established by the most recently adopted SJVUAPCD Regulation VIII. The FDECP required by **Policy DE ~~5.1h~~ 5.1g** shall specify the ~~BACMs~~ control measures to be implemented during dairy operations.

Policy DE ~~5.1j~~ 5.1i requires the estimation of the anticipated net increase in ROG, NOx, and PM_{10} emissions generated from anticipated dairy operation equipment as part of the technical report that is to be submitted with the new dairy or expanded dairy application. The policy requires demonstration that the net increase in emissions will not exceed SJVUAPCD threshold limits for ROG, NOx, and PM_{10}.

Policy DE ~~5.1k~~ 5.1j requires that the operator/owner of a dairy facility that will be converted to other land uses submit documentation to the Dairy Monitoring Office that demonstrates that all residual manure and process water has been removed ~~and~~ or managed in accordance with the facility's CDPW~~D~~AP and MTMP.

Draft Dairy Element Monitoring and Enforcement Goals, Objectives, and Policies

Goal DE 6 requires the implementation of a monitoring program that both demonstrates 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~~ 6.2** requires the protection of the environment through monitoring of the individual dairy's ~~industry's~~ operational activities so that adjustments in the operation can be made when necessary. **Policies DE ~~6.1a~~ 6.2a** through **~~6.1c~~ 6.2g** provide a mechanism for: determining the current baseline environmental conditions for comparison with future monitoring results; continuous monitoring of individual dairy operations subject to the Element; and the establishment of the dairy system monitoring program and its elements.

Objective DE ~~6.2~~ 6.3 requires the implementation of a continuous monitoring program for each ~~operating~~ dairy regulated by these policies. **Policy DE ~~6.2a~~ 6.3a** requires that each new or expanded dairy submit an annual report demonstrating that the facility is operating under approved conditions and, if conditions are violated, would be subject to modification of the operation.

Policies DE ~~6.1d~~ 6.2c through **~~6.1g~~ 6.2e** provide minimum standards for the monitoring of dust control, OMP, and MTMP~~, and LMP~~ implementation at dairy facilities. Standards include inspections, performance of quality assurance/quality control on the implementation of plans, and documentation.

Goal DE ~~7~~ 6 requires the establishment of a Dairy Monitoring Program in the Dairy Monitoring Office housed in the Kings County Planning Agency. **Objective DE ~~7.1~~ 6.1** would establish a Dairy Monitoring Program in the Kings County Planning Agency. **Policies DE ~~7.1a~~ 6.1a.A** through **~~7.1c~~ 6.1a.C** establish procedures and requirements for

dairy data tracking, problem resolution, and reporting to the Planning Commission. Importantly, the Element also includes **Objective DE ~~7.2~~ 6.4**, which establishes a formal response system for complaints made by the public concerning dairy operations. The objective is supported by **Policies DE ~~7.2a~~ 6.4a** through **~~7.2c~~ 6.4d**, which detail the requirements of the complaint system.

Existing Dairy Voluntary Conformance ~~Goals, Objectives, and~~ Policies

~~**Goal DE 8** would bring all existing dairies in Kings County into voluntary conformance with the provisions of the Element by the end of 2006. **Objective DE 8.1** requires the development of a program by which an existing dairy operations can earn a certificate certifying that it is being operated in compliance with the policies of the Element. **Policies DE 8.1a** and **8.1b** require: the implementation of a Dairy Conformance Program for existing dairies and coordination with the Legislature, industry programs, and individual dairy operators to develop programs and funding to assist dairies meet current operating standards.~~ **Policy DE ~~8.1c~~ 3.7a** indicates that nothing in the Element ~~guarantees that a dairy that does not meet the specified standards will be able to come into conformance, and that out of conformance dairies may be required to modify or cease their operations.~~ "... shall be construed as a guarantee that any existing dairy that does not meet the standards and regulations for the operation of dairies will be able to make the changes necessary for future expansion. Any dairy that is improperly located, or has other specific characteristics that conflict with the standards of this Element or other regulatory requirements, may not be able to expand. Such dairies, with or without expansion, may become nuisances and may be required to take specific corrective action which may include, but not limited to, reducing herd size, increasing cropland application area, or ceasing operation."

IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA[49]

Based on the environmental checklist in the CEQA Guidelines, a 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;

[49] As noted earlier, agricultural and livestock operations are exempt from SJVUAPCD permitting requirements. However, the threshold levels established by SJVUAPCD are used in this air quality analysis as criteria for determining significant environmental impacts.

- 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.

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 (SJVUAPCD, 1998).

The SJVUAPCD has established thresholds for certain criteria pollutants for determining whether a project's operation would have a significant air quality impact (Table 4.2-4). In general, if any of the estimated ROG, NOx, and CO emissions generated from a project exceeds the thresholds, the project would be considered to have a significant air quality impact. The thresholds established by the SJVUAPCD are used in this air quality analysis as criteria for determining significant environmental impacts.

TABLE: 4.2-4: **SJVUAPCD Significance Thresholds for Projects**

Pollutant	Threshold of Significance[1]
ROG	10 tons per year
NOx	10 tons per year
CO	9 ppm (8-hour average) 20 ppm (1-hour average)
PM_{10}	15 tons per year[2]

Notes: ROG = Reactive organic gas
NOx = Oxides of nitrogen
PM_{10} = Particulate matter with a diameter less than or equal to ten microns
ppm = parts per million
SJVUAPCD = San Joaquin Valley Unified Air Pollution Control District

[1] Refer to text for discussion of the applicability of these thresholds to emissions from the proposed project.

[2] The PM_{10} emission threshold level (15 tons per year or 80 pounds per day) is the designated "offset" value specified in the SJVUAPCD permit conditions. An offset value is the maximum allowed pollutant emission rate an owner/operator of a source can release into the environment. If an owner/operator intends to release PM_{10} emissions at a rate greater than the offset value, the owner/operator must identify how the excess emissions would be offset, which is typically done by "purchasing" emission credits from a former PM_{10} emission source. Although SJVUAPCD has not included a significance threshold value for PM_{10} in their guidelines, the offset value of 15 tons per year has been defined as a significance criterion for this air quality analysis.

Local air emissions can have cumulative global impacts. For example, worldwide halocarbon (a class of compounds containing chlorine and/or fluorine) emissions have been linked to ozone depletion in the upper atmosphere. Similarly, worldwide greenhouse gas emissions have also been linked to the gradual increase in near-surface temperatures. Methane is the

second most significant gas causing increases in greenhouse gases.[50] Therefore, emissions that contribute to a global adverse environmental condition are also considered to be a significant impact in this air quality analysis.

IMPACTS ANALYSIS APPROACH

Construction and operation of new or expanded dairies under the Element would generate construction-related and operation-related emissions. Construction-related emissions would include PM_{10} emissions from fugitive dust generated during soil movement activities; and exhaust emissions (e.g., ROG, NOx, and PM_{10}) from construction equipment. Construction-related impacts are addressed in Impacts 4.2-1 and 4.2-2. Dairy operations would also generate air pollutant emissions, including ROG, NOx, PM_{10}, ammonia, hydrogen sulfide, carbon monoxide, and methane; impacts associated with these air pollutants are discussed in Impacts 4.2-3, ~~4.2-4,~~ and ~~4.2-6~~ 4.2-5 through ~~4.2-10~~ 4.2-9. The following is a list of the air pollutant emissions and the corresponding sources generated from project operations:

- PM_{10} emissions from fugitive dust generated during agricultural activities (e.g., land preparation and windblown dust) and dairy operations;
- Exhaust emissions (ROG, NOx, PM_{10}) from dairy and agricultural equipment;
- ROG, hydrogen sulfide, ammonia, and methane emissions from manure decomposition;
- Methane emissions from cattle digestion; and
- Localized (CO) and regional emissions (ROG, NOx, PM_{10}) from vehicular traffic associated with new or expanded dairies.

