva (maggot), pupa, and winged adult. Just one pound of manure can yield more than 1,500 maggots. As an adult fly feeds, it continually regurgitates droplets of food and saliva since it can only consume food in liquid form. This style of eating, and choice of food material, makes the dairy fly a constant threat to milk production and animal and human health. (FPEIR Vol. 1B, pp. 4.8-8 to 4.8-9.)

Particular areas that have been identified as preferred breeding sites at dairies in the County include calving areas (flies are particularly attracted to the composition of calf manure), around water troughs, leaking pipes or other moist areas, along fence lines (cows walking in corrals stepping on manure kill many maggots, but the fence lines are often untrampled), around the edges of solids separation areas, and areas where grain is spilled. (FPEIR Vol. 1B, p. 4.8-9.)

Control of fly populations has been demonstrated to result in increased milk production at dairies; the greater the number of flies on a dairy cow, the lower the milk production; up to 30 percent reduction in milk production has been documented with stable fly infestations. Therefore, dairy operators are motivated to aggressively minimize fly populations. It has been demonstrated that use of pesticides as a primary means of controlling populations is less effective than a tiered approach that first employs cultural controls (e.g., good housekeeping practices), then biological controls (e.g., encouragement of parasitic wasp populations), and careful pesticide application only when necessary. Parasitic wasps and other biological controls can effectively control flies if conditions at the dairy are suitable. Wasps lay eggs inside the fly pupa. When the wasp egg hatches, the larva feeds on the dead fly. The developed wasp breaks out and repeats the cycle. Proper spraying of pesticides will not reduce wasp populations. Reduced wasp populations could force a dairy to require more frequent pesticide use as the flies recover more quickly after each application than the wasps. (FPEIR Vol. 1B, p. 4.8-9.)

Research indicates that dairies employing biological controls as part of Pest and Vector Management Plan (PVMP) (e.g., wasp releases) use 80 percent less pesticides than dairies that rely on chemical controls. In addition, fly populations at dairies using biological controls are typically 50 percent lower than conventionally managed farms. Potential public health hazards associated with flies represent a significant impact. (FPEIR Vol. 1B, p. 4.8-9.)

Mice are a common vector problem at concentrated animal feeding operations where feed and grain are stored. KCACO provides oversight for vertebrate pest control at dairies including mice, rats, pigeons and other vertebrate pests. Loss of feed to mice reduces the profitability of the dairy, and therefore mice populations are minimized to the extent possible at successful dairy operations. The County has not received complaints of nuisance conditions associated with mice in the vicinity of operating dairies. Potential public health hazards associated with rodents at the proposed dairies represent a less-than-significant impact. (FPEIR Vol. 1B, pp. 4.8-9 to 4.8-10.)

The Element specifically addresses the need to control flies, mosquitoes, and other pests. Policy DE 4.3b requires development and implementation of a Pest and Vector Management Plan as part of all dairy applications. Under Policy DE 4.3c, all dairy operators are required to comply with the guidelines of the Kings Mosquito Abatement District, even those dairies outside the jurisdiction of the district. (FPEIR Vol. 1B, pp. 4.8-10.)

Implementation of these policies will reduce this impact to a less-than-significant level. (FPEIR Vol. 1B, p. 4.8-10.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.8-10.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.8-4:**            **Operation of the dairy facilities can expose people to dairy manure pathogens, potentially causing adverse human health impacts.** (FPEIR Vol. 1B, p. 4.8-10.)

**Finding:**                **This is a less-than-significant impact.**

**Explanation:**

Pathogens (including bacteria, viruses, fungi, protozoa, and parasites) have been demonstrated to be serious contaminants in drinking water supplies, frequently impacting public health. The dairy facilities will generate large volumes of solid and liquid bovine manure, which contains pathogens. Pathogens most commonly associated with bovine manure include cryptosporidium, *Escherichia coli* 0157 (*E. coli* 0157), and salmonella. Cryptosporidium and *E. coli* 0157 are found in most dairy cattle manure, but elevated levels commonly occur in manure produced by newborn calves. These pathogens can cause disease within cattle herds and are a health management concern for dairy operations. These pathogens can also be transmitted to humans.

Infection with cryptosporidium and *E. coli* can cause gastrointestinal illness, particularly to persons with compromised immune systems. (FPEIR Vol. 1B, p. 4.8-10.)

Physical factors controlling the transport of pathogens include the concentration of the source, natural disinfection ability of the subsurface, and the distance to a sensitive receptor. Pathogens could enter the groundwater system by 1) infiltrating downward through the unsaturated zone, and/or 2) through poorly constructed water supply wells that are not properly sealed at the surface to prevent infiltration into the well casing or surrounding gravel pack. Once in the groundwater system, pathogens can impact on-site wells and/or can be transported off-site to domestic wells. (FPEIR Vol. 1B, pp. 4.8-10 to 4.8-11.)

For pathogens to present a public health impact, the pathogens must reach a sensitive receptor (e.g., a drinking water user). Since all surface water runoff from the dairy operations will be contained and managed, it is unlikely that the project will directly impact the quality of surface water supplies. (FPEIR Vol. 1B, p. 4.8-11.)

Impacts related to pathogens are decreased with distance. (FPEIR Vol. 1B, p. 4.8-11.)

The Element recognizes the importance of protecting water quality from the release of dairy pathogens. Policy DE 4.1a.B.2.i includes the following provision:

“The potential for discharge of water-borne pathogens to existing and proposed domestic water supply wells shall be minimized by ensuring that the domestic wells are constructed in accordance with the California Well Standards and that appropriate minimum setbacks (150 feet, or other distance set in the Waste Discharge Requirements issued for the dairy by the RWQCB) between domestic wells and potential sources of pollution are maintained.” (FPEIR Vol. 1B, p. 4.8-11.)

In addition, the Element requires that all process water be collected and stored in ponds with low permeability liners (Policy DE 4.1a.B.2), reducing the potential release of pathogens to water supplies. (FPEIR Vol. 1B, p. 4.8-11.)

Implementation of Policies DE 1.2a, 1.2b, 1.2c, 1.2d, 1.2h, 1.2i, 3.1b, 3.1c, 3.2c and 4.1a.B.2 will reduce this impact to less than significant. (FPEIR Vol. 1B, p. 4.8-11.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.8-11.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.8-5:**      **Residual manure remaining at dairy facilities following cessation of manure management facilities operation can expose people to elevated**



**methane and nitrate levels, potentially causing adverse human health impacts. (FPEIR Vol. 1B, p. 4.8-11.)**

**Finding: This is a less-than-significant impact.**

**Explanation:**

Large amounts of manure are generated during the operational phase of dairy facilities. The Element includes objectives and associated policies that require that the manure be managed under a Manure Nutrient Management Plan (MNMP), (Objective DE 4.1) and CDPWAP to control potential emission of pollutants to the environment. However, it is possible that, upon closure, significant residual amounts of manure could be left at dairy sites. For example, process water ponds or other containment facilities could be abandoned without having manure removed. If significant quantities of manure are buried, the manure could undergo anaerobic decomposition and produce methane, which could migrate to the surface. If structures are built above buried decomposing manure, it is possible that significant levels of methane could accumulate within the structures. In addition to the potential for methane to be generated, residual manure could be a source of releases of nitrate or pathogens (including bacteria, viruses, fungi, protozoa, and parasites) to surface or subsurface water, which is discussed in the FPEIR. (FPEIR Vol. 1B, 4.8-12.)

The Element includes a provision, which directly addresses the potential impacts associated with residual manure. Policy DE 5.1j requires that, prior to conversion of dairy facilities to other land uses, the owner(s) of such facility submit documentation that all manure has been removed. The management of the removed manure must be shown to be in compliance with the facility's Comprehensive Dairy Process Water Application Plan. (FPEIR Vol. 1B, p. 4.8-12.) The development of the maximum theoretical herd size in the Element also limits the amount of cows (and manure) based on the available acreage for the use of process water and manure for crop growing. (Element, Section II.) Therefore, excessive stockpiling of manure should not occur.

Implementation of this policy will reduce the impacts associated with residual manure to a less-than-significant level. (FPEIR Vol. 1B, p. 4.8-12.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.8-12.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

1

**Impact 4.8-6: Construction of dairy facility structures over or near improperly abandoned oil or gas wells can result in accumulation of natural gas within the structures, presenting the potential for fire and explosion. (FPEIR Vol. 1B, p. 4.8-12.)**

**Finding: This is a less-than-significant impact.**

**Explanation:**

As described in Section 4.1 of the FPEIR Vol. 1B, oil and gas exploration and production have occurred and can be expected to continue in portions of Kings County, including the Tulare Lake Bed. It is possible that there are active or abandoned wells within potential dairy development sites in the DDOZs designated by the Element. The appropriate abandonment (closure) of inactive oil and gas wells is required by Division 3 of the California Public Resources Code. A well is properly abandoned when it has been shown, to the satisfaction of the California Department of Conservation Division of Oil, Gas, and Geothermal Resources (DOGGR), that all proper steps have been taken to isolate all oil-bearing or gas-bearing strata encountered in the well, to protect water quality, and prevent subsequent damage to life, health, property, and other resources. It is possible that some abandoned wells do not meet these standards. If DOGGR determines that a well has not been appropriately abandoned, that the integrity of a properly abandoned well has been compromised, or that access to an improperly abandoned well would be impeded by construction of improvements, the DOGGR can require that the well be "reabandoned." Construction of structures over improperly abandoned wells presents the potential for natural gas leaking from the wells to accumulate within the structures. The accumulation of natural gas can present the potential of fire or explosion. (FPEIR Vol. 1B, pp. 4.8-12 to 4.8-13.)

Objective DE 3.5 of the Element addresses the potential adverse effects posed by abandoned oil and gas wells. Policy DE 3.5a requires that applicants for dairy development projects contact DOGGR to determine if abandoned oil and gas wells are present at the proposed dairy site. Policy DE 3.5b further requires that all oil and gas wells located beneath or within 300 feet of proposed dairy structures be abandoned in accordance with specifications developed by DOGGR. The policies contained in the Element reduce the impact to a less than significant level. (FPEIR Vol. 1B, p. 4.8-13.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.8-13.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**I. TRANSPORTATION****Standards of Significance**

Traffic generated by future dairy development under the Element may impact local and regional roadways in Kings County. These impacts have been assessed by comparing the anticipated traffic volumes generated by new dairies with the existing traffic volume and roadway capacity on key roadways. Effects would be considered significant if future dairy development:

- Causes an increase in traffic that is substantial in relation to the existing traffic volume and capacity of key roadways, or
- Causes levels of service (LOS) for key intersection to drop below the County's operating standard of LOS D or better, or
- Increases traffic hazards to motor vehicles, bicyclists, or pedestrians.

(FPEIR Vol. 1B, p. 4.9-7.)

**Impact 4.9-1:** Truck and other traffic from new dairy development will be added to County roadways. (FPEIR Vol. 1B, p. 4.9-7.)

**Finding:** This is a significant impact.

**Explanation:**

The Element proposes that approximately 257,312 additional milk cows and 285,654 head of support stock can be accommodated on land within designated Dairy Development Overlay Zones (DDOZs) and Nutrient Spreading Overlay Zones (NSOZs) in Kings County. Assuming an average dairy size of approximately 1,000 milk cows, the number of new dairies that can be accommodated is about 257 new dairies, or an increase of 72 percent from the County's existing inventory of 149 dairies. Since the theoretical dairy herd is the limiting control on dairy development, development of larger dairies will result in fewer dairies being constructed. (FPEIR Vol. 1B, p. 4.9-7.)

Average daily truck traffic due to each new 1,000-cow dairy is assumed to be approximately 26 one-way vehicle trips per day. This estimate is based on information provided by recent dairy applicants on milk delivery trucks (two trips), feed delivery trucks (four trips), dry manure trucks (four trips), and workers/visitors for large dairy facilities. It is also assumed that each new dairy will include at least one new residence (16 trips). Truck trips will account for approximately 38 percent of the total estimate additional vehicular trips generated by the new dairies. (FPEIR Vol. 1B, p. 4.9-7.)

Milk trucks that serve the new dairy facilities are expected to travel between the dairies and existing creameries and cheese plants located in Lemoore, Hanford, Tipton, Fresno, and Tulare. The milk truck trip distribution pattern will vary over time, depending on production schedules at the processing plants. Therefore, the trips will be distributed relatively evenly over the principal and minor arterials within the County. Feed trucks are expected to travel between the new dairies and nearby farms and grain elevators. Dry manure trucks are expected to travel from the new dairy locations in the central part of Kings County to various rural locations within the County. Employee traffic is expected to be between the new Dairy Facility locations and the local population centers, such as Corcoran, Hanford, and Lemoore. (FPEIR Vol. 1B, p. 4.9-7 to 4.9-8.)

Construction of approximately 257 new dairy facilities will generate a total of approximately 6,682 daily trips to the local and regional roadway system, which will be distributed according to where each of the new dairies was located. The traffic added by each dairy project to any given roadway will be approximately 25 to 30 vehicle trips per day. The addition of this small amount of new dairy traffic will not exceed the capacity of the existing roadways, since many of the roadways in the County are operating at a level of service in the LOS A and B range. Caltrans has recently established criteria for determining whether a Traffic Impact Study (TIS) should be required of proposed development projects. In general, a TIS will not be required for projects generating less than 50 peak hour trips assigned to a State highway facility operating at LOS C or D or higher or is experiencing noticeable traffic delays. A TIS will be required under these conditions if the potential for a traffic incident is significantly increased. The only roadways in Kings County that are operating near capacity are located in urban areas, such as Hanford, where new dairy development will not be allowed. The impacts of growth to local and regional roadways in Kings County due to implementation of the Element will generally be considered less than significant. (FPEIR Vol. 1B, p. 4.9-8.)

Similarly, when truck and employee traffic from future individual dairy facilities are added to existing peak hour traffic volumes at key intersections throughout the rural part of Kings County, most of the intersections will continue to experience levels of service in the LOS A to LOS C range, which are well within the acceptable LOS range (i.e., LOS A to LOS D). Individual dairy project impacts will be assessed, but generally, the impacts of future dairy development to key intersections will be considered less-than-significant. (FPEIR Vol. 1B, p. 4.9-8.)

Each dairy site will be expected to have its own access to the adjacent local roadway. Therefore, the project's traffic will be well dispersed geographically, precluding concentrated traffic flows at any access point. All local roadways in the rural areas of Kings County that are designated for future dairy development are straight, two-lane roads in a relatively flat terrain. Visibility and sight distances are good. All of the proposed dairy sites allowed by the Element policies are currently in use for agricultural purposes, as is most of the land in the general vicinity. Therefore, each dairy project's added traffic will generally not be expected to create or exacerbate traffic safety hazards. The potential safety impacts will be considered less than significant. (FPEIR Vol. 1B, p. 4.9-8.)

Kings County does not currently impose any traffic impact policies or fees that affect new dairy applications. The traffic impacts of dairy projects are examined on a case-by-case basis. Specific transportation improvements, such as left turn lanes, are sometimes required of dairy applicants. In addition, the local Caltrans District often requests that new dairy facilities not create new driveways on certain segments of State highways. Construction of driveways or other improvements require an encroachment permit from Caltrans. (FPEIR Vol. 1B, p. 4.9-9.)

Existing General Plan policies and zoning regulations require that new developments, including agricultural operations that require a use permit, mitigate identified traffic impacts. The Element contains additional policies that give further guidance to assessing and mitigating environmental

impacts of new dairy facilities. For example, Policy DE 3.1a of the Element requires that “traffic and road conditions” be one of the criteria that are used to “consider potential environmental effects of dairies when reviewing and evaluating proposals for new or expanded dairies.” This policy is further supported by Policy DE 3.1f, which requires that all proposed dairy permit applications be specifically reviewed to determine if right-of-way encroachment permits or site-specific roadway improvements are required. Policy DE 3.4a additionally requires that all dairy buildings and structures be set back from road rights of way. The expected low vehicle trip generation, acceptable existing and future LOS, dispersed traffic pattern, limited traffic hazards, and requirement for site-specific project review indicate that the traffic impacts of implementation of the Element will not be significant. However, to further protect against localized impacts related to specific dairies, the following mitigation measure is included. (FPEIR Vol. 1B, p. 4.9-9.)

**Mitigation:**

Mitigation Measure 4.9-1:

The following policy shall be included in the Element as Policy DE 3.1g:

Upon the request of an applicant for a SPR or CUP, the Kings County Regional Transportation Planning Agency will evaluate the effect a new or expanding dairy project will have on surrounding roadways and highways using its traffic model. If the traffic model run demonstrates that the dairy project will not result in degradation of the Level of Service (LOS) of adjacent County roadways below LOS D, or below LOS C on State highways, no additional evaluation will be required.

If the Kings County Regional Transportation Planning Agency’s traffic model demonstrates that the LOS will be degraded to a LOS E or lower on adjacent roadways, or to LOS D on State highways, a conditional use permit (CUP) will be required. In such a case the *Technical Report* accompanying the CUP application shall include a Traffic Impact Study (see Component 8 of Appendix J) prepared by a qualified traffic engineer in conformance with guidelines provided by the California Department of Transportation. Any additional environmental review shall focus on traffic related environmental issues, and the Traffic Impact Study shall demonstrate that the proposed dairy project will not result in significant safety hazards.

Significance after Mitigation

Less than significant. (FPEIR Vol. 1B, p. 4.9-10.) Changes or alterations have been required in, or incorporated into, the project which mitigate the significant effects on the environment.

## J. PUBLIC SERVICES AND UTILITIES

### Standards of Significance

According to the environmental checklist recommended by the CEQA Guidelines, potentially significant impacts could occur if the Project resulted in "substantial adverse physical impacts associated with the provision of, or need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives" for police or fire protection, schools, parks, or other public facilities. The Project could cause potentially significant impacts if it:

- Exceeds wastewater treatment requirements;
- Requires or results in the construction of new water, wastewater, or storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Does not have sufficient water supplies;
- Would result in a determination by the wastewater treatment provider that it may not have adequate capacity to serve the project;
- Would be served by a landfill with insufficient capacity; or
- Fails to comply with Federal, State and local statutes and regulations related to solid waste.

(FPEIR Vol. 1B, p. 4.10-3.)

**Impact 4.10-1:** **Increases in water consumption.** (FPEIR Vol. 1B, p. 4.10-4.)

**Finding:** **This is a less-than-significant impact.**

**Explanation:**

Average daily water consumption for dairy projects that can be approved under the Element will vary according to the specific type of facility constructed. Total water demand for a modern freestall dairy is about 80 gallons per day per milking cow. The 80 gallons of water are used for washing cows, cleaning milking areas, cooling systems, and drinking water for the animals. (FPEIR Vol. 1B, p. 4.10-4.)

Using an estimate of 80 gallons per day per milking cow, total water demand for a Dairy Facility of 5,000 milking cows will be approximately 1.23 acre-feet per day or 448 acre-feet per year. Assuming that the size of an average Dairy Facility for this milking cowherd size is about 115

acres, the water demand will equal approximately 3.5 acre-feet per acre per year for the dairy facility land. However, most of the water at the Dairy Facility is process water that is reused to irrigate nearby fields. Dairy process water is usually mixed with fresh water to irrigate cropland and is therefore reused. Thus, the actual consumption of water at a dairy is equal to the amount of water that is turned into milk (approximately 8 gallons per milking cow per day) and the water that is lost to evaporation. (FPEIR Vol. 1B, p. 4.10-4.)

The remaining acreage of the typical dairy site that is not covered with the dairy sheds, corrals, and associated operations is planted with silage crops to be consumed by the dairy herd and irrigated with process water augmented with irrigation supplies. Wheat and corn silage are typically grown in Kings County for dairies, with double-cropping each year. Estimated water demand rates for double-cropping wheat and corn silage grown in the San Joaquin Valley are up to 3.9 acre-feet per acre per year. (FPEIR Vol. 1B, p. 4.10-4.)

Thus, a typical large Dairy Facility in the Tulare Lake Basin approved under the Element will use less water overall than if all the land was planted to row crops and irrigated. Irrigated silage lands for a dairy will use about the same amount of water as other crops, such as cotton, but the lands occupied by the dairy facilities will use less water than planted agricultural lands. However, dairy development in Sunflower Valley and the Kettleman Plain can cause depletion of water resources. Policy DE 3.2h acknowledges this potential impact and requires the Technical Report for dairy applications to demonstrate that an adequate and sustainable water supply is available. (FPEIR Vol. 1B, p. 4.10-4.)

On-site water demand will also include domestic water use by any residences proposed in conjunction with dairy facilities. Typical domestic water use for one family is approximately 0.5 acre-foot per year. Water quality of domestic wells varies throughout Kings County. Community wells must be tested on a regular basis to prove that water quality is within State Title 22 specifications for safe drinking water. Rural residences in Kings County generally rely on well water supplies. Any residences planned, as part of a dairy project approved under the Element, will have to meet Title 22 standards. This is a less-than-significant impact. (FPEIR Vol. 1B, p. 4.10-5; see also FPEIR Vol. 1B, pp. 4.3-21 to 23.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.10-5.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.10-2:**            **Increase in the amount of storm water runoff.** (FPEIR Vol. 1B, p. 4.10-5.)  
**Findings:**                **This is a less-than-significant impact.**

**Explanation:**

Construction and operation of new dairy facilities approved under the Element will increase the amount of impervious surface area causing an increase in storm water runoff and requiring storm drain facilities. The runoff from manured areas will be handled by the on-site process water systems designed for each dairy, and will be stored on the site. (FPEIR Vol. 1B, p. 4.10-5.)

Policy DE 4.1a of the Element provides that clean water from dairy operations, including rainfall from roofs of dairy facilities, may be diverted from contact with any manured areas. If not, the runoff must be collected in the manure treatment system. (FPEIR Vol. 1B, p. 4.10-5.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.10-5.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**Impact 4.10-3:**      **Increases in the demand for police and fire protection, emergency medical response, solid waste collection and disposal services, school facilities, and recreation facilities.** (FPEIR Vol. 1B, p. 4.10-5.)

**Finding:**              **This is a less-than-significant impact.**

**Explanation:**

Construction of on-site residences and operation of new dairy facilities approved under the Element will create a slight increase in demand for public and private services, such as police and fire protection, emergency medical response, solid waste, school, and recreation services. (FPEIR Vol. 1B, P. 4.10-5.)

The storage of large amounts of feed, particularly hay, at dairy facilities presents an increased risk of fire. The Kings County Fire Department has proposed specific minimum fire protection standards for dairy design and operation. Policy DE 3.6a requires that new and expanded dairies comply with these standards. (FPEIR Vol. 1B, p. 4.10-6.)

For each new dairy that is approved, at least one new residence is typically constructed to house the herdsman and his or her family. Each new dairy can employ several dozen to over 100 workers, typically split between two ten-hour shifts each day. The creation of the on-site residents and employees will cause a slight increase in demand for police and fire protection and emergency medical services, which are provided by the Kings County Sheriff's Department and Kings County Fire Department and by the California Highway Patrol. (FPEIR Vol. 1B, p. 4.10-6.)

Solid waste from the dairy offices and residences will be picked up by one of the area's thirteen existing service providers. Solid waste will be disposed of at the USA Waste/Chemical Waste



Management facility in Kettleman Hills, which has adequate disposal capacity. (FPEIR Vol. 1B, p. 4.10-6.)

Operation of the proposed dairies will create a slight increase in demand for additional school facilities, as children of employees living on the site will attend schools in one of the school districts in the County. Each new residence constructed as part of a new dairy will be required to pay a per unit fee as set forth under Proposition 1A (SB 50). The current fee as set by State law is a maximum of \$2.05 per square foot for new residential use and \$0.33 per square foot for commercial/industrial use. Under these current fees, a typical 2,000-square foot house will pay \$4,100 in school fees. (FPEIR Vol. 1B, p. 4.10-6.)

Each new Dairy Facility will not be expected to significantly increase demand on local park facilities, since a relatively small number of employees will be at each Dairy Facility during a single shift, and only one family will be living at each dairy. (FPEIR Vol. 1B, p. 4.10-6.)

The slight increase in demand for public services is a less-than-significant impact. (FPEIR Vol. 1B, p. 4.10-6.)

**Mitigation:**

None required. (FPEIR Vol. 1B, p. 4.10-6.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**K. CULTURAL RESOURCES**

The following criteria have been established for determining the significance of potential impacts on cultural resources, based on the CEQA Guidelines environmental checklist. A significant impact would occur if the project would:

- Cause a substantial adverse change in the significance of historical resources;
- Cause a substantial adverse change in the significance of archaeological resources;
- Directly or indirectly destroy a unique paleontology resource or site or geologic feature;
- Disturb any human remains, including those interred outside of formal cemeteries.

(FPEIR Vol. 1B, pp. 4.11-2 to 4.11-3.)

**Impact 4.11-1:           Disturbance or destruction of cultural (historical and archaeological) resources. This will be a significant impact if archaeological resources**

were to be identified at dairy development sites. (FPEIR VOL. 1B, p. 4.11-3.)

**Finding:** This is a less-than-significant impact.

**Explanation:**

Portions of the County identified in the Element as suitable for dairy development can potentially contain significant archaeological resources. The large numbers of recorded archaeological sites that have been identified in the County indicate that the Tulare Lake Basin may contain other unidentified sites. Pleistocene animal fossils have been identified in association with many archaeological sites in the Tulare Lake Basin. Most of these areas with DDOZs have been disturbed by agricultural activities, which may have disturbed or displaced artifacts at or near the ground surface. As the precise sites of future dairy facilities are not known, it is possible that dairy development can also result in disturbance of known archaeological sites. It is also possible that excavation for dairy structures and manure management facilities can encounter as-yet undetected (i.e., buried) resources. Such finds may meet the definition of a "unique archaeological resource" as specified in Section 21083.2 of the Public Resources Code. It is also possible that human remains can be encountered. (FPEIR Vol. 1B, p. 4.11-3.)

In addition to archaeological resources, the DDOZs may contain significant historical resources. The CEQA Guidelines (Section 15064.5(a)) define a "historical resource" as a resource that: 1) is on or eligible for listing on the California Register of Historical Resources, 2) is included in a local register of historical resources, 3) determined by a lead agency to be "historically significant," or 4) could be a historic resource as defined in Public Resources Code sections 5020.1(j) or 5024.1. Some of the recognized historical resources in Kings County that would apparently meet these criteria may be located, wholly or partly, within DDOZs. These resources include the Indian Cemetery, Kings River Cemetery, Kings River Church, First High School, Kingston Town, and Mussel Slough Tragedy sites. (FPEIR Vol. 1B, p. 4.11-3.)

The protection of cultural resources is addressed in Policies DE 3.1d and 3.1e of the Element. Under Policy DE 3.1d, documentation of a CHRIS records review and a Sacred Lands file check is required to be submitted with all dairy applications. If the search indicates the presence of known or suspected cultural resources, a site-specific evaluation by a qualified archaeologist is required. The provisions of Policy DE 3.1e require that, if archaeological or paleontological resources are encountered during dairy development, work is to be suspended pending evaluation of the resources by a qualified archaeologist. The evaluation must be conducted in accordance with State and Federal guidelines (including Section 15064.5 of the CEQA Guidelines). Implementation of Policy DE 3.1d will ensure that known cultural resources are identified and managed during consideration of dairy development applications. The potential for disturbance of unknown (i.e., buried) cultural and paleontological resources is mitigated in conformance with CEQA requirements by Policy DE 3.1e. (FPEIR Vol. 1B, pp. 4.11-3 to 4.11-4.)

Implementation of Policies DE 3.1d and 3.1e will minimize the potential for disturbance or destruction of cultural resources during dairy development and reduce the impact to a less-than-significant level. (FPEIR Vol. 1B, p. 4.11-4.)

**Mitigation:**

None required. (PFEIR, p. 4.11-4.) Under CEQA, no mitigation measures are required for impacts that are less than significant. (Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15091, 15126.4, subd. (a)(3).)

**X.  
PROJECT ALTERNATIVES**

Where a lead agency has determined that, even after the adoption of all feasible mitigation measures, a project as proposed will still cause one or more significant environmental effects that cannot be substantially lessened or avoided, the agency, prior to approving the project as mitigated, must first determine whether, with respect to such impacts, there remain any project alternatives that are both environmentally superior and feasible within the meaning of CEQA. As noted earlier, in Section VI of these Findings, an alternative may be “infeasible” if it fails to fully promote the lead agency’s underlying goals and objectives with respect to the project. Thus, “‘feasibility’ under CEQA encompasses ‘desirability’ to the extent that desirability is based on a reasonable balancing of the relevant economic, environmental, social, and technological factors.” of a project. (*City of Del Mar, supra*, 133 Cal.App.3d at 417; see also *Sequoyah Hills, supra*, 23 Cal.App.4th at 715.)

The detailed discussion in Section IX demonstrates that all significant environmental effects of the Project have been either substantially lessened or avoided through the imposition of existing policies or regulations in the Element or by the adoption of additional, formal mitigation measures recommended in the FPEIR.

However, even with mitigation in the form of the application of existing policies and, where feasible, the addition of formal mitigation measures, the following significant effects remain significant and unavoidable, though they have been substantially lessened: certain air quality impacts (4.2-3, 4.2-4, 4.2-5, 4.2-6, 4.2-7, 4.2-8, 4.2-10, 4.2-11, 4.2-12, 4.2-13 and 4.2-14). The FPEIR summarizes these significant, unavoidable impacts as follows:

- Impact 4.2-3: increase PM<sub>10</sub> air pollutant emissions from fugitive dust, exhaust from agricultural and dairy equipment, vehicular traffic exhaust, and formation of secondary PM<sub>2.5</sub> (FPEIR Vol. 1B, p. 4.2-57);
- Impact 4.2-4: generate adverse odors from Project operations (FPEIR Vol. 1B, p. 4.2-69);

- Impact 4.2-5: generate ozone precursor (ROG and NOx) emissions from cattle manure and combustion engine exhaust (FPEIR Vol. 1B, p. 4.2-73);
- Impact 4.2-6: generate ammonia emissions from cattle manure (FPEIR Vol. 1B, p. 4.2-78);
- Impact 4.2-7: generate hydrogen sulfide emission from Project operations (FPEIR Vol. 1B, p. 4.2-81);
- Impact 4.2-8: generate methane emissions from cattle and cattle manure from Project operations (FPEIR Vol. 1B, p. 4.2-83);
- Impact 4.2-10: cumulative increase in PM<sub>10</sub> emissions (FPEIR Vol. 1B, p. 4.2-87);
- Impact 4.2-11: cumulative increase in ozone precursor emissions (FPEIR Vol. 1B, p. 4.2-88);
- Impact 4.2-12: cumulative increase in methane emissions (FPEIR Vol. 1B, p. 4.2-88);
- Impact 4.2-13: cumulative increase in hydrogen sulfide emissions (FPEIR Vol. 1B, p. 4.2-89); and
- Impact 4.2-14: cumulative increase in ammonia emissions (FPEIR Vol. 1B, p. 4.2-89).

The County can fully satisfy its CEQA obligations by determining whether any alternatives identified in the PEIR are both feasible and environmentally superior with respect to these impacts. (Laurel Hills, *supra*, 83 Cal.App.3d at pp. 520-521 and pp. 526-527); Kings County Farm Bureau v. City of Hanford, *supra*, 221 Cal.App.3d at pp. 730-731; and Laurel Heights I, *supra*, 47 Cal.3d at pp. 400-403; see also Pub. Resources Code, § 21002.) As the succeeding discussion will show, no identified alternative is both feasible and environmentally superior with respect to the unmitigated impacts.

To fully account for these unavoidable significant effects, and the extent to which particular alternatives might or might not be environmentally superior with respect to them, these Findings will not focus solely on these impacts, but instead will address the environmental merits of the alternatives with respect to all broad categories of impacts. The Findings will also assess whether each alternative is feasible in light of the County's objectives for the Project.

The County's review of project alternatives is guided primarily by the need to reduce potential impacts associated with the Project, while still achieving the basic objectives of the Project. Here, the County's primary objective is to comprehensively plan, coordinate and implement dairy development in the County. In the context of a Program EIR, the concept of alternatives is slightly different than for a single project EIR. The Project ultimately adopted by the Board must

meet the project objectives, otherwise adoption of the Element will not be worthwhile from a County policy standpoint. Additionally, with a program EIR, less specifics are possible in an alternatives analysis. "The degree of specificity required in an EIR "will correspond to the degree of specificity involved in the underlying activity which is described in the EIR." (Guidelines, § 15146.) Al Larson Boat Shop, Inc. v. Board of Harbor Commissioners (1993) 18 Cal. App. 4th 729, 746.) The specific Project objectives are:

- To evaluate the overall ability/capacity of Kings County to host dairies from the standpoint of the environment;
- To provide standards, including mitigation of impacts and monitoring and reporting of the mitigation measures applicable to the establishment of new and expanded dairies in Kings County;
- To streamline the dairy approval process, facilitating the orderly and efficient expansion of the dairy-based economy of the County;
- To maintain the viability of valued existing dairy operations within the County;
- To ensure that dairies approved in Kings County are competitive in the dairy industry; and
- To support the dairy quality assurance program.