The air emissions for existing conditions and those resulting from implementation of the Element were estimated by applying currently available emission rates applicable to dairy operations. The air emission calculations are presented in Appendix D of this EIR and are summarized in Tables 4.2-5a and 4.2-5b. To provide a perspective on the air quality implications associated with implementation of the Element, two conditions were considered: 1) air emissions from management of the proposed maximum theoretical dairy herd without implementation of the air emissions controls required under the Element (Table 4.2-5a), and 2) emissions from management of the theoretical herd with the controls presented in the Element (Table 4.2-5b). For each condition, four scenarios are examined

[50] According to U.S. EPA, methane's overall contribution to global warming is significant because it is estimated to be 21 times more effective at trapping heat in the atmosphere than carbon dioxide, the most significant greenhouse-causing gas (EPA, 1999). Sources of carbon dioxide include fossil fuel combustion, natural gas flaring, biomass combustion, industrial processes (e.g., cement, lime, limestone and dolomite, soda ash, and carbon dioxide manufacturing), and changes in forest carbon stocks. Dairy-related operations are not a major source of carbon dioxide emissions.

for PM_{10} emissions from corrals. The scenarios are consistent with the methodology previously described for estimating PM_{10} emissions and represent a range of assumptions regarding emission rates, moisture conditions, and livestock management. The ROG, NOx, and PM_{10} emissions related to exhaust were estimated by assuming that buildout of dairy development would occur by the operation of 52 dairies each with a herd size of 5,000 milk cows (see Impacts 4.2-3 and 4.2-5 for further explanation).

TABLE 4.2-5a: **Estimated Total Emissions from Project Operations under Existing and Uncontrolled Future Conditions**

Activity	ROG	PM_{10}	Ammonia	Methane	NOx
	(tons per year)				
EXISTING CONDITIONS (1999)					
Fugitive Dust (*Impact 4.2-3*)					
Land Preparation	--	1,241	--	--	--
Windblown Dust	--	1,577	--	--	--
Cattle Movement at Unpaved Corral[1]					
Scenario 1	--	1,686	--	--	--
Scenario 2	--	3,394	--	--	--
Scenario 3	--	251	--	--	--
Scenario 4	--	505	--	--	--
Manure Decomposition[2] (*Impacts ~~4.2-6, 7, 9~~ 4.2-5, 6, 8*)	1,694	--	--	14,804	--
Scenario 1	--	--	2,395	--	--
Scenario 2	--	--	9,733	--	--
Cattle Digestion (*Impact ~~4.2-9~~ 4.2-8)*	--	--	--	23,173	--
Vehicle Exhaust and Equipment Exhaust	unknown	unknown	--	--	unknown
TOTAL UNCONTROLLED FUTURE CONDITIONS (complete buildout of theoretical herd capacity)					
Fugitive Dust (*Impact 4.2-3*)					
Land Preparation	--	1,191	--	--	--
Windblown Dust	--	1,514	--	--	--
Cattle Movement at Unpaved Corral[1]					
Scenario 1	--	5,165	--	--	--
Scenario 2	--	10,400	--	--	--
Scenario 3	--	769	--	--	--
Scenario 4	--	1,548	--	--	--
Manure Decomposition[2] *(Impacts ~~4.2-6, 7, 9~~ 4.2-5, 6, 8*)	5,191	--	--	45,360	--
Scenario 1	--	--	7,338	--	--
Scenario 2	--	--	29,821	--	--
Cattle Digestion (*Impact ~~4.2-9~~ 4.2-8)*	--	--	--	71,000	--
Vehicle Traffic Exhaust (new dairies only)[3]	2.74	0.79	--	--	26.27
Dairy Equipment Exhaust[3]	22	14	--	--	258
TOTAL NET INCREASE IN EMISSIONS	**~~3,497~~ 3,522**	**~~405 to 3,371~~ 419 to 3,386**	**4,943 to 20,088**	**73,384**	**284**

Table 4.2-5a - *continued*

Notes: ROG = Reactive organic gases
PM_{10} = Particulate matter with an aerodynamic diameter of less than or equal to ten microns
-- = Not applicable
See Appendix D for air quality calculations.
NOx = Oxides of nitrogen.