(FPEIR Vol. 1B, pp. 3-11 to 3-12.)

The PEIR identified the following four potentially feasible alternatives to the Project: No Project, two Reduced County Herd Size, and Increased Manure Treatment alternatives. No individual dairy reduced herd size alternative was considered facially feasible because simply requiring smaller individual herd sizes would do nothing to reduce the overall impacts of dairy development in the County. Each of these Alternatives is discussed in detail below. The potentially feasible alternatives were analyzed in relation to the objectives of the Project and in relation to their ability to avoid or substantially lessen environmental impacts.

#### **ALTERNATIVE 1: NO PROJECT ALTERNATIVE**

The CEQA Guidelines have clarified that, under a "No Project" alternative, an EIR must examine both the existing conditions, as well as a "buildout" scenario (i.e., what would occur if the site were developed as allowed under applicable County plans). The amended CEQA Guidelines Section 15126.6(e)(2) states: "The No Project analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental review is commenced as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services." (See FPEIR Vol. 1B, pp. 6-3 to 6-4.)

Therefore, the analysis of the No Project alternative in the PEIR describes existing dairy development in Kings County as well as expected continued dairy development under the current permitting processes. (FPEIR Vol. 1B, p. 6-4.)

Under the No Project alternative, the Element would not be adopted and, therefore, would not be implemented. The existing permitting process for new and expanded dairies would not be changed. Currently, Article 4 of the Kings County Zoning Ordinance allows dairy development as a conditional use within AG-20 and AG-40 districts. These districts encompass approximately 85 percent of the land within the County. Under the proposed Element, 70 percent of the County could have dairies and/or manure spreading areas. The districts include areas in which dairy development would be prohibited under the proposed Element, including the upland areas of the southwestern portion of the County and areas within 100-year flood hazard zones. (FPEIR Vol. 1B, p. 6-4.)

The Ordinance currently requires that individual dairy projects obtain a Conditional Use Permit (CUP) prior to construction and operation of new dairies and dairy expansions. Section 1903 of the Zoning Ordinance details the conditional use permit application process requirements and identifies specific findings that must be made by the Planning Commission in consideration of permit approval. (FPEIR Vol. 1B, p. 6-4.)

In 1999, there were 149 dairies in Kings County. The total dairy milk cow population in the County is 124,668 milk cows; the average herd size is 837 milking cows. Future development of new and expanded dairies within the County is expected as the trend of relocation of southern California dairies to the Central Valley continues. Since 1988, an average of four new dairies has been approved by the County on an annual basis. During that period, the yearly average increase in the number of dairy cows has been 4,573 milking cows per year. Although this rate could increase the County's dairy herd due to relocation of southern California dairies, the rate would be controlled to a degree by the capacity of the KCPA to process permit applications, including review of the applications under CEQA. The rate of dairy development is controlled primarily by market demand. The demand is affected by many complex factors, including milk pricing, consumer population, and competition. Due to the variability of these factors over time, speculation regarding changes in the market demand for dairy products is considered outside the scope of this EIR. However, as described in the PEIR, the environmental analysis assumes that the average annual growth rate of the dairy herd in Kings County will be maintained at approximately five percent, the average rate of growth during 1988 through 1999. (FPEIR Vol. 1B, pp. 6-4 to 6-5.)

Existing conditions and historic agricultural uses throughout the AG-20 and AG-40 districts of Kings County (including the DDOZs designated in the Element) indicate that most of these lands would remain in row and field crop production. The crops currently grown in the County would not typically support development of permanent, large agricultural processing facilities. An exception could be the future development of dairy product processing facilities (e.g., cheese

factories). Development of large agricultural processing facilities would require a CUP from the County. However, operation of portable equipment used for processing and packaging certain crops would be expected to continue. (FPEIR Vol. 1B, p. 6-5.)

Regardless of the future growth rate of the dairy industry (and thus the dairy cattle population), this alternatives analysis assumes that the ultimate dairy herd size in Kings County would be controlled by the existing RWQCB guidelines on manure nutrient loading rates for the protection of water resources. Under this assumption, the potential dairy herd size developed under the No Project alternative would be similar to the theoretical herd considered under the Element. The analysis also assumes that the average annual dairy herd growth rate under all alternatives would be five percent. (FPEIR Vol. 1B, p. 6-5.)

### 1. Geology and Soils

No change to the existing permit approval process would occur under the No Project alternative. Current standards for the geotechnical aspects of construction of new and expanded dairies would apply to new dairy development. Minimum current standards do not require the completion of site-specific geotechnical reports for dairy development. However, at its discretion, the Planning Agency can require above- and below-grade construction of manure separation pits and process water ponds. Therefore, the potential for erosion or failure of the slopes surrounding the pits and ponds could occur if unstable slopes were created. The potential for slope failure and erosion could be increased relative to the Project. Less-than-significant impacts related to seismic damage or injuries associated with dairy development would be similar under the No Project alternative as building code requirements would be enforced. (FPEIR Vol. 1B, p. 6-8.)

### 2. Air Quality

The No Project alternative would not result in significant changes to existing air emissions from agricultural activities. Agricultural tillage would be expected to continue, resulting in PM<sub>10</sub> emissions and exhaust from farm equipment. The intensity of dairy development is assumed to be similar under the Project and the No Project alternative. Although dairy operations and associated crop production are not currently required to obtain permits from the SJVUAPCD, Regulation VIII would require some control of PM<sub>10</sub> emissions at agricultural operations, including dairies. Implementation of the requirements would result in PM<sub>10</sub> emissions from agricultural operations that would be similar to those expected under the Project. (FPEIR Vol. 1B, p. 6-8.)

PM<sub>10</sub> and associated emissions from dairy operations, however, would be expected to be less under the proposed Project than under the No Project Alternative. Policy DE 5.1e of the Element requires that unpaved areas be effectively stabilized. Currently, Regulation VIII does not apply to as many unpaved areas as does Policy DE 5.1e. The air emissions for the Project and each alternative are presented in Table 6-2 of the PEIR. (See FPEIR Vol. 1b, pp. 6-10 to 6-11.) Table

6-2 shows the expected PM<sub>10</sub> emissions reductions for cattle movement at unpaved corrals under the proposed project as compared to the No Project Alternative.

The emission of methane, ROG, NO<sub>x</sub>, ammonia, hydrogen sulfide, and odors would also occur from dairies developed under the No Project alternative. Currently, neither the County nor the SJVUAPCD has specific requirements for the control of these emissions from dairies. It is possible that control of these emissions could be required as a condition of approval for future dairies under the County's current permitting process. To date, no specific controls on these air emissions have been made a requirement for new or expanded dairies. Table 6-2 emissions estimates for Project-related ROG and methane emissions, however, are no longer accurate, since advanced manure treatment has been determined to be infeasible and is not required by the Element. Other policies applicable to the proposed Project would be expected to reduce ROG and methane emissions, though the exact amount of reduction attributable to those policies cannot be estimated at this time. (See Policies DE 3.1a, 5.1b, 6.1a, 6.1b, 6.2d and 6.3a and Appendix J, Component 2c, item B9.) Emissions of methane, ROG, ammonia and hydrogen sulfide, and odors would likely be greater under the No Project alternative relative to the Project because the Element contains several policies that reduce air emissions.

### 3. Water Resources

The No Project alternative would not reduce potential adverse impacts on water quality relative to the Project. Under the No Project alternative, current minimum requirements for confined animal facilities set by State regulations (CCR Title 27, Division 2, Subdivision 1, 22562) would be implemented for the protection of surface and subsurface water quality. Implementation of the minimum requirements could result in construction and operation of process water ponds with higher seepage velocities than those specified by Policy DE 4.1a of the Element. Therefore, the infiltration of nutrients into the subsurface would likely be increased relative to the Project. Compared to the Project, water demand under the No Project alternative would be similar to the water demand of the Project, depending on the intensity of dairy development, the types of crops grown in DDOZs and NSOZs, and climate conditions. (FPEIR Vol. 1B, p. 6-13.)

### 4. Biological Resources

Impacts on existing biological conditions could occur under the No Project alternative, as dairy development proceeds under existing permitting practices. The specific restriction on dairy development in areas of wetlands or habitat for sensitive species (Policy DE 1.2e) and the requirement for biological surveys (Policy DE 3.3a) contained within the Element are not specified under the existing permitting process. Although not specified, dairy development within sensitive habitat could be controlled under the CUP permit review and associated environmental review. The potential for "incidental take" of protected species caused by increased equipment operation and vehicular traffic would be similar to that described for the Project if a similar level of dairy development were to occur under the Project and the No Project alternative. (FPEIR Vol. 1B, p. 6-14.)



5. Noise

Under the No Project alternative, the potential for noise impacts related to dairy development would not change. All dairy operations would need to comply with the noise standards of the General Plan. Therefore, the noise impacts under this alternative would be similar to those resulting from the Project, as the Element relies on conformance with these same standards. (FPEIR Vol. 1B, p. 6-16.)

6. Lighting and Glare/Visual Resources

Lighting and aesthetic impacts related to dairy development would be similar under the No Project alternative and the Project. The intensity of dairy development would be similar and localized impacts near dairy facilities would occur. (FPEIR Vol. 1B, p. 6-15.)

7. Land Use and Policies

Under the No Project alternative, no change in dairy permitting process would occur. Dairy development could continue to occur but would be controlled by existing permitting requirements and required environmental review of dairy applications. The potential for conflicts with incompatible land uses could be greater relative to the Project as less specific controls on setback of dairy facilities from other uses are currently in effect compared to those presented in the Element. However, potential land use conflicts are required to be considered during review of dairy development applications. (FPEIR Vol. 1B, p. 6-16.)

8. Human Health and Safety

The No Project alternative would present similar potential for human health impacts compared to the Project. Control of hazardous materials specifically used for dairy operations and the potential for release of pathogens would be evaluated on a site-specific basis during dairy application review. Pesticides and fertilizers typically used in agricultural crop production would continue to be used. (FPEIR Vol. 1B, p. 6-16.)

9. Transportation

Under the No Project alternative, traffic levels could be expected to increase with continued dairy development and would ultimately be similar to the increase associated with the Project. Traffic levels would probably continue to be within acceptable levels and no intersections would require improvements. (FPEIR Vol. 1B, p. 6-17.)

## 10. Public Services and Utilities

Operation of the dairy facilities expected under the alternatives and the project would create a slight increase in demand for certain public services, such as police and fire protection, solid waste, schools, and park facilities, since more employees and new families would be located on new and expanded dairy facilities. The increased demand for public services would be similar for the Project and the No Project alternative. (FPEIR Vol. 1B, p. 6-17.)

## 11. Cultural Resources

The intensity of dairy development controls the potential for impacts on cultural resources. Excavation during construction of dairy facilities could result in the disturbance or destruction of historical or archaeological resources. Under the No Project alternative and the Project, the intensity of dairy development would be similar. (FPEIR Vol. 1B, p. 6-18.)

## 12. Feasibility of Alternative 1:

The No Project Alternative would have greater air and water quality impacts than the proposed project because the policies of the Element lessening those impacts would not be implemented. With regard to air quality, PM<sub>10</sub>, methane, ROG, ammonia and hydrogen sulfide emissions and odor, emissions would be expected to be greater than under the proposed Project. Similarly, water quality impacts under the No Project Alternative would be expected to be greater because the policies of the Element mitigating those impacts would not be implemented. The No Project Alternative would meet none of the project objectives. Thus, the Board rejects the No Project Alternative because it would 1) have greater impacts than the proposed Project, and 2) meet none of the Project objectives.

## **ALTERNATIVE 2: TEN PERCENT REDUCED COUNTY HERD SIZE**

Under the Ten Percent Reduced County Herd alternative, the maximum theoretical bovine herd within the County would be reduced from 870,181 to 783,163 animal units (AU). Considering that the existing (1999) County herd consists of an estimated 329,383 AU (milk cows and support stock), the County herd could be expanded by 453,780 AU. Implementation of the Element would control dairy siting, design, and operation and would remain essentially the same as the Project, except that the overall County herd size would be reduced by ten percent. Furthermore, the acreage devoted to the dairy facilities may be reduced somewhat, and the excess acreage would be added to the area of crop lands available. (FPEIR Vol. 1B, p. 6-5.)

The amount of manure, associated nutrients, and acreage needed for production of crops to take up nutrients would be reduced by ten percent. The area of land no longer needed for manure and process water reuse would be available for other uses allowed by the Zoning Ordinance. Milk production and truck trips would be reduced proportionally. It is assumed that the number of

dairy employees, and the associated number of daily vehicle trips generated, would also be reduced by ten percent. (FPEIR Vol. 1B, p. 6-7.)

Assumptions regarding the operational characteristics of the dairies under Alternative 2 would remain the same as for the Project. Flushing of the freestall barns and scraping of corrals would generate manure and process water. The process water generated by the dairies would be reused as irrigation for the growing of silage and other crops within the DDOZs and NSOZs designated in the Element. The dry manure that is generated by the dairies developed under Alternative 2 would also be applied as fertilizer within these zones. The amount of process water and manure generated at dairies under this alternative would be generally proportional to the herd size. Therefore, the size (volume) of the process water storage ponds would be reduced by ten percent under Alternative 2. The design and operation of the ponds would be subject to the requirements of the Element. (FPEIR Vol. 1B, p. 6-7.)

### 1. Geology, Soils and Seismicity

The potential impacts related to geotechnical conditions under the Ten Percent Reduced County Herd Size alternative would be similar to those described for the Project because each of the dairy facilities could be located anywhere within the DDOZs and would be subject to all of the provisions of the Element. Each facility would be required to implement the recommendations of the site-specific geotechnical report required by Policy DE 2.1f of the Element, reducing the potential for adverse soil conditions and slope instability. (FPEIR Vol. 1B, p. 6-8.)

The potential impacts related to seismic shaking, slope stability, and erosion would be similar for the Project and the Ten Percent Reduced County Herd Size alternative. (FPEIR Vol. 1B, p. 6-9.)

### 2. Air Quality

The overall air quality impacts related to the Ten Percent Reduced County Herd Size alternative would be less than those identified for the Project, since the number of dairy animals would be reduced and air emissions from dairy operations are generally proportional to the number of animals managed. Air emissions from the existing herd would not change while emission of PM<sub>10</sub>, ozone precursors, methane, ammonia, and hydrogen sulfide from manure decomposition, PM<sub>10</sub> from cattle movement in unpaved corrals, and methane from cattle added to the existing herd would be reduced with herd size reduction. Under the Ten Percent Reduced County Herd Size alternative, the Element would be implemented, including the policies for emissions control under former Policy DE 5.1c. Implementation of these measures would reduce but not eliminate ozone precursor (ROG and NO<sub>x</sub>), ammonia, methane, and hydrogen sulfide emissions. Under the Ten Percent Reduced County Herd Size alternative, the emission of PM<sub>10</sub> from land preparation, however, would increase as dairy facilities would occupy less land than is currently assumed to be in crop production. (FPEIR Vol. 1B, pp. 6-9 to 6-12.)

The air quality emissions generated by dairy facilities developed under the Ten Percent Reduced County Herd Size would continue to result in adverse unavoidable impacts, as emissions would not be reduced to levels below significant thresholds set by SJVUAPCD for PM<sub>10</sub> and ROG. In addition, substantial emissions of methane, ammonia, and hydrogen sulfide would be released from the dairies under the Ten Percent Reduced County Herd Size alternative. (FPEIR Vol. 1B, p. 6-12.)

### 3. Water Resources

The impacts of the Ten Percent Reduced County Herd Size alternative on water resources would be less than those described for the Project because the requirements of the Element for protection of water quality would be implemented and less dairy development would occur in the County. The amount of manure and process water (and associated nutrients) generated and used to irrigate the crop lands would be reduced. The reduction would be proportional to the reduction of the herd size. Under the Ten Percent Reduced County Herd Size alternative, less crop land would be required for reuse of nutrients in manure and process water. Some form of fertilizer would continue to be applied on lands that would, under the Project, be used for reuse of manure and process water. If commercial fertilizers were used, a reduction in the amount of salt applied to crop land would be reduced relative to the Project. (FPEIR Vol. 1B, p. 6-13.)

Under the Ten Percent Reduced County Herd Size alternative, the water demand for dairy operations relative to the Project would be reduced proportionally to the percentage of herd reduction. It is also likely that the amount of double cropping of silage crops would be reduced under this alternative compared to the Project, resulting in lower water demand. (FPEIR Vol. 1B, pp. 6-13 to 6-14.)

### 4. Biological Resources

The potential impact on biological resources with implementation of the Ten Percent Reduced County Herd Size alternative would be reduced relative to the Project. The restrictions and requirements for the protection of biological resources contained in the Element would be implemented under this alternative. However, reduced dairy development would result in less land converted to dairy facilities and the potential for disturbing habitat would be reduced. The potential for "incidental take" of protected species caused by increased equipment operation and vehicular traffic would be reduced under this alternative relative to the Project as less dairy development would be allowed. (FPEIR Vol. 1B, p. 6-14.)

### 5. Noise

Dairy construction and operational noise would be reduced under the Ten Percent Reduced County Herd Size alternative because less dairy development would occur relative to the Project. Agricultural crop production activities would be expected to be greater under the Ten Percent Reduced County Herd Size alternative. These activities would be expected to generate less noise

than dairy construction and operation. In addition, noise related to vehicular traffic generated by dairies under this alternative would be reduced relative to the Project. (FPEIR Vol. 1B, p. 6-14.)

6. Lighting and Glare/Visual Resources

Lighting and aesthetic impacts related to dairy development would be less than those of the Project. The same local effects would be expected under the Ten Percent Reduced County Herd Size alternative, but the intensity of dairy development would be reduced with a smaller herd relative to the Project. (FPEIR Vol. 1B, p. 6-15.)

7. Land Use and Policies

Considering that the Element would be implemented under the Ten Percent Reduced County Herd Size alternative, the potential land use impacts would be similar to those under the Project. The Project and the Ten Percent Reduced County Herd Size alternative would be consistent with all applicable policies of the amended Kings County General Plan and the Zoning Ordinance following the approval of SPRs for individual dairy projects. (FPEIR Vol. 1B, p. 6-16.)

8. Human Health and Safety

The Project and Ten Percent Reduced County Herd Size alternative have similar impacts related to increased vector activity and pathogens and would require similar use of hazardous materials. Under the Project and this alternative, dairy development projects would be required to implement an integrated pest management plan (IPM). Additionally, dairy projects developed under the provisions of the Element would be required to implement specific measures to minimize infiltration or runoff of water that could potentially contain pathogens. Less dairy development would occur under the Ten Percent Reduced County Herd Size alternative. Under the Ten Percent Reduced County Herd Size alternative, less manure and process water would be available for reuse as fertilizer, increasing the reliance on commercial fertilizer relative to the Project. Thus, the potential human health and safety impacts of the Ten Percent Reduced County Herd Size alternative would be less than those of the Project. (FPEIR Vol. 1B, p. 6-17.)

9. Transportation

Traffic generated by the Ten Percent Reduced County Herd Size alternative would be ten percent less than for the Project. Under the Project and this alternative, traffic levels would continue to be within acceptable levels and no nearby intersections would require improvements.

10. Public Services and Utilities

The increased demand for certain public services, such as police and fire protection, solid waste, schools, and park facilities under the Ten Percent Reduced County Herd Size alternative would be

reduced proportionally to the herd size reduction relative to the Project. (FPEIR Vol. 1B, pp. 6-17 to 6-17.)

#### 11. Cultural Resources

The intensity of dairy development controls the potential for impacts on cultural resources. Excavation during construction of dairy facilities could result in the disturbance or destruction of historical or archaeological resources. Under the Ten Percent Reduced County Herd Size alternative, the intensity of dairy development would be expected to result in the construction of fewer dairies. The potential for impacts to cultural resources of the Ten Percent Reduced County Herd Size alternative would be less than those of the Project. (FPEIR Vol. 1B, p. 6-18.)

#### 12. Feasibility of Alternative 2

Alternative 2 would have less severe air quality impacts than the proposed Project because of the 10 percent overall herd reduction and the additional mitigation provided by implementation of advanced manure treatment under former Policy DE 5.1c. (FPEIR, Table 6-2, pp. 6-10 to 6-11.) In particular, methane and ROG emissions would be reduced by more than 10 percent under Alternative 2 with implementation of Policy DE 5.1c. PM<sub>10</sub> emissions, however, would be only approximately 10 percent less than as for the proposed Project. Ammonia and hydrogen sulfide emissions and odor would be approximately 10 percent less under Alternative 2 as compared to the proposed Project, but no estimates of such reductions are possible at this time. Under both Alternative 2 and the proposed Project, the same air quality impacts would remain significant and unavoidable.

All other impacts (besides air) associated with Alternative 2 would be similar, although slightly less than for the proposed Project.

Alternative 2 would not meet three of the listed Project Objectives. Alternative 2 would not meet the objectives of 1) evaluating the overall ability/capacity of Kings County to host dairies from the standpoint of the environment, 2) facilitating the orderly and efficient expansion of the dairy-based economy of the County, or 3) ensuring that dairies approved in Kings County are competitive in the dairy industry. It also does not meet the overarching objective of the Project: to ensure that the dairy industry of Kings County continues to grow and contribute to the economic health of the County. (Element Summary, p. DE-1.)

The Element evaluates the overall capacity of the County to host dairies in Section II. (Element, p. DE-8.) The evaluation focused on the RWQCB standards for nitrogen and salt loading from manure and process water application to crop lands, total harvested acres in the County and other factors making dairy siting imprudent from the standpoint of potential environmental impacts. (See FPEIR, Appendix A-7, Table No. 5, see also Element, Figure 2, p. DE-14 (for instance, lands within the 100-year floodplain were excluded from dairy siting, though process water and manure can be applied in floodplain areas).) According to the evaluation, 360,024 acres out of a

total harvested area of 680,821 acres in the County are available for manure and process water application. According to these and other limitations, the available acreage used in the estimate of the maximum theoretical herd was already reduced by 47 percent from the overall harvested area of 680,821 acres. Thus, the Element already proposes a conservative maximum theoretical overall herd size. A further reduction of 10 percent would not meet the objective of allowing dairy development up to this conservative capacity. Alternative 2 would also lessen the ability of dairy industry to contribute to the economic health of the County.

In addition, a reduction in county herd size would unduly limit the ability of the dairy-based economy to expand up to the conservative capacity presented in the Element. Because less manure would be produced under Alternative 2, selection of this alternative could also increase reliance on commercial fertilizer. This would hinder the ability of new and expanding dairies in the County to operate efficiently.

The Board rejects Alternative 2 because it would 1) not substantially lessen the air quality impacts of the Project (they would remain significant), 2) not meet three important Project objectives, and 3) not ensure the dairy industry continues to grow and contribute to the economic health of the County as much as possible.

### **ALTERNATIVE 3: FIFTY PERCENT REDUCED COUNTY HERD SIZE**

Under the Fifty Percent Reduced County Herd Size alternative, the size of the maximum theoretical bovine herd in Kings County would be reduced by one-half (50 percent) relative to the proposed project. The County herd would be reduced from 870,181 to 435,090 AU. The potential expansion of the County herd above existing (1999) conditions would be 105,708 AU. As with the Project, the location, design, and operation of dairy facilities under Alternative 3 would be controlled by the provisions of the Element. The acreage required for future dairy development would be reduced to serve only one-half as large a herd, and land required for process water application as irrigation water and fertilizer to silage crops would be also be reduced by approximately 50 percent. The volume of traffic generated by dairy development would be reduced proportionally. (FPEIR Vol. 1B, p. 6-7.)

#### 1. Geology, Soils and Seismicity

The potential impacts related to geotechnical conditions under the Fifty Percent Reduced County Herd Size alternative would be similar to those described for the Project because each of the dairy facilities could be located anywhere within the DDOZs and would be subject to all of the provisions of the Element. Each facility would be required to implement the recommendations of the site-specific geotechnical report required by Policy DE 2.1f of the Element, reducing the potential for adverse soil conditions and slope instability. (FPEIR Vol. 1B, p. 6-8.)

The potential impacts related to seismic shaking, slope stability, and erosion would be similar for the Project and the Fifty Percent Reduced County Herd Size alternative. (FPEIR Vol. 1B, p. 6-9.)

## 2. Air Quality

Under the Fifty Percent Reduced County Herd Size alternative, the Element would be implemented, including the emissions control under former Policy DE 5.1c. The overall air quality impacts related to this alternative would be less than those identified for the Project, since the number of dairy animals would be reduced and air emissions from dairy operations are generally proportional to the number of animals managed. Under Alternative 3, the maximum theoretical herd would be reduced by fifty percent, respectively, relative to the Project. The maximum theoretical herd includes the existing dairy herd and additional cattle resulting from new and expanded dairy applications subject to the provisions of the Element. The reduction in herd size would result in limiting the number of cattle added to the existing herd. Air emissions from the existing herd would not change while emission of PM<sub>10</sub>, ozone precursors, methane, ammonia, and hydrogen sulfide from manure decomposition, PM<sub>10</sub> from cattle movement in unpaved corrals, and methane from cattle added to the existing herd would be reduced with herd size reduction. Under the Fifty Percent Reduced County Herd Size alternative, the emission of PM<sub>10</sub> from land preparation would increase as dairy facilities would occupy less land than is currently assumed to be in crop production. (FPEIR Vol. 1B, pp. 6-9 to 6-12.)

The air quality emissions generated by dairy facilities developed under the Fifty Percent Reduced County Herd Size would continue to result in adverse unavoidable impacts as emissions would not be reduced to levels below significant thresholds set by SJVUAPCD for PM<sub>10</sub> and ROG. In addition, substantial emissions of methane, ammonia, and hydrogen sulfide would be released from the dairies evaluated under this alternative. Dairy facilities under Alternative 3 would be augmented with advanced manure treatment to substantially reduce but not eliminate ozone precursor (ROG and NOx), ammonia, methane, and hydrogen sulfide emissions. (FPEIR Vol. 1B, p. 6-12.)

The reduction in air emissions from Alternative 3 would not eliminate adverse and unavoidable impacts. (FPEIR Vol. 1B, p. 6-13.)

## 3. Water Resources

The water quality impacts of the Fifty Percent Reduced County Herd Size alternative on water resources would be less than those described for the Project as the requirements of the Element for protection of water quality would be implemented, but less dairy development would occur in the County. The level of the impacts would be less than those of the Project, since the amount of manure and process water (and associated nutrients) generated and used to irrigate the crop lands would be reduced. The reduction would be proportional to the reduction of the herd size. Under the Fifty Percent Reduced County Herd Size alternative, less crop land would be required for reuse of nutrients in manure and process water. Some form of fertilizer would continue to be applied on lands that would, under the Project, be used for reuse of manure and process water. If



commercial fertilizers were used, a reduction in the amount of salt applied to crop land would be reduced relative to the Project. (FPEIR Vol. 1B, p. 6-13.)

Under the Fifty Percent Reduced County Herd Size alternative, the water demand for dairy operations relative to the Project would be reduced proportionally to the percentage of herd reduction. It is likely that the amount of double cropping of silage crops would be reduced under this alternative compared to the Project, resulting in lower water demand. (FPEIR Vol. 1B, pp. 6-13 to 6-14.)

#### 4. Biological Resources

The potential impact on biological resources with implementation of the Fifty Percent Reduced County Herd Size alternative would be reduced relative to the Project. The restrictions and requirements for the protection of biological resources contained in the Element would be implemented under this alternative. However, reduced dairy development would result in less land converted to dairy facilities and the potential for disturbing habitat would be reduced. The potential for "incidental take" of protected species caused by increased equipment operation and vehicular traffic would be reduced under the Fifty Percent Reduced County Herd Size alternative relative to the Project as less dairy development would be allowed. (FPEIR Vol. 1B, p. 6-14.)

#### 5. Noise

Dairy construction and operational noise would be reduced under the Fifty Percent Reduced County Herd Size alternative, as less dairy development would occur relative to the Project. Agricultural crop production activities would be expected to be greater under this alternative. These activities would be expected to generate less noise than dairy construction and operation. In addition, noise related to vehicular traffic generated by dairies under this alternative would be reduced relative to the Project. (FPEIR Vol. 1B, p. 6-14.)

#### 6. Lighting and Glare/Visual Resources

Lighting and aesthetic impacts related to dairy development would be less than those of the Project. The same local effects would be expected under the Fifty Percent Reduced County Herd Size alternative, but the intensity of dairy development would be reduced with smaller herds relative to the Project. (FPEIR Vol. 1B, p. 6-15.)

#### 7. Land Use and Policies

Considering that the Element would be implemented under the Fifty Percent Reduced County Herd Size alternative, the potential land use impacts under this alternative would be similar to those under the Project. The Project and the Fifty Percent Reduced County Herd Size alternative would be consistent with all applicable policies of the amended Kings County General Plan and

the Zoning Ordinance following the approval of SPRs for individual dairy projects. (FPEIR Vol. 1B, p. 6-16.)

8. Human Health and Safety

The Project and the Fifty Percent Reduced County Herd Size alternative have similar impacts related to increased vector activity and pathogens and would require similar use of hazardous materials. Under the Project and this alternative, dairy development projects would be required to implement an integrated pest management plan (IPM). Additionally, dairy projects developed under the provisions of the Element would be required to implement specific measures to minimize infiltration or runoff of water that could potentially contain pathogens. All alternatives would have similar potential exposure of workers to residual agricultural chemicals in the soil. Under the Fifty Percent Reduced County Herd Size alternative, less manure and process water would be available for reuse as fertilizer, increasing the reliance on commercial fertilizer relative to the Project. (FPEIR Vol. 1B, pp. 6-16 to 6-17.)

The potential human health and safety impacts of the Fifty Percent Reduced County Herd Size alternative would be less than those of the Project. (FPEIR Vol. 1B, p. 6-17.)

9. Transportation

Traffic generated by the Fifty Percent Reduced County Herd Size alternative would be fifty percent less than for the Project. Under the Project and this alternative, traffic levels would continue to be within acceptable levels and no nearby intersections would require improvements. (FPEIR Vol. 1B, 6-17.)

10. Public Services and Utilities

The increased demand for certain public services, such as police and fire protection, solid waste, schools, and park facilities under the Fifty Percent Reduced County Herd Size alternative would be reduced proportionally to the herd size reduction relative to the Project. Therefore, the Fifty Percent Reduced County Herd Size alternative would result in the lowest increase in demand for public services. (FPEIR Vol. 1B, pp. 6-17 to 6-17.)

11. Cultural Resources

The intensity of dairy development controls the potential for impacts on cultural resources. Excavation during construction of dairy facilities could result in the disturbance or destruction of historical or archaeological resources. Under the Fifty Percent Reduced County Herd Size alternative, the intensity of dairy development would be expected to result in the construction of fewer dairies. The Fifty Percent Reduced County Herd Size alternative would present the least potential for cultural resource disturbance. Under this alternative and the Project, the

requirements for investigation of cultural resources provided by Policies DE 3.1c, d, and e of the Element would be implemented. (FPEIR Vol. 1B, p. 6-18.)

## 12. Feasibility of Alternative 3

Alternative 3 is the environmentally superior alternative. Alternative 3 would have less severe air quality impacts than the proposed Project because of the 50 percent overall herd reduction and the additional mitigation provided by implementation of advanced manure treatment under former Policy DE 5.1c. (FPEIR, Table 6-2, pp. 6-10 to 6-11.) In particular, methane and ROG emissions would be reduced by more than 50 percent under Alternative 3 with implementation of Policy DE 5.1c. PM<sub>10</sub> emissions, however, would be only approximately 50 percent less than as for the proposed Project. Ammonia and hydrogen sulfide emissions and odor would be approximately 50 percent less under Alternative 3 as compared to the proposed Project, but no estimates of such reductions are possible at this time. Under both Alternative 3 and the proposed Project, the same air quality impacts would remain significant and unavoidable.

All other impacts (besides air) associated with Alternative 4 would also be less severe than for the proposed project.

Alternative 3 would not meet three of the listed Project Objectives. Alternative 3 would not meet the objectives of: 1) evaluating the overall ability/capacity of Kings County to host dairies from the standpoint of the environment, 2) facilitating the orderly and efficient expansion of the dairy-based economy of the County, or 3) ensuring that dairies approved in Kings County are competitive in the dairy industry. It also does not meet the overarching objective of the Project: to ensure that the dairy industry of Kings County continues to grow and contribute to the economic health of the County. (Element Summary, p. DE-1.)