[1] PM_{10} emission factors for dust at unpaved dairy corrals are currently unavailable from U.S. EPA or CARB. The PM_{10} emission factors for dust at cattle feedlots published by CARB (Scenarios 1 and 2) and CLAQC (USDA AAQTF) (Scenarios 3 and 4) were selected to conservatively estimate PM_{10} emissions at unpaved corrals as these factors are currently the most applicable ones available. Scenario 1 uses the CARB feedlot emission factor, excludes calves, and accounts for potential PM_{10} reduction during the wet season. Scenario 2 uses CARB's emission factor, includes calves, and is independent of rainfall effects. Scenario 3 uses the USDA's emission factor, excludes calves, and accounts for potential PM_{10} reduction during the wet season. Scenario 4 uses the USDA's emission factor, includes calves, and is independent of rainfall effects.

[2] Scenario 1 assumes the emission factor developed in the 1994 Development and Selection of Ammonia Emission Factors (Battye et al.); Scenario 2 assumes the emission factor developed by the University of California at Davis in 1998.

[3] Emissions based on operation of 52 5,000-milk cow dairies.

A comparison of air emissions generated under existing (1999) conditions with potential uncontrolled emissions from buildout of the theoretical herd is shown in Table 4.2-5a. A potential net increase (above existing conditions) in ROG [~~3,497~~ 3,522 tons per year (tons/year)], NOx (284 tons/year), PM_{10} (~~405~~ 419 to ~~3,371~~ 3,386 tons/year), ammonia (4,943 to 20,088 tons/year), and methane (73,384 tons/year) would be expected under uncontrolled conditions.

Air emissions controls required by the Element would significantly reduce the potential air emissions generated by management of the theoretical bovine herd. The controls include stabilization of unpaved areas (including roads and cattle corrals) to reduce PM_{10} emissions and advanced manure treatment technologies for the control of ROG, methane, hydrogen sulfide, and ammonia emissions. A comparison of the expected emissions of PM_{10}, ROG, and methane under existing conditions and under the provisions of the Element are presented in Table 4.2-5b. Calculation of the emissions estimated under the Element assumes that the control measures would reduce PM_{10} by 50 percent at the dairy facilities, but no reduction would be expected for emissions from cropland management. The calculations also assume that ROG and methane emissions from manure decomposition would be expected to be reduced by 50 percent at dairies required to implement advanced manure treatment technologies. Although the Element includes provisions to minimize methane generated from dairy cows (i.e., formed during enteric fermentation), the effectiveness of these controls cannot be quantified at this time. Similarly, advanced manure treatment would be expected to reduce ammonia and hydrogen sulfide but the effectiveness is not known.

Relative to emission estimates for the uncontrolled condition (Table 4.2-5a), implementation of the Element (Table 4.2-5b) would reduce the potential net increase in ROG by approximately 45 percent and PM_{10} by 40 to 50 percent. Although the overall reduction in the net increase of methane is approximately 12 percent, the net increase in emissions generated by manure decomposition would be reduced by 30 percent.

TABLE 4.2-5b: **Estimated Total Net Increase in Emissions from Project Operations for Future Conditions under the Element**