The Element evaluates the overall capacity of the County to host dairies in Section II. (Element, p. DE-8.) The evaluation focused on the RWQCB standards for nitrogen and salt loading from manure and process water application to crop lands, total harvested acres in the County and other factors making dairy siting imprudent from the standpoint of potential environmental impacts. (See FPEIR, Appendix A-7, Table No. 5, see also Element, Figure 2, p. DE-14 (for instance, lands within the 100-year floodplain were excluded from dairy siting, though process water and manure can be applied in floodplain areas).) According to the evaluation, 360,024 acres out of a total harvested area of 680,821 acres in the County are available for manure and process water application. According to these and other limitations, the available acreage used in the estimate of the maximum theoretical herd was already reduced by 47 percent from the overall harvested area of 680,821 acres. Thus, the Element already proposes a conservative maximum theoretical overall herd size. A further reduction by half would not meet the objective of allowing dairy development up to this conservative capacity. This would hinder the ability of new and expanding dairies in the County to operate efficiently. Alternative 3 would also lessen the ability of dairy industry to contribute to the economic health of the County.

The Board rejects Alternative 3 because it would: 1) not substantially lessen the air quality impacts of the Project (they would remain significant), 2) not meet three very important Project objectives, and 3) not ensure the dairy industry continues to grow and contribute to the economic health of the County as much as possible.

#### **ALTERNATIVE 4: INCREASED MANURE TREATMENT**

Under the Project as proposed in the Revised Draft PEIR, Policy DE 5.1c required that new and expanded dairies implement advanced manure treatment to control emissions of air pollutants. However, Policy DE 5.1c included an exemption from the requirement for advanced manure treatment for existing dairy expansions that would not require construction of new dairy facilities and would not expand the existing herd to a level (approximately 705 milk cows and associated support stock) that would result in ROG emissions above SJVUAPCD threshold limits for stationary sources. Under the Increased Manure Treatment alternative proposed in the Revised Draft PEIR, all expanding dairies would be required to implement advanced manure treatment for manure generated by the herd expansion. In effect, all existing dairies expanding to a herd size of 705 milk cows or greater would be required to implement either controlled anaerobic, aerobic, or combined anaerobic/aerobic treatment systems to reduce air emissions related to manure decomposition. The maximum theoretical County bovine herd would be equivalent to that proposed by the Element (870,181 AU). The DDOZs and NSOZs proposed by the Element would not change. (FPEIR Vol. 1B, pp. 6-7 and 6-8.)

The Element as proposed in the FPEIR required advanced manure treatment for all new dairies and expansions of existing dairies, regardless of herd size. The Board has now determined that advanced manure treatment is not feasible for dairies of any size and has therefore deleted former Policy DE 5.1c from the Element. (See Impact Discussion regarding infeasibility, *infra*, Impact section 4.2-4.) For the purposes of completeness, the Findings nonetheless include the following discussion of the Increased Manure Treatment Alternative (all dairies, regardless of size, must use advanced manure treatment) in relation to the Project as now proposed, (no dairies, regardless of size, must use advanced manure treatment).

##### 1. Geology, Soils and Seismicity

The potential impacts related to geotechnical conditions under the Increased Manure Treatment alternative would be similar to those described for the Project because each of the dairy facilities could be located anywhere within the DDOZs and would be subject to all of the provisions of the Element. Each facility would be required to implement the recommendations of the site-specific geotechnical report required by Policy DE 2.1f of the Element, reducing the potential for adverse soil conditions and slope instability. (FPEIR Vol. 1B, p. 6-8.)

## 2. Air Quality

Under Alternative 4, all new and expanding dairies would be required to implement advanced manure treatment under former policy DE 5.1c to reduce air emissions. Relative to the Project, emissions of ROG, methane, ammonia, and hydrogen sulfide caused by decomposition of manure would be reduced as all new or expanding dairies would be required to implement controlled anaerobic, aerobic, or combined anaerobic/aerobic treatment technologies. Reductions air emissions gained through implementation of Alternative 4, as compared to the proposed Project are depicted in Table 6.2. (FPEIR Vol. 1b, pp. 6-10 to 6-11.) For emissions from manure decomposition, however, the reader should refer to the figures in Table 6-2 relating to the No Project Alternative, which now also apply to the proposed Project. As depicted in Table 6-2, emissions from manure decomposition would be greater under the proposed Project than under Alternative 4.

The PM<sub>10</sub> and related emissions resulting from Alternative 4 would be comparable to the PM<sub>10</sub> caused by the proposed Project. The emissions would be similar because, the PM<sub>10</sub> emissions would be controlled by similar measures, including implementation of the draft SJVUAPCD Rule VIII guidelines for dust control. (FPEIR Vol. 1B, p. 6-12.)

The air quality emissions generated by dairy facilities developed under the Increased Manure Treatment alternatives would continue to result in adverse unavoidable impacts as emissions would not be reduced to levels below significant thresholds set by SJVUAPCD for PM<sub>10</sub> and ROG. (FPEIR Vol. 1B, p. 6-12.)

## 3. Water Resources

The impacts on water resources under the Increased Manure Treatment alternative would be similar to those described for the Project. (FPEIR Vol. 1B, p. 6-13.)

## 4. Biological Resources

Impacts on biological resources would be similar for the proposed Project and the Increased Manure Treatment alternative if a similar level of dairy development were to occur under the Project and the No Project alternative. (FPEIR Vol. 1B, p. 6-14.)

## 5. Noise

Under the Increased Manure Treatment alternative, the noise impacts would be similar to those resulting from the Project. (FPEIR Vol. 1B, p. 6-15.)

6. Lighting and Glare/Visual Resources

Lighting and aesthetic impacts related to dairy development would be similar under the Increased Manure Treatment alternative and the Project. The intensity of dairy development would be similar and localized impacts near dairy facilities would occur. (FPEIR Vol. 1B, p. 6-15.)

7. Land Use and Policies

Considering that the Element would be implemented under the Increased Manure Treatment alternative, the potential land use impacts under this alternative would be similar to those under the Project. The Project and the Increased Manure Treatment alternative would be consistent with all applicable policies of the amended Kings County General Plan and the Zoning Ordinance following the approval of SPRs for individual dairy projects. (FPEIR Vol. 1B, p. 6-16.)

8. Human Health and Safety

The Project and the Increased Manure Treatment alternative have similar impacts related to increased vector activity and pathogens and would require similar use of hazardous materials. (FPEIR Vol. 1B, p. 6-16.)

9. Transportation

Under the Increased Manure Treatment alternative, traffic levels would be similar to that of the proposed Project. Traffic levels would continue to be within acceptable levels and no intersections would require improvements. (FPEIR Vol. 1B, p. 6-17.)

10. Public Services and Utilities

The increased demand for public services certain public services, such as police and fire protection, solid waste, schools, and park facilities would be similar for the Project and the Increased Manure Treatment alternative. (FPEIR Vol. 1B, p. 6-17.)

11. Cultural Resources

The intensity of dairy development controls the potential for impacts on cultural resources. Excavation during construction of dairy facilities could result in the disturbance or destruction of historical or archaeological resources. Under the Increased Manure Treatment alternative and the Project, the intensity of dairy development would be similar. Under the Increased Manure Treatment alternative and the Project, the requirements for investigation of cultural resources provided by Policies DE 3.1c, d, and e of the Element would be implemented. (FPEIR Vol. 1B, p. 6-18.)

## 12. Feasibility of Alternative 4

The Advanced Manure Treatment Alternative would have less severe air quality impacts than the proposed Project because of the additional mitigation provided by implementation of advanced manure treatment at all new and expanding dairies. In particular, methane and ROG emissions would be less under Alternative 4. PM<sub>10</sub> emissions, however, would be the same as for the proposed Project. Ammonia and hydrogen sulfide emissions and odor could be less under Alternative 4 as compared to the proposed Project, but no estimates of such reductions are possible at this time. Under both Alternative 4 and the proposed Project, the same air quality impacts would remain significant and unavoidable.

All other impacts (besides air) associated with Alternative 4 would be similar to the proposed project.

Alternative 4 would not meet two of the listed Project Objectives. Alternative 4 would not meet 1) the objective of facilitating the orderly and efficient expansion of the dairy-based economy of the County, or 2) the objective of ensuring that dairies approved in Kings County are competitive in the dairy industry. As explained in great detail in oral and written testimony submitted at Planning Commission meetings and at Board hearings, advanced manure treatment is not feasible at this time. (See discussion regarding infeasibility, *infra*, in Impact section 4.2-4.) Therefore, requiring that all dairies implement this technology would hinder both the expansion of the dairy industry in the County and the ability of dairies in the County to compete with dairies outside the County. It also does not meet the overarching objective of the Project: to ensure that the dairy industry of Kings County continues to grow and contribute to the economic health of the County. (Element Summary, p. DE-1.)

The Board rejects the Alternative 4 because it would: 1) not substantially lessen the air quality impacts of the Project (they would remain significant), 2) require the use of technology which the Board has determined is infeasible, 3) not meet two important Project objectives, and 4) would not ensure that the dairy industry of Kings County continues to grow and contribute to the economic health of the County as much as possible.

## XI.

### STATEMENT OF OVERRIDING CONSIDERATIONS

As set forth in the preceding sections, the County's approval of the Project will result in significant adverse impacts that cannot be substantially lessened or avoided even with the adoption of all feasible mitigation measures or Project alternatives. Despite these impacts, however, the County chooses to approve the Project because, in its view, the economic, social, and other benefits that the Project will produce will render the significant effects acceptable. To do so, the County must first adopt this Statement of Overriding Considerations. (Pub. Resources Code § 21081; CEQA Guidelines, § 15093.)

The following statement identifies the reasons why, in the County's judgment, the benefits of the Project outweigh its unavoidable significant effects. Any one of the reasons for approval cited below is sufficient to justify approval of the Project. Thus, even if a Court were to conclude that not every reason is supported by substantial evidence, the County will stand by its determination that each individual reason is sufficient. The substantial evidence supporting the various benefits can be found in the preceding findings, which are incorporated by reference into this Section (XI), and in the documents found in the Record of Proceedings, as defined in Section V.

The County finds that the Project will have the following specific economic, legal, social, technological, or other benefits:

### **Protection of Sensitive Areas**

Currently, Article 4 of the Kings County Zoning Ordinance allows dairy development as a conditional use within AG-20 and AG-40 districts. These districts encompass approximately 85 percent of the land within the County. Under the proposed Element, only 70 percent of the County could have dairies and/or manure spreading areas. The districts include areas in which dairy development would be prohibited under the proposed Element, including the upland areas of the southwestern portion of the County and areas within 100-year flood hazard zones. Adoption of the Element would protect sensitive areas from future dairy development.

For the reasons set forth above, the Board finds that the ability of the Element to protect sensitive areas outweighs its other environmental impacts.

### **Preservation and Promotion of Sustainable Agriculture in the County.**

The Board finds that dairy industry is the fiber that holds agriculture together in Kings County. Dairies use alfalfa hay, almond hulls, cotton seed and corn silage, among other local products. The dairy industry is sustainable in that it converts locally grown raw products into finished product every day. Milk goes to market within twenty-four hours of production and is processed and in the store within days. Dairies also use water efficiently in that water used at a dairy leave in the milk or it goes back out to the crops as process water. The crops then produce the feed for the dairy.

Dairy farmers get paid within two weeks and that money stays in the local economy. Dairies also employ people seven days a week, twenty-four hours per day, all year long. It has good pay, good benefits, and in many cases, housing. Dairies are also a stable business that creates many indirect jobs to support it.

The Element presents a balance between retaining and creating new jobs in the dairy industry and protecting the environment and the public. It also protects the position of existing dairies and allows them to expand when they can meet the appropriate standards.



For the reasons set forth above, the Board finds that the ability of the Project to preserve and promote sustainable agriculture outweighs its other environmental impacts.

### **Preservation of Open Space Areas.**

Adoption of the Dairy Element will help ensure preservation of large areas of open space as agricultural land that could otherwise be lost to non-agricultural development. Without substantial, long-term investment in state-of-the-art dairy facilities on existing agricultural land, the owners of agricultural land could eventually succumb to financial pressures to develop the land for housing or other non-agricultural uses. Facilitation of growth of the dairy industry via adoption of the Dairy Element will encourage investment in dairying, which will result in preservation of agricultural uses.

For the reasons set forth above, the Board finds that the ability of the Project to preserve open space outweighs its other environmental impacts.

### **Provide Needed Economic Development for the County.**

Adoption of the Dairy Element will facilitate much-needed economic development in Kings County. According to the most recent figures from the California Employment Development Department, Kings County currently suffers from a 14.8% unemployment rate. (<http://calmis.ca.gov/file/1fmonth/0206pcou.txt> (June, 2002).) According to testimony received by the Board of Supervisors, certain areas of the County suffer from even higher unemployment rates. According to Judith Horn's testimony at the June 18, 2002, hearing, for instance, the Home Garden area suffers from a 29.1% unemployment rate. Growth of the dairy industry will create much-needed new jobs at dairies and related businesses. Unlike other agricultural endeavors, dairies employ workers year round. Milk processing plants and other industries that support dairies also employ workers year round. According to the testimony of Jay Salyer of the Kings County Economic Development Commission, the Leprino cheese plant near Lemoore, will use about 6 million pounds of milk per day and could increase to a capacity of 12 million pounds of milk per day. The Hanford cheese processing plant may also expand, thus requiring more milk. Increased local supplies of milk would reduce the need to import milk from other areas, thus creating more economic benefits in Kings County. Additionally, dairies and cheese processing plants require various commodity inputs, the goods and services an industry must purchase in order to operate. The production of commodity inputs for dairies and cheese processing plants in Kings County would also create economic benefits within the County.

Dairies are the County's most economically productive agricultural industry. In 1998, dairy production accounted for \$302 million, according to the economic analysis prepared by Applied Development Economics for the County. (Economic Analysis of the Dairy Industry in Kings County ("Economic Analysis")(December 2000), p. 9.) In the same year, dairy processing

industries accounted for \$139 million. Dairy production employment accounted for 3.5% of the countywide total employment and 3.4 % of the payroll in 2000. (Economic Analysis, p. 9.)

The maximum theoretical herd size allowed under the Dairy Element would result in a nearly three-fold increase in the number of dairy cows. The economic analysis for implementation of the Dairy Element used the IMPLAN input-output model to estimate the effect on the local economy of dairy development over the next 50 years. The economic analysis used the historical growth rates of increases in dairy herd size (2.3%) and increases in employment in the dairy production industry (4%). (Economic Analysis, p. 13.) The economic analysis estimated that at buildout (in approximately 50 years), there would be about 4,617 jobs in the dairy production industry, 6,751 indirect jobs (generated by supplier purchases or commodity inputs) and 3,055 induced jobs (generated by purchases made by dairy farm production workers). (Economic Analysis, p. 14.)

The economic analysis also estimated the multiplier effect of dairy production increases over buildout of the Dairy Element. Including direct dairy production output, purchases from supplier industries to dairy farms and purchases by dairy farm production employees, at buildout the total multiplied dairy industry output is projected to be \$2.9 million. (Economic Analysis, p. 16.) At buildout, using the historical production value annual increase rate of 1.8%, job growth is expected to generate a total multiplied labor income of \$616 million, of which \$434 million will result from dairy farm employment. (Economic Analysis, p. 17.) Construction of new dairies and expansion of existing dairies will also create numerous temporary construction jobs.

Growth of dairy processing industries in the County is also expected to assist economic development in the County. The economic analysis estimated that according to a moderate projection, dairy processing industries would directly employ 568 workers, indirectly employ 1,398 workers and create induced employment of 2,434 workers by 2020. (Economic Analysis, p. 20.) Again, using a moderate estimate, the economic analysis estimated total multiplied dairy outputs of dairy processing activities would be \$472 million by 2020. (Economic Analysis, p. 21.) The estimated income from direct employment at the dairy processing industries, employment producing commodity inputs and employment at induced jobs would be \$76 million per year by 2020. (Economic Analysis, p. 22.)

The Board has also considered the economic impact of the cheese processing plant that Land O'Lakes and Mitsui are building in Tulare County. The new plant is projected to require at least 3 million pounds of milk daily upon start-up and an additional 3 million pounds per day within three years. With a daily requirement of 6 million pounds of milk, the cheese plant will draw on sources in nearby counties, including Kings County.

The jobs created by the dairies will reduce unemployment rates and bring economic benefits to the area through increases in purchasing power of dairy and related-industry employees and increased sales and property tax revenues. Currently, dairies generate about \$392,000 per year in property taxes for the County's General fund. The projected growth by 2010 could increase this

amount by about 25%, or more, depending upon future land values. (Economic Analysis, p. 25.) The expected new dairy value could be as high as \$3500 per milk cow. Thus, buildout of the Element could result in as much as \$2,166,00 for the County General Fund, \$855,000 for the County Fire Fund, and \$254,000 for the County Library Fund. (DE, Section VII.)

The Board notes that certain evidence presented during the public hearings documents loss of land values near Concentrated Animal Feeding Operations ("CAFOs"). (See *The Impacts of Animal Feeding Operations on Rural Land Values*, University of Missouri Social Sciences Unit (May 1999).) The studies showed that the average loss of land value within 3 miles of a CAFO is approximately \$112 per acre. (*The Impacts of CAFOs*, p. 2) However, the report does not account for overall increases in property values resulting from the increased economic activity attributed to CAFOs. In addition, the report states that the distance to a CAFO has an effect on the value of nearby property only if the property has a house on it. (*The Impacts of CAFOs*, p. 8.) The report then concludes with a statement that the losses calculated significantly overstate the losses to individual landowners and to the local real property tax base. (*The Impacts of CAFOs*, p. 10.) In addition, the Assistant County Assessor for Kings County Ken Baird testified before the Board that there was nothing in his Office's records to indicate that property values in proximity to dairies decrease. Therefore, the Board's conclusion that the economic benefits outweigh the economic impacts is not substantially controverted by the University of Missouri study.

The projected economic benefits of the growth of the dairy industry (including the industries that supply the dairy industry, industries that use milk products and industries that serve employees of dairies and other milk-related industries) in the coming years will ameliorate economic conditions within Kings County.

For the reasons set forth above, the Board finds that the economic benefits of the Project outweigh its environmental impacts.

#### **Consistency with the County's Other General Plan Policies, Williamson Act and Right-to-Farm Ordinance.**

Adoption of the Dairy Element promotes the goals, objectives, and policies included in other General Plan Elements, including the Land Use, Open Space and Resource Conservation elements, which seek to protect and preserve agricultural soils, lands, and uses. Goal 5 of the Land Use Element is to "Protect agricultural lands by maintaining large parcel sizes and preventing the development of incompatible urban uses," and Goal 6 is to "Support agriculture by preserving the right of farmers to operate efficiently, based on customary and usual agricultural practices." (FPEIR Vol. 1B, p. 4.7-3.) This Project establishes a comprehensive set of standards for the approval of new dairies and the expansion of existing dairies, thus encouraging continued agricultural use of land in the County. By designating the areas of the County for dairy development, the Element ensures that dairy growth will occur only in areas that are the most suitable.

A substantial portion of the land identified in the Element as “Dairy Development Overlay Zones” and “Nutrient Spreading Zones” have been enrolled in either the Williamson Act or the Farmland Security Zone program. (FPEIR Vol. 1B, p. 4.6-7.) Facilitation of dairy development through adoption of the Element further promotes the purposes of the Williamson Act Contract program, to retain and encourage agricultural uses in California.

The development of dairies on land in agricultural use will also further promote the intent of the Kings County Right-to-Farm Ordinance (Kings County Code of Ordinances, Chapter 14, Article III, Section 14-38) which encourages the County to “protect agricultural land, operations, and facilities from conflicting uses due to the encroachment of incompatible, non-agricultural uses of the land in agricultural areas of the county.” (FPEIR Vol. 1B, pp. 4.7-5 to 4.7-6.)

For the reasons set forth above, the Board of Supervisors finds the ability of the Project to implement other elements of the General Plan and the County’s Right to Farm Ordinance outweighs its environmental impacts.

ATTACHMENT I

**KEVIN O'DEA**

Kevin O'Dea is vice-president and senior geologist. He has been involved in hydrogeologic evaluations of waste management facilities, including sanitary and hazardous waste landfills, mining waste piles, wood treatment plants, and underground storage tanks, in a variety of geologic environments. This experience has included field management of soil and rock sampling, monitoring well installation, aquifer testing, and groundwater sampling activities. Responsibilities in this capacity

B.S., Geology, University of Missouri-Columbia  
40-hour OSHA training  
CEG No. 1702  
RG No. 5454  
REA No. 4798  
23 years of experience

included development and implementation of sampling quality control and site safety plans. In addition, Mr. O'Dea has experience with surface and subsurface geophysical surveying techniques as applied to the characterization of near-surface geological conditions. His experience in the development and implementation of remedial action plans includes supervision of slurry wall construction at waste management facilities and installation of recovery wells and intercept trenches.

His continued involvement in underground storage tank management has included the preparation and implementation of work plans for hydrogeologic assessments, design of site remediation (including product and groundwater extraction, soil venting, and bioremediation programs), and evaluation of environmental risk and potential effects on beneficial use of water resources. This experience includes extensive analysis of potential impacts of agricultural activities, including confined animal facilities, on surface water and groundwater quality.

Besides expertise in hydrogeologic evaluations, Mr. O'Dea has broad experience in geotechnical and geological engineering. This experience includes subsurface investigation for deep and shallow building foundations, stability evaluation of small earth fill dams, and investigation of subsurface cavities in carbonate bedrock. He has been involved in numerous investigations of slope stability and erosion potential of steep forested slopes and coastal sites and seismic hazards for land development within Alquist-Priolo Earthquake Fault Zones.

Mr. O'Dea also has 10 years of experience in the evaluation of geologic, hydrologic, and waste management issues for preparation of EIR/EISs for a variety of projects. Included in this experience were seismic and geotechnical impacts on transportation projects within the San Andreas and Hayward Fault zones, geologic and hydrologic impacts associated with development of large development projects in San Joaquin County. He has managed major EIRs and Negative Declarations in Yolo, Solano, and Sonoma counties regarding County management plans for Cache Creek and gravel mining projects along Cache Creek and the Russian River, and has been the chairman of the Yolo County Technical Advisory Committee implementing the Cache Creek Resource Management Plan since 1997. Most recently, he has served as project manager for CEQA review of large proposed dairies in the Central Valley, including projects in Kern, Kings, and Glenn Counties.

**Professional Affiliations**

Association of Engineering Geologists, member  
Association of Environmental Professionals, member

**Publications**

O'Dea, K. M., 1989, Terrace Formation and Deformation on Yager Creek: Late Pleistocene Fluvial and Tectonic Activity at the Southern End of the Cascadia Subduction Zone, *Geol. Soc. Amer. Abstr. Progr.*, Vol. 21, No. 5.

O'Dea, K. M., G. S. Vick, G. F. Craven, D. N. Lindberg, 1987, An Analysis of the Style of Deformation and Surface Expression of Late Quaternary Thrust Faults, Coastal Northern California, *Geol. Soc. Amer. Abstr. Progr.*, Vol. 19.

EXHIBIT B

**MITIGATION MONITORING PLAN**

For the

**DAIRY ELEMENT OF THE KINGS COUNTY GENERAL PLAN**

**FINAL PROGRAM ENVIRONMENTAL IMPACT REPORT**

July 30, 2002

KINGS COUNTY DAIRY ELEMENT MITIGATION MONITORING PLAN				
Environmental Impact	Mitigation Measures	Responsibility for Compliance	Method for Compliance	Timing of Compliance
<b>Geology, Soils, and Seismicity</b>				
4.1-1 Construction of proposed embankments to contain dairy operations process water present the potential for erosion and slope failure and release of contained process water.	4.1-1 None required. Compliance with the requirements of Policies DE 2.1f, 3.1a, and 6.2b would ensure that potential adverse geotechnical issues would be evaluated by a qualified professional	Applicant  KCPA	Submit Geotechnical Report. Annual inspection of slopes. Confirm compliance with Policies DE 2.1f, 3.1a, and 6.2b. Review individual dairy documentation.	SPR Annually SPR Operations
4.1-2 Disturbance of agricultural soils caused by construction of dairy facilities	4.1-2 None required	N/A	N/A	N/A
4.1-3 Potential damage during expected seismic shaking	4.1-3 None required Implementation of Policy DE 2.1f and enforcement of existing building code requirements would reduce the potential impacts related to seismic shaking to a less-than-significant level.	Applicant KCPA	Submit Geotechnical Report. Confirm compliance with Policy DE 2.1f.	SPR SPR
4.1-4 The moderate to high shrink-swell potential and the potential for corrosion of uncoated steel and concrete within soils could present significant maintenance and stability problems for pipelines, foundations, and pavements.	4.1-4 None required. Implementation of Policy DE 2.1f and compliance with the requirements of the Uniform Building Code will reduce adverse soil condition impacts.	Applicant KCPA	Submit Geotechnical Report. Confirm compliance with Policy DE 2.1f.	SPR SPR
<b>Air Quality</b>				
4.2-1 Construction activities associated with new or expanded dairies would result in a short-term increase in PM <sub>10</sub> emissions from fugitive dust sources.	4.2-1 None required. Implementation of Policy 5.1d of the Element would reduce short-term construction-related PM <sub>10</sub> emissions from fugitive dust to a less-than-significant level.	Applicant SJVUAPCD	Implement SJVUAPCD controls. Enforce Regulation VIII rules	Operations Operations
4.2-2 Construction activities associated with new or expanded dairies would result in short-term exhaust emissions from construction equipment	4.2-2 None required Implementation of Policy 5.1f of the Element would reduce construction related exhaust emissions to a less-than-significant level.	Applicant SJVUAPCD	Implement SJVUAPCD controls. Enforce Regulation VIII rules	Operations Operations

**Key:**  
 CHRIS California Historical Resources Information System  
 KCEHS Kings County Environmental Health Services  
 KCPA Kings County Planning Agency  
 N/A Not applicable  
 NAHC Native American Heritage Commission  
 RWQCB Regional Water Quality Control Board (Central Valley)  
 SJVUAPCD San Joaquin Valley Unified Air Pollution Control District  
 SPR Site Plan Review

4.2-6 Operation of new or expanded dairies would generate ammonia emissions from cattle manure.	4.2-6 No additional feasible mitigation measures are available. Implementation of Policies DE 3.1a, 4.1b, 5.1b, 5.1e, 6.1a, 6.1b, 6.2d, and 6.3a would be expected to reduce ammonia and other air pollutants generated from cattle manure.	KCPA	Applicant	Submit Odor Management Plan. Implement Odor Management Plan. Perform and document quality assurance/control for plans.	SPR Operations
4.2-7 Operation of new or expanded dairies would generate hydrogen sulfide emissions.	4.2-7 No additional feasible mitigation measures are available. Implementation of Policies DE 3.1a, 5.1b, 6.1a, 6.1b, 6.2d, and 6.3a would be expected to reduce hydrogen sulfide and other air pollutants generated from cattle manure.	Applicant	Applicant	Submit Odor Management Plan. Implement Odor Management Plan. Perform and document quality assurance/control for plans.	SPR Operations
4.2-8 Operation of new or expanded dairies would generate methane emissions from cattle and cattle manure.	4.2-8 No additional feasible mitigation measures are available. Implementation of Policies DE 3.1a, 5.1b, 6.1a, 6.1b, 6.2d, and 6.3a would reduce methane generated from ruminant livestock and manure.	KCPA	KCPA	Confirm submittal of Odor Management Plan and compliance with Policies DE 3.1a, 5.1b, 6.1a, 6.1b, 6.2d, and 6.3a. Review dairy documentation.	SPR Operations
4.2-9 Increased localized carbon monoxide would be generated from vehicular traffic during operation of new or expanded dairies.	4.2-9 None required. Implementation of Policy DE 3.1g would reduce the potential for adverse queuing of traffic generated by dairy development and the potential for a significant increase in CO emissions.	N/A	Applicant	Submit Odor Management Plan. Implement Odor Management Plan. Perform and document quality assurance/control for plans.	SPR Operations
4.2-10 Implementation of the Element would result in a cumulative increase in PM <sub>10</sub> emissions.	4.2-10 None available. Although implementation of Policies DE 3.1a, 5.1e, 5.1g, 5.1h, 6.1a, 6.1b, 6.2c, and 6.3a of the Element would reduce PM <sub>10</sub> emissions from cumulative project operations, PM <sub>10</sub> emissions could continue to be generated during cumulative operations.	N/A	KCPA	Confirm submittal of Odor Management Plan and conform with Policies DE 3.1a, 5.1b, 6.1a, 6.1b, 6.2d, and 6.3a. Review dairy documentation.	SPR Operations
				See Mitigation Measure 4.2-3.	N/A

Key.  
 CHRIS California Historical Resources Information System  
 KCEHS Kings County Environmental Health Services  
 KCPA Kings County Planning Agency  
 N/A Not applicable  
 NAHC Native American Heritage Commission  
 RWQCB Regional Water Quality Control Board (Central Valley)  
 SJVUAFCD San Joaquin Valley Unified Air Pollution Control District  
 SPR Site Plan Review



<p>4.3-3 Implementation of the proposed project would result in an increase in impervious surfaces, potentially increasing runoff volumes and velocities.</p> <p>4.3-4 Dairies located in flood-prone areas could be damaged or rendered temporarily inoperable during a flood event. In addition, flood waters could inundate dairy facilities (manured areas and/or process water storage facilities) and fields where wet or dry manure had been recently applied causing impacts to surface water quality.</p> <p>4.3-5 Operation of existing and new dairies could result in releases of pollutants (including nutrients such as nitrogen and phosphorus), impacting the quality of surface waters.</p>	<p>4.3-3 <i>None required.</i></p> <p>Compliance with existing State Confined Animal Facility regulations and programs would reduce the impact to a less-than-significant level without additional mitigation.</p> <p>4.3-4 <i>None required.</i></p> <p>Implementation of the pollution prevention actions required by the Element, including Policies DE 1.2c, 3.2d, and 3.2g, would minimize the potential for degradation of water quality during flood events and reduce the impact to a less-than-significant level</p>	<p>Applicant</p> <p>RWQCB</p> <p>Applicant</p> <p>KCPA</p>	<p>Conform with State Confined Animal Facility regulations.</p> <p>Enforce State Confined Animal Facility regulations.</p> <p>Demonstrate compliance with Policy DE 1.2c, siting requirements and Policies DE 3.2d and 3.2g.</p> <p>Confirm conformance of application with Policies DE 1.2c, 3.2d, and 3.2g.</p>	<p>SPR</p> <p>SPR</p> <p>SPR</p> <p>SPR</p>
<p>4.3-5 Operation of existing and new dairies could result in releases of pollutants (including nutrients such as nitrogen and phosphorus), impacting the quality of surface waters.</p>	<p>4.3-5 <i>None required.</i></p> <p>Compliance with existing regulations and programs and Policies DE 1.2f, 3.1a, 4.1b, 4.1c, and 4.1d proposed by the Element would reduce potential impacts to surface water quality to a less-than-significant level without additional mitigation.</p>	<p>Applicant</p> <p>KCPA</p>	<p>Demonstrate compliance with Policy DE 1.2f, siting requirements.</p> <p>Demonstrate compliance with 150-foot setbacks from wells and water bodies.</p> <p>Submit and implement Irrigation Management Plan, Manure Nutrient Management Plan.</p> <p>Confirm conformance of application with Policies DE 1.2f, 3.1a, 4.1a, 4.1b, 4.1c, and 4.1d.</p> <p>Review dairy documentation.</p>	<p>SPR</p> <p>SPR</p> <p>Operations</p> <p>SPR</p>
<p>4.3-6 Implementation of the proposed project could result in depletion of water resources.</p>	<p>4.3-6 <i>None required.</i></p> <p>Implementation of Policy DE 3.2h would reduce the impact of depletion of water resources to a less-than-significant level.</p>	<p>Applicant</p> <p>KCPA</p>	<p>Submit Hydrologic Sensitivity Assessment if dairy is in Kettleman Plain or Sunflower Valley.</p> <p>Confirm submittal of Hydrologic Sensitivity Assessment if dairy is in Kettleman Plain or Sunflower Valley and compliance with Policy DE 3.2h.</p>	<p>SPR</p> <p>SPR</p>

**Key:**

- CHRIS California Historical Resources Information System
- KCEHS Kings County Environmental Health Services
- KCPA Kings County Planning Agency
- N/A Not applicable
- NAHC Native American Heritage Commission
- RWQCB Regional Water Quality Control Board (Central Valley)
- SJVUAPCD San Joaquin Valley Unified Air Pollution Control District
- SPR Site Plan Review