Activity	ROG	PM_{10}	Methane	NOx
	(tons per year)			
EXISTING CONDITIONS (1999)				
Fugitive Dust (*Impact 4.2-3*)				
Land Preparation	- -	1,241	- -	- -
Windblown Dust	- -	1,577	- -	- -
Cattle Movement at Unpaved Corral[1]				
Scenario 1	- -	1,686	- -	- -
Scenario 2	- -	3,394	- -	- -
Scenario 3	- -	251	- -	- -
Scenario 4	- -	505	- -	- -
Manure Decomposition[2] *(Impacts ~~4.2-6, 7, 9~~ 4.2-5, 6, 8)*	1,694	- -	14,804	- -
Scenario 1[3]	- -	- -	- -	- -
Scenario 2[3]	- -	- -	- -	- -
Cattle Digestion (*Impact ~~4.2-9~~ 4.2-8)*	- -	- -	23,171	- -
Vehicle Exhaust and Equipment Exhaust	unknown	unknown	--	unknown
TOTAL FUTURE CONDITIONS UNDER DAIRY ELEMENT (complete buildout of theoretical herd capacity)[3]				
Fugitive Dust (*Impact 4.2-3*)				
Land Preparation	- -	1,191	- -	- -
Windblown Dust	- -	1,514	- -	- -
Cattle Movement at Unpaved Corral[1]				
Scenario 1	- -	3,808	- -	- -
Scenario 2	- -	6,897	- -	- -
Scenario 3	- -	567	- -	- -
Scenario 4	- -	1,026	- -	- -
Manure Decomposition[2] *(Impacts ~~4.2-6, 7, 9~~ 4.2-5, 6, 8)*	~~3,627~~ 3,609	- -	~~31,693~~ 31,541	- -
Scenario 1[3]	- -	- -	- -	- -
Scenario 2[3]	- -	- -	- -	- -
Cattle Digestion (*Impact ~~4.2-9~~ 4.2-8)*	- -	- -	71,000	- -
Vehicle Traffic Exhaust (new dairies only)[4]	2.74	0.79	--	26.27
Dairy Equipment Exhaust[4]	22	14	--	258
TOTAL NET INCREASE IN EMISSIONS UNDER DAIRY ELEMENT	**~~1,933~~ 1,940**	**~~203 to 2,009~~ 218 to 2,024**	**~~64,718~~ 64,566**	**284**

[1] PM_{10} emission factors for dust at unpaved dairy corrals are currently unavailable from U.S. EPA or CARB. The PM_{10} emission factors for dust at cattle feedlots published by CARB (Scenarios 1 and 2) and CLAQC (USDA AAQTF) (Scenarios 3 and 4) were selected to conservatively estimate PM_{10} emissions at unpaved corrals as these factors are currently the most applicable ones available. Scenario 1 uses the CARB feedlot emission factor, excludes calves, and accounts for potential PM_{10} reduction during the wet season. Scenario 2 uses CARB's emission factor, includes calves, and is independent of rainfall effects. Scenario 3 uses the USDA's emission factor, excludes calves, and accounts for potential PM_{10} reduction during the wet season. Scenario 4 uses the USDA's emission factor, includes calves, and is independent of rainfall effects.

Table 4.2-5b - *continued*

[2] Scenario 1 assumes the emission factor developed in the 1994 Development and Selection of Ammonia Emission Factors (Battye et al.); Scenario 2 assumes the emission factor developed by the University of California at Davis in 1998.

[3] Total future conditions under the Element reflect the implementation of Policies DE 5.1c and 5.1e. Policy DE 5.1c requires 50% reduction in VS in treated manure and process water. The values shown here reflect a corresponding 50% reduction in ROG and methane released to the environment from further decomposition of treated manure and process water. Policy DE 8.1e requires the stabilization of unpaved corrals and other unpaved areas by use of water (expected efficiency of 50%) or chemical stabilizer/suppressant (expected efficiency of 75%). The values shown reflect a minimum stabilization of 50% in unpaved corrals.

[4] Emissions based on operation of 52 5,000-milk cow dairies.

TABLE 4.2-5c: **Total Uncontrolled Emissions from Operations at a Typical 500-, ~~735-~~ 705-, 2,000-, and 5,000-Milk Cow Dairy**