<b>Biological Resources</b>			
4.4-1 Dairy development could result in conversion of existing vegetative cover and associated wildlife habitat, including habitat for special-status species or sensitive natural communities.	4.4-1 None required. Implementation of Policies DE 1.2e and 3.3a would reduce the biological resource impacts to a less-than-significant level.	Applicant KCPA	Submit Biological Resources Survey. Confirm conformance of application with Policy DE 3.3a.
4.4-2 Loss and modification of wetlands.	4.4-2 None required Implementation of Policies DE 1.2e and 3.3a would reduce the biological resource impacts to a less-than-significant level.	Applicant KCPA	Submit Biological Resources Survey. Confirm conformance of application with Policy DE 3.3a.
<b>Noise</b>			
4.5-1 Construction activities associated with new or expanded dairies would result in short-term noise increases.	4.5-1 None required. Compliance with Policies 40a and 40b of the General Plan would reduce this potential impact to a less-than-significant level without additional mitigation.	Operator	Conformance with General Plan Noise Element.
4.5-2 Operation of a new or expanded dairy could increase noise levels generated by additional vehicular traffic.	4.5-2 None required.	N/A	N/A
4.5-3 New or expanded dairies could be exposed to adverse existing noise sources.	4.5-3 None required. Compliance with Policy 40c of the General Plan and Policy DE 1.2b of the Element would reduce construction-related noise impacts to a less-than-significant level without additional mitigation.	Applicant KCPA	Conformance with General Plan Noise Element. Demonstrative compliance with Policy DE 1.2b. Confirm conformance with Policy DE 1.2b.
4.5-4 Noise levels generated by project operations.	4.5-4 None required. Implementation of Policies DE 6.4a through 6.4c of the Element and compliance with Policies 40a and 40b of the General Plan would reduce noise impacts related to dairy operations to a less-than-significant level.	Applicant KCPA	Conformance with General Plan Noise Element. Implement Policies DE 6.4a through 6.4d in response to complaints.
<b>Visual Resources</b>			
4.6-1 The general height, scale, lighting, and design of typical dairy facilities that would be allowed under the Element would be consistent with other farming operations in the agricultural zones of Kings County.	4.6-1 None required	N/A	N/A

Key: CHRIS California Historical Resources Information System  
 KCEHS Kings County Environmental Health Services  
 KCPA Kings County Planning Agency  
 N/A Not applicable  
 NAHC Native American Heritage Commission  
 RWQCB Regional Water Quality Control Board (Central Valley)  
 SJVUAPCD San Joaquin Valley Unified Air Pollution Control District  
 SPR Site Plan Review

<p>4.7-3 New and expanded dairy facilities allowed under the Element could cause impacts to natural resources and sensitive land uses</p> <p>4.7-4 implementation of the Element will prevent or minimize impacts to residentially zoned lands within the four cities, rural communities, and other sensitive uses.</p> <p>4.7-5 New and expanded dairy facilities allowed under the Element could cause impacts to adjacent individual rural residences in the agricultural areas.</p>	<p>Section 1908(F) of the Kings County Zoning Ordinance shall be deleted in its entirety and replaced with the following text:</p> <p>"When an application is submitted for an expansion of a bovine dairy in the AL-10 zone district, or other application for a dairy project as required by the Dairy Element of the Kings County General Plan, or this ordinance, the following findings shall be made before granting a conditional use permit:</p> <p>"1. That the zoning administrator has included in his or her report to the planning commission the results of consultation with representatives of the county agricultural commissioner, the county farm and home advisor, the county health officer, the Kings Mosquito Abatement District, the Central California Regional Water Quality Control Board and the Kings County Farm Bureau Dairy Committee before the planning commission may grant the application.</p> <p>"2. The planning commission finds that the Technical Report accompanying the conditional use permit application, which will include its own additional environmental review, demonstrates that the alternative dairy project design or process will accomplish the same or higher level of performance as required by the Dairy Element."</p>		
<p>4.7-3 None required</p> <p>Implementation of the policies of the Element would reduce the potential adverse impacts to biological and natural resources to a less-than-significant level.</p> <p>4.7-4 None required.</p> <p>Implementation of Policies DE 1.2a, 1.2b, 1.2g, 1.2i, and 1.2j of the Element would reduce the potential noise, lighting, and odor impacts of dairy facility operations and process water irrigation on new subdivision residents within the three cities.</p> <p>4.7-5 None required</p> <p>Implementation of the policies of the Element would reduce the potential noise, traffic, lighting, and odor impacts of dairy facility operations and process water irrigation on nearby residences to a less-than-significant level.</p>	<p>Applicant</p> <p>KCPA</p>	<p>See Mitigation Measures 4.4-1 and 4.4-2.</p> <p>Demonstrate conformance with Policies DE 1.2a, 1.2b, 1.2g, 1.2i, and 1.2j.</p> <p>Confirm conformance with Policies DE 1.2a, 1.2b, 1.2g, 1.2i, and 1.2j.</p> <p>See Mitigation Measures 4.2-4, 4.3-2, 4.3-4, 4.5-3, 4.6-2, and 4.9-1.</p>	<p>SPR</p> <p>SPR</p>

Key: CHRIS  
KCEHS  
KCPA  
N/A  
NAHC  
RWQCB  
SJVUAPCD  
SPR

California Historical Resources Information System  
Kings County Environmental Health Services  
Kings County Planning Agency  
Not applicable  
Native American Heritage Commission  
Regional Water Quality Control Board (Central Valley)  
San Joaquin Valley Unified Air Pollution Control District  
Site Plan Review

Transportation		Applicant	Submit Traffic Impact Study.	SPR
4.9-1 Truck and other traffic from new dairy development would be added to County roadways.	<p>4.9-1 The following policy shall be included in the Element:</p> <p>"Policy DE 3.1g: Upon the request of an applicant for an SPR or CUP, the Kings County Regional Transportation Planning Agency will evaluate the effect a new or expanding dairy project will have on surrounding roadways and highways using its traffic model. If the traffic model run demonstrates that the dairy project will not result in degradation of the Level of Service (LOS) of adjacent County roadways below LOS D, or below LOS C on State highways, no additional evaluation will be required.</p> <p>"If the Kings County Regional Transportation Planning Agency's traffic model demonstrated that the LOS will be degraded to a LOS E or lower on adjacent roadways, or to LOS D on State highways, a conditional use permit (CUP) will be required. In such a case the Technical Report accompanying the CUP application shall include a Traffic Impact Study (see Component 8 of Appendix J) prepared by a qualified traffic engineer in conformance with guidelines provided by the California Department of Transportation. Any additional environmental review shall be focused on traffic related environmental issues and the Traffic Impact Study shall demonstrate that the proposed dairy project will not result in significant safety hazards."</p>	KCPA	<p>Submit Traffic Impact Study.</p> <p>Confirm submittal of a Traffic Impact Study and conformance with Policy DE 3.1g standards.</p>	SPR SPR
Public Services and Utilities		N/A	N/A	N/A
4.10-1 Increases in water consumption	4.10-1 None required.	N/A	N/A	N/A
4.10-2 Increase in the amount of storm water runoff.	4.10-2 None required. Implementation of Policy DE 4.1a and conformance with State Confined Animal Facility regulations would reduce impacts related to runoff to a less-than-significant level		See Mitigation Measures 4.3-3 through 4.3-5.	
4.10-3 Increases in the demand for police and fire protection, emergency medical response, solid waste collection and disposal services, school facilities, and recreation facilities.	4.10-3 None required. Implementation of Policy DE 3.6a would reduce the potential for impacts to public services to a less-than-significant level	Applicant	Demonstrate conformance with Kings County Fire Department standards.	SPR
		KCPA	Confirm compliance with Policy DE 3.6a.	SPR

Key:

CHRIS California Historical Resources Information System  
 KCEHS Kings County Environmental Health Services  
 KCPA Kings County Planning Agency  
 N/A Not applicable  
 NAHC Native American Heritage Commission  
 RWQCB Regional Water Quality Control Board (Central Valley)  
 SJVUAPCD San Joaquin Valley Unified Air Pollution Control District  
 SPR Site Plan Review

KINGS COUNTY DAIRY ELEMENT MITIGATION MONITORING PLAN (continued)				
Environmental Impact	Mitigation Measures	Responsibility for Compliance	Method for Compliance	Timing of Compliance
<b>Cultural Resources</b> 4.11-1 Disturbance or destruction of cultural (historical and archaeological) resources. This would be a significant impact if archaeological resources were to be identified at dairy development sites.	4.11-1 None required. Implementation of Policies DE 3.1d and 3.1e would reduce the potential for disturbance or destruction of cultural resources to a less-than-significant level.	Applicant  KCPA	Submit documentation of CHRIS and NAHC review and evaluation of identified known or suspected cultural resources  Confirm compliance with Policies DE 3.1d and 3.1e.	SPR  SPR

**KINGS COUNTY DAIRY ELEMENT MITIGATION MONITORING PLAN (continued)**

Environmental Impact	Mitigation Measures	Responsibility for Compliance	Method for Compliance	Timing of Compliance
<b>Human Health/Risk of Upset</b>				
4.8-1 Workers could be exposed to hazardous materials during dairy operation, resulting in adverse health impacts	4.8-1 None required. Implementation of Policy DE 4.3a and conformance with hazardous materials laws and regulations would reduce this impact to a less-than-significant level	Applicant	Submit Business Plan. Conform with applicable laws and regulations for hazardous materials.	Operations
4.8-2 Potential exposure to residual agricultural chemicals during construction of the dairy facilities, resulting in adverse health impacts.	4.8-2 None required.	N/A	Review and approve Business Plan.	Operations
4.8-3 Operation of the dairies could result in increased vector activity, potentially creating adverse human health impacts.	4.8-3 None required. Implementation of Policies DE 4.3b and 4.3c would reduce impacts related to vector activity to a less-than-significant level.	Applicant	Submit Pest and Vector Management Plan. Comply with Kings Mosquito Abatement District regulations.	SPR
4.8-4 Operation of the dairy facilities could expose people to dairy manure pathogens, potentially causing adverse human health impacts.	4.8-4 None required. Implementation of Policies DE 1.2c, 1.2d, 1.2f, 3.1a, 3.2b, 3.2c, 4.1a, 4.1b, 4.1c, 6.2f, and 6.4a through 6.4c would reduce the impact of exposure to pathogens to a less-than-significant level.	KCPA	Confirm compliance with Policies DE 4.3b and 4.3c. See Mitigation Measures 4.3-2 through 4.3-9.	SPR
4.8-5 Residual manure remaining at dairy facilities following cessation of manure management facilities operation could expose people to elevated methane and nitrate levels, potentially causing adverse human health impacts	4.8-5 None required. Implementation of Policy DE 5.1j will reduce the impacts associated with residual manure to a less-than-significant level.	Applicant	Submit documentation that all residual manure and process water has been removed. Confirm compliance with Policy DE 5.1j.	End of operations
4.8-6 Construction of dairy facility structures over or near improperly abandoned oil or gas wells could result in accumulation of natural gas within the structures, presenting the potential for fire and explosion	4.8-6 None required. Implementation of Policies DE 3.5a and 3.5b of the Element will reduce impacts associated with abandoned oil or gas wells to a less-than-significant level.	Applicant	Submit documentation of DOGGR review; verify oil or gas wells within 100 feet of dairy site, close abandoned wells within 300 feet of dairy structures. Confirm compliance with Policies DE 4.3b and 4.3c.	SPR

**KINGS COUNTY DAIRY ELEMENT MITIGATION MONITORING PLAN (continued)**

Environmental Impact	Mitigation Measures	Responsibility for Compliance	Method for Compliance	Timing of Compliance
<p>4.6-2 There is a potential for outdoor lighting and glare associated with dairies allowed under the Element to affect nearby rural residences.</p>	<p>4.6-2 None required. Implementation of Policies DE 1.2i, 3.1a, 3.1b, 3.1c, 3.1h, and 6.4a through 6.4c would reduce the potential for light and glare impacts to a less-than-significant level.</p>	<p>Applicant  KCPA</p>	<p>Submit outdoor lighting design consistent with Policy DE 3.1h.  Confirm conformance with Policy DE 3.1h. Implement Policies DE 6.4a through 6.4c in response to complaints.</p>	<p>SPR  SPR</p>
<p><b>Land Use and Policies</b></p>				
<p>4.7-1 Since the Element goals, policies, and programs would be consistent with applicable policies of the Kings County General Plan, there are no significant impacts</p>	<p>4.7-1 A new goal, new objective, and two new policies shall be added to the Kings County Land Use Element under "iii. Policies for Rural Areas," which cross-references the Element, to direct readers to the additional policies in the adopted Element. The proposed new Land Use Element goal and policies recommended to be added are as follows:  "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."</p>	<p>Applicant KCPA</p>	<p>None Modify Kings County General Plan.</p>	<p>Adoption of Dairy Element</p>
<p>4.7-2 Since some of the Element policies and programs supersede and are more restrictive than dairy regulations in the Kings County Zoning Ordinance, there are no significant impacts.</p>	<p>4.7-2 New text shall be added to the Kings County Zoning Ordinance, Section 2102 A.16, Site plan review application and fee, as follows:  "Applications for proposed new bovine dairies, or dairy calf and heifer raising facilities, and expansions of existing bovine dairies, or dairy calf and heifer raising facilities exceeding the baseline capacity of the dairy, shall be approved through the site plan review process if the application meets all of the specified criteria of the Dairy Element of the Kings County General Plan"</p>	<p>Applicant KCPA</p>	<p>None Modify Kings County Zoning Ordinance.</p>	<p>Adoption of Dairy Element; Amendment of Bovine Ordinance</p>

**KINGS COUNTY DAIRY ELEMENT MITIGATION MONITORING PLAN (continued)**

Environmental Impact	Mitigation Measures	Responsibility for Compliance	Method for Compliance	Timing of Compliance
<p>4.3-7 Activities associated with dairy facilities and support cropland could result in an increase in the rate of salt and nitrogen loading, and the release of pathogens in the basin, degrading groundwater quality.</p>	<p>4.3-7 <i>None required.</i> Implementation of Policies DE 1.2c, 1.2d, 1.2f, 3.1a, 3.2a, 3.2b, 3.2c, 3.2h, 3.2i, 4.1a A, 4.1a.B, 4.1b, 4.1c, 6.2f, and 6.4d would reduce localized and regional groundwater quality impacts to a less-than-significant level.</p>	Applicant	<p>Demonstrate compliance with Policies DE 1.2c, 1.2d, and 1.2f, siting requirements. Demonstrate compliance with 150-foot setbacks from wells and water bodies. Inspect seals of all water supply wells. Submit Groundwater Evaluation, Irrigation Management Plan, Manure Nutrient Management Plan and, if required, Comprehensive Dairy Process Water Application Plan and Hydrologic Sensitivity Assessment. Install groundwater monitoring system</p>	SPR
		KCPA	<p>Confirm conformance of application with Policies DE 1.2c, 1.2d, 1.2f, 3.1a, 3.2a, 3.2b, 3.2c, 3.2h, 3.2i, 4.1a A, 4.1a B, 4.1b, 4.1c, 6.2f, and 6.4d. Review annual water quality data.</p>	SPR
		RWQCB	<p>Issue and amend Waste Discharge Requirements, if required. Review annual water quality data.</p>	Ongoing Ongoing
<p>4.3-8 Existing water supply wells may represent preferred pathways for pollutant migration to the subsurface.</p>	<p>4.3-8 <i>None required.</i> Implementation of Policies DE 3.2c and 3.2i would reduce the impacts associated with potential direct migration of pollutants into wells to a less-than-significant level.</p>	Applicant	<p>Demonstrate compliance with 150-foot setbacks from wells and water bodies. Inspect seals of all water supply wells.</p>	SPR
		KCPA	<p>Confirm conformance of application with Policies DE 3.2c and 3.2i.</p>	SPR
<p>4.3-9 Implementation of the proposed Element could result in cumulative impacts to water quality.</p>	<p>4.3-9 <i>None required.</i> Implementation of Policies DE 1.2c, 1.2d, 1.2f, 3.1a, 3.2a, 3.2b, 3.2c, 3.2g, 3.2h, 4.1a, 4.1b, 4.1c, 4.4a, 6.2f, and 6.4d would reduce the cumulative impact to groundwater quality to a less-than-significant level.</p>	Applicant	<p>Compliance with Policies DE 1.2c, 1.2d, 1.2f, 3.1a, 3.2a, 3.2b, 3.2c, 3.2g, 3.2h, 4.1a, 4.1b, 4.1c, 6.2f, and 6.4d. Implementation of Dairy Element.</p>	SPR Ongoing
		KCPA		