Activity	ROG	PM_{10}	Ammonia	Methane	NOx
	(tons per year)				
500-MILK COW DAIRY					
Fugitive Dust from Cattle Movement at Unpaved Corral (*Impact 4.2-3*)[1]					
Scenario 1	- -	7	- -	- -	- -
Scenario 2	- -	14	- -	- -	- -
Scenario 3	- -	1	- -	- -	- -
Scenario 4	- -	2	- -	- -	- -
Manure Decomposition[2] *(Impacts ~~4.2-6, 7, 9~~ 4.2-5, 6, 8)*	7	- -	- -	59	- -
Scenario 1	- -	- -	10	- -	- -
Scenario 2	- -	- -	39	- -	- -
Cattle Digestion (*Impact ~~4.2-9~~ 4.2-8)*	- -	- -	- -	93	- -
Vehicle Traffic Exhaust	0.01	0	- -	- -	0.05
Dairy Equipment Exhaust	0.4	0.3	- -	- -	5.0
~~735-~~ 705-MILK COW DAIRY					
Fugitive Dust from Cattle Movement at Unpaved Corral (*Impact 4.2-3*)[1]					
Scenario 1	- -	10	- -	- -	- -
Scenario 2	- -	~~20~~ 19	- -	- -	- -
Scenario 3	- -	1	- -	- -	- -
Scenario 4	- -	3	- -	- -	- -
Manure Decomposition[2] *(Impacts ~~4.2-6, 7, 9~~ 4.2-5, 6, 8)*	10	- -	- -	~~87~~ 84	- -
Scenario 1	- -	- -	14	- -	- -
Scenario 2	- -	- -	~~57~~ 55	- -	- -
Cattle Digestion (*Impact ~~4.2-9~~ 4.2-8)*	- -	- -	- -	~~137~~ 131	- -
Vehicle Traffic Exhaust	0.01	0	- -	- -	0.07
Dairy Equipment Exhaust	0.4	0.3	- -	- -	5.0

Table 4.2-5c - *continued*

Activity	ROG	PM_{10}	Ammonia	Methane	NOx
	(tons per year)				
2,000-MILK COW DAIRY					
Fugitive Dust from Cattle Movement at Unpaved Corral (*Impact 4.2-3*)[1]					
Scenario 1	--	27	--	--	--
Scenario 2	--	54	--	--	--
Scenario 3	--	4	--	--	--
Scenario 4	--	8	--	--	--
Manure Decomposition[2] *(Impacts ~~4.2-6, 7, 9~~ 4.2-5, 6, 8)*	27	--	--	238	--
Scenario 1	--	--	38	--	--
Scenario 2	--	--	156	--	--
Cattle Digestion (*Impact ~~4.2-9~~ 4.2-8)*	--	--	--	372	--
Vehicle Traffic Exhaust	0.02	0.01	--	--	0.2
Dairy Equipment Exhaust	0.4	0.3	--	--	5.0
5,000-MILK COW DAIRY					
Fugitive Dust from Cattle Movement at Unpaved Corral (*Impact 4.2-3*)[1]					
Scenario 1	--	68	--	--	--
Scenario 2	--	136	--	--	--
Scenario 3	--	10	--	--	--
Scenario 4	--	20	--	--	--
Manure Decomposition[2] *(Impacts ~~4.2-6, 7, 9~~ 4.2-5, 6, 8)*	68	--	--	594	--
Scenario 1	--	--	96	--	--
Scenario 2	--	--	390	--	--
Cattle Digestion (*Impact ~~4.2-9~~ 4.2-8)*	--	--	--	929	--
Vehicle Traffic Exhaust	0.05	0.02	--	--	0.5
Dairy Equipment Exhaust	0.4	0.3	--	--	5.0
Project Significance Threshold	**10**	**15**	**--**	**--**	**10**

[1] PM_{10} emission factors for dust at unpaved dairy corrals are currently unavailable from U.S. EPA or CARB. The PM_{10} emission factors for dust at cattle feedlots published by CARB (Scenarios 1 and 2) and CLAQC (USDA AAQTF) (Scenarios 3 and 4) were selected to conservatively estimate PM_{10} emissions at unpaved corrals as these factors are currently the most applicable ones available. Scenario 1 uses the CARB feedlot emission factor, excludes calves, and accounts for potential PM_{10} reduction during the wet season. Scenario 2 uses CARB's emission factor, includes calves, and is independent of rainfall effects. Scenario 3 uses the USDA's emission factor, excludes calves, and accounts for potential PM_{10} reduction during the wet season. Scenario 4 uses the USDA's emission factor, includes calves, and is independent of rainfall effects.