**KINGS COUNTY DAIRY ELEMENT MITIGATION MONITORING PLAN (continued)**

Environmental Impact	Mitigation Measures	Responsibility for Compliance	Method for Compliance	Timing of Compliance
4.2-11 Implementation of the Element would result in a cumulative increase in ozone precursor emissions.	4.2-11 <i>None available.</i> Although implementation of Policies DE 3.1a, 5.1b, 6.1a, 6.1b, 6.2d, and 6.3a would reduce or prevent the release of ozone precursor emissions into the environment from manure storage or collection systems, ozone precursor emissions would continue to be generated from existing, new, or expanded dairies in the County (i.e., exhaust emissions, manure stockpile, initial deposition of manure).		See Mitigation Measure 4.2-5.	
4.2-12 Implementation of the Element would result in a cumulative increase in methane emissions.	4.2-12 <i>None available.</i> Implementation of Policies DE 3.1a, 5.1b, 6.1a, 6.1b, 6.2d, and 6.3a of the Element would reduce but not eliminate methane emissions from cumulative projects in the San Joaquin Valley air basin.		See Mitigation Measure 4.2-8.	
4.2-13 Implementation of the Element would result in a cumulative increase in hydrogen sulfide emissions.	4.2-13 <i>None available.</i> Implementation of Policies DE 3.1a, 5.1b, 6.1a, 6.1b, 6.2d, and 6.3a of the Element would reduce but not eliminate hydrogen sulfide emissions from cumulative projects in the San Joaquin Valley air basin.		See Mitigation Measure 4.2-7.	
4.2-14 Implementation of the Element would result in a cumulative increase in ammonia emissions	4.2-14 <i>None available.</i> Implementation of Policies DE 3.1a, 4.1b.B, 5.1e, 6.1a, 6.1b, 6.2d, and 6.3a of the Element would reduce but not eliminate ammonia emissions from cumulative projects in the San Joaquin Valley air basin.		See Mitigation Measure 4.2-6.	
<b>Water Resources</b>				
4.3-1 Construction activities associated with new or remodeled dairies could result in degradation of water quality in receiving waters by reducing the quality of storm water runoff	4.3-1 <i>None required.</i> Implementation of existing National Pollutant Discharge Elimination System regulations (including the construction period SWPPP) would reduce this potential impact to a less-than-significant level.	N/A	N/A	N/A
4.3-2 Projects implemented under the Element could modify surface water drainage patterns, potentially causing localized off-site migration of runoff, erosion, and/or flooding	4.3-2 <i>None required.</i> Conformance with State Confined Animal Facility regulations and implementation of Policies DE 1.2c, 1.2f, 3.2c, 3.2d, 4.1b, and 4.1c would reduce impacts associated with runoff from dairy facilities to a less-than-significant level.	Applicant	Demonstrate compliance with Policies DE 1.2c and 1.2f siting requirements. Demonstrate compliance with 150-foot setbacks from wells and water bodies Submit Irrigation Management Plan, Manure Nutrient Management Plan.	SPR
		KCPA	Confirm conformance of application with Policies DE 1.2c, 1.2f, 3.2c, 3.2d, 4.1b, and 4.1c.	SPR

**KINGS COUNTY DAIRY ELEMENT MITIGATION MONITORING PLAN (continued)**

Environmental Impact	Mitigation Measures	Responsibility for Compliance	Method for Compliance	Timing of Compliance
4.2-3 Operation of new or expanded dairies could increase PM <sub>10</sub> air pollutant emissions from fugitive dust, exhaust from agricultural and dairy equipment, vehicular traffic exhaust, and formation of secondary PM <sub>2.5</sub> .	<p>4.2-3a (Fugitive Emissions from Unpaved Areas) No additional feasible mitigation measures are available for the control of fugitive dust.</p> <p>Implementation of Policies DE 5.1e, 5.1g, 5.1h, 6.1a, 6.1b, and 6.2c of the Element would reduce and control PM<sub>10</sub> emissions from fugitive dust at future or expanded dairies.</p>	Applicant	<p>Submit Fugitive Dust Emissions Control Plan</p> <p>Submit air emissions estimates.</p> <p>Implement SJUAPCD controls.</p> <p>Conduct and document visual inspections</p> <p>Confirm submittal of Fugitive Dust Emissions Control Plan and air emission estimates.</p> <p>Review dairy documentation.</p>	<p>SPR</p> <p>Operations</p> <p>SPR</p> <p>Operations</p> <p>Operations</p>
	4.2-3b (Secondary PM <sub>2.5</sub> ) No additional feasible mitigation measures are available.	SJUAPCD	Enforce Regulation VIII rules.	Operations
	4.2-3c (Equipment Exhaust) No feasible mitigation measures are available.	Applicant	<p>Submit Odor Management Plan.</p> <p>Implement Odor Management Plan.</p> <p>Perform and document quality assurance/control for plans.</p>	<p>SPR</p> <p>Operations</p>
	4.2-3d (Other Air Pollutants) No additional feasible mitigation measures are available.	KCPA	<p>Confirm submittal of Odor Management Plan.</p> <p>Review dairy documentation.</p>	<p>SPR</p> <p>Operations</p>
	4.2-4 Operation of new or expanded dairies could generate adverse odors.	N/A	N/A	N/A
	4.2-4 No additional feasible mitigation measures are available.	Applicant	<p>Submit Odor Management Plan.</p> <p>Implement Odor Management Plan.</p> <p>Perform and document quality assurance/control for plans.</p>	<p>SPR</p> <p>Operations</p>
	4.2-4 Implementation of Policies DE 1.2g, 1.2h, 1.2i, 3.1a, 3.1b, 3.1c, 4.1a, B.4, 5.1b, 5.1g, 6.1a, 6.1b, 6.2d, and 6.4a through 6.4c would significantly reduce odors generated from dairy facilities operated in conformance with the Element.	KCPA	<p>Confirm compliance with Policies DE 1.2g, 1.2h, 1.2i, 3.1a, 3.1b, 3.1c, 5.1b, 5.1g, 6.1a, 6.1b, 6.2d, and 6.4a through 6.4c.</p> <p>Confirm submittal of Odor Management Plan.</p> <p>Review dairy documentation.</p>	<p>SPR</p> <p>Operations</p>
	4.2-5 Operation of new or expanded dairies would generate ozone precursor (ROG and NOx) emissions from cattle manure and combustion engine exhaust.	Applicant	<p>Submit Odor Management Plan.</p> <p>Implement Odor Management Plan.</p> <p>Perform and document quality assurance/control for plans.</p>	<p>SPR</p> <p>Operations</p>
	4.2-5 No additional feasible mitigation measures are available.	KCPA	<p>Confirm submittal of Odor Management Plan and compliance with Policies DE 3.1a, 5.1b, 6.1a, 6.2d, and 6.3a.</p> <p>Review dairy documentation.</p>	<p>SPR</p> <p>Operations</p>

2

3

4

5

6



**BASELINE****RHODORA DEL ROSARIO**

Ms. Del Rosario has expertise in preparing technical analyses for proposed projects for CEQA/NEPA compliance. She has prepared numerous air quality, public utilities, noise, and public health/hazardous materials impacts analyses for several proposed

B.S., Civil Engineering, University of California, Davis  
PE No. C57926  
40-hour OSHA training  
9 years of experience

projects including transportation, aggregate mining, public, and residential projects. Her air quality analyses include performing various air quality models such as EMFAC, URBEMIS, CALINE4, and carbon monoxide BAAQMD screening model to quantify localized and regional air pollutant emissions; she has also worked on projects requiring compliance with Federal Transit Administration's air quality requirements. She also provides technical support for development of toxicological assessments for air contaminants through the use of dispersion modeling. This work is performed to determine air contaminant concentrations at downwind receptors from proposed projects. Most recently, Ms. Del Rosario has been involved in analysis of air quality impacts related to large dairy operations in the San Joaquin Valley. Over the last four years, she has worked closely with CARB and the air districts in developing methodologies for evaluation of emissions of methane, ozone precursors, particulate matter, ammonia, and organic gases. Ms. Del Rosario's experience in conducting noise analyses include evaluation of construction and operational impacts from various sources including vibration, blasting, and heavy equipment operation.

Ms. Del Rosario has conducted environmental compliance audits for major governmental facilities. She also conducts emission inventories in compliance with AB 2588 Air Toxic Hot Spots. Her work has included site reconnaissances and interviews with site personnel to determine waste streams, training programs, hazardous materials storage and handling, purchasing procedures for materials containing hazardous substances, and assessing whether facilities comply with all applicable regulations pertaining to plans, programs, and permits; such plans, programs, and permits typically include recyclable materials program, UST permits, Spill Prevention Control and Countermeasure (SPCC) plans, business plans, hazard communication programs, emergency action plans, and non-point source NPDES permits.

Ms. Del Rosario also performs Phase I and Phase II site assessments to determine the presence of hazardous materials in the subsurface from current and past land uses. She coordinates field activities and evaluates collected data (including laboratory data QA/QC) to determine further actions or remediation. A major part of her work includes the classification of waste streams, particularly from major public construction works. She is experienced in developing sampling plans and evaluating waste stream data statistically using EPA SW-846 methodology.

Ms. Del Rosario has managed remediation projects and provided remediation cost estimates for use in litigation. Projects include significantly contaminated sites where soil and groundwater have been affected by past land uses, and where remediation would result in expenditures of up to nine million dollars. She has provided soil management services to public agencies involved in road construction and utility excavations. She has also developed related pollution control plans, including Storm Water Pollution Prevention, Monitoring, SPCC, and Facility Response plans for major railroad service facilities in the Bay Area and in the San Joaquin Valley.

**Professional Affiliation**

American Society of Civil Engineering, member  
Association of Environmental Professionals, member

A substantial portion of the land identified in the Element as "Dairy Development Overlay Zones" and "Nutrient Spreading Zones" have been enrolled in either the Williamson Act or the Farmland Security Zone program. (FPEIR Vol. 1B, p. 4.6-7.) Facilitation of dairy development through adoption of the Element further promotes the purposes of the Williamson Act Contract program, to retain and encourage agricultural uses in California.

The development of dairies on land in agricultural use will also further promote the intent of the Kings County Right-to-Farm Ordinance (Kings County Code of Ordinances, Chapter 14, Article III, Section 14-38) which encourages the County to "protect agricultural land, operations, and facilities from conflicting uses due to the encroachment of incompatible, non-agricultural uses of the land in agricultural areas of the county." (FPEIR Vol. 1B, pp. 4.7-5 to 4.7-6.)

For the reasons set forth above, the Board of Supervisors finds the ability of the Project to implement other elements of the General Plan and the County's Right to Farm Ordinance outweighs its environmental impacts.

industries accounted for \$139 million. Dairy production employment accounted for 3.5% of the countywide total employment and 3.4 % of the payroll in 2000. (Economic Analysis, p. 9.)

The maximum theoretical herd size allowed under the Dairy Element would result in a nearly three-fold increase in the number of dairy cows. The economic analysis for implementation of the Dairy Element used the IMPLAN input-output model to estimate the effect on the local economy of dairy development over the next 50 years. The economic analysis used the historical growth rates of increases in dairy herd size (2.3%) and increases in employment in the dairy production industry (4%). (Economic Analysis, p. 13.) The economic analysis estimated that at buildout (in approximately 50 years), there would be about 4,617 jobs in the dairy production industry, 6,751 indirect jobs (generated by supplier purchases or commodity inputs) and 3,055 induced jobs (generated by purchases made by dairy farm production workers). (Economic Analysis, p. 14.)

The economic analysis also estimated the multiplier effect of dairy production increases over buildout of the Dairy Element. Including direct dairy production output, purchases from supplier industries to dairy farms and purchases by dairy farm production employees, at buildout the total multiplied dairy industry output is projected to be \$2.9 million. (Economic Analysis, p. 16.) At buildout, using the historical production value annual increase rate of 1.8%, job growth is expected to generate a total multiplied labor income of \$616 million, of which \$434 million will result from dairy farm employment. (Economic Analysis, p. 17.) Construction of new dairies and expansion of existing dairies will also create numerous temporary construction jobs.

Growth of dairy processing industries in the County is also expected to assist economic development in the County. The economic analysis estimated that according to a moderate projection, dairy processing industries would directly employ 568 workers, indirectly employ 1,398 workers and create induced employment of 2,434 workers by 2020. (Economic Analysis, p. 20.) Again, using a moderate estimate, the economic analysis estimated total multiplied dairy outputs of dairy processing activities would be \$472 million by 2020. (Economic Analysis, p. 21.) The estimated income from direct employment at the dairy processing industries, employment producing commodity inputs and employment at induced jobs would be \$76 million per year by 2020. (Economic Analysis, p. 22.)

The Board has also considered the economic impact of the cheese processing plant that Land O'Lakes and Mitsui are building in Tulare County. The new plant is projected to require at least 3 million pounds of milk daily upon start-up and an additional 3 million pounds per day within three years. With a daily requirement of 6 million pounds of milk, the cheese plant will draw on sources in nearby counties, including Kings County.

The jobs created by the dairies will reduce unemployment rates and bring economic benefits to the area through increases in purchasing power of dairy and related-industry employees and increased sales and property tax revenues. Currently, dairies generate about \$392,000 per year in property taxes for the County's General fund. The projected growth by 2010 could increase this

The following statement identifies the reasons why, in the County's judgment, the benefits of the Project outweigh its unavoidable significant effects. Any one of the reasons for approval cited below is sufficient to justify approval of the Project. Thus, even if a Court were to conclude that not every reason is supported by substantial evidence, the County will stand by its determination that each individual reason is sufficient. The substantial evidence supporting the various benefits can be found in the preceding findings, which are incorporated by reference into this Section (XI), and in the documents found in the Record of Proceedings, as defined in Section V.

The County finds that the Project will have the following specific economic, legal, social, technological, or other benefits:

#### **Protection of Sensitive Areas**

Currently, Article 4 of the Kings County Zoning Ordinance allows dairy development as a conditional use within AG-20 and AG-40 districts. These districts encompass approximately 85 percent of the land within the County. Under the proposed Element, only 70 percent of the County could have dairies and/or manure spreading areas. The districts include areas in which dairy development would be prohibited under the proposed Element, including the upland areas of the southwestern portion of the County and areas within 100-year flood hazard zones. Adoption of the Element would protect sensitive areas from future dairy development.

For the reasons set forth above, the Board finds that the ability of the Element to protect sensitive areas outweighs its other environmental impacts.

#### **Preservation and Promotion of Sustainable Agriculture in the County.**

The Board finds that dairy industry is the fiber that holds agriculture together in Kings County. Dairies use alfalfa hay, almond hulls, cotton seed and corn silage, among other local products. The dairy industry is sustainable in that it converts locally grown raw products into finished product every day. Milk goes to market within twenty-four hours of production and is processed and in the store within days. Dairies also use water efficiently in that water used at a dairy leave in the milk or it goes back out to the crops as process water. The crops then produce the feed for the dairy.

Dairy farmers get paid within two weeks and that money stays in the local economy. Dairies also employ people seven days a week, twenty-four hours per day, all year long. It has good pay, good benefits, and in many cases, housing. Dairies are also a stable business that creates many indirect jobs to support it.

The Element presents a balance between retaining and creating new jobs in the dairy industry and protecting the environment and the public. It also protects the position of existing dairies and allows them to expand when they can meet the appropriate standards.

6. Lighting and Glare/Visual Resources

Lighting and aesthetic impacts related to dairy development would be similar under the Increased Manure Treatment alternative and the Project. The intensity of dairy development would be similar and localized impacts near dairy facilities would occur. (FPEIR Vol. 1B, p. 6-15.)

7. Land Use and Policies

Considering that the Element would be implemented under the Increased Manure Treatment alternative, the potential land use impacts under this alternative would be similar to those under the Project. The Project and the Increased Manure Treatment alternative would be consistent with all applicable policies of the amended Kings County General Plan and the Zoning Ordinance following the approval of SPRs for individual dairy projects. (FPEIR Vol. 1B, p. 6-16.)

8. Human Health and Safety

The Project and the Increased Manure Treatment alternative have similar impacts related to increased vector activity and pathogens and would require similar use of hazardous materials. (FPEIR Vol. 1B, p. 6-16.)

9. Transportation

Under the Increased Manure Treatment alternative, traffic levels would be similar to that of the proposed Project. Traffic levels would continue to be within acceptable levels and no intersections would require improvements. (FPEIR Vol. 1B, p. 6-17.)

10. Public Services and Utilities

The increased demand for public services certain public services, such as police and fire protection, solid waste, schools, and park facilities would be similar for the Project and the Increased Manure Treatment alternative. (FPEIR Vol. 1B, p. 6-17.)

11. Cultural Resources

The intensity of dairy development controls the potential for impacts on cultural resources. Excavation during construction of dairy facilities could result in the disturbance or destruction of historical or archaeological resources. Under the Increased Manure Treatment alternative and the Project, the intensity of dairy development would be similar. Under the Increased Manure Treatment alternative and the Project, the requirements for investigation of cultural resources provided by Policies DE 3.1c, d, and e of the Element would be implemented. (FPEIR Vol. 1B, p. 6-18.)