[2] Scenario 1 assumes the emission factor developed in the 1994 Development and Selection of Ammonia Emission Factors (Battye et al.); Scenario 2 assumes the emission factor developed by the University of California at Davis in 1998.

To characterize the expected air emissions from dairies of various sizes, Table 4.2-5c presents the estimated emissions of PM_{10}, ROG, NOx, ammonia, and methane from typical (i.e., flushed freestall barns for milk cows, unpaved corrals for support stock, anaerobic lagoons for manure treatment) dairies managing 500, ~~735~~ 705, ~~1,000~~ 2000, and 5,000 milking cows and associated support stock. Estimates of emissions related to exhaust from dairy operational equipment and vehicular traffic generated by the dairies are also presented. The ~~735~~ 705-milk cow dairy was included because that size dairy would be expected to generate ROG emissions (including estimated emissions from dairy equipment and vehicular traffic generated from dairy operations) of 10 tons/year, the SJVUAPCD threshold for ROG emissions from a stationary source. The emission estimates presented in Table 4.2-5c assume that no controls on emissions are implemented at "typical" dairies.

Impact 4.2-1

Construction activities associated with new or expanded dairies would result in a short-term increase in PM_{10} emissions from fugitive dust sources. This is a less-than-significant impact.

Construction activities associated with development of a new or expanded dairy could 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 would be subject to wind erosion. These activities would result in a substantial short-term increase in localized PM_{10} emissions from fugitive dust emissions.

The level of PM_{10} emissions that could be generated from construction activities would be dependent on the surface area being disturbed, grading rate, construction duration, and weather conditions. The highest potential for PM_{10} emissions from fugitive dust would occur when the exposed soils are dry, during late spring, summer, and early fall.

The San Joaquin Valley Air Basin is currently in nonattainment for the Federal and State PM_{10} standards. The SJVUAPCD considers PM_{10} 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_{10} 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.

Regulation VIII control measures are required for all construction projects and aim to reduce the amount of PM_{10} emissions generated from fugitive dust sources. As discussed earlier, the SJVUAPCD ~~is currently in the process of establishing~~ has recently adopted

amendments to the ~~current~~ 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. ~~Proposed~~ 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, ~~proposed~~ rule 8081 would now address 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 (SJVUAPCD, 2000).

Enhanced and additional control measures provide a greater degree of PM_{10} reduction compared to Regulation VIII. According to SJVUAPCD, enhanced control measures are applicable to construction projects that would be expected to generate large PM_{10} emissions and additional control measures are applicable for projects with large construction sites, located near receptors, or that for other reasons warrant additional emissions reductions.[51]

Policy DE 5.1d of the Element requires compliance with the SJVUAPCD Regulation VIII, ~~Rule 8020~~ rules during construction of a dairy facility to control PM_{10} 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.

The owners/operators of a proposed new dairy development/~~redevelopment~~ or expansion are required to implement the ~~following~~ most recently adopted Regulation VIII rules established by SJVUAPCD for construction activities. ~~enhanced and additional control measures as deemed necessary by the Kings County Planning Agency with consultation, if needed, from the SJVUAPCD:~~

- ~~Limit traffic speeds on unpaved roads to 15 miles per hour;~~
- ~~Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent;~~
- ~~Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site;~~
- ~~Install temporary wind breaks at windward side(s) of the construction areas;~~

[51] Based on the Guide for Assessing and Mitigating Air Quality Impacts established by the San Joaquin Valley Unified Air Pollution Control District; the Guide does not provide a quantitative threshold that would trigger the implementation of enhanced and additional control measures. The need for enhanced and additional control measures would be determined on a case-by-case basis.

- ~~Suspend excavation and grading activity when winds exceed 20 miles per hour; and~~

- ~~Limit the areal extent of land subject to excavation, grading, and other construction activity at any one time.~~

Implementation of **Policy DE 5.1d** of the Element would reduce short-term construction-related PM_{10} emissions from fugitive dust to a less-than-significant level.

Mitigation Measure 4.2-1

None required.

Impact 4.2-2

Construction activities associated with new or expanded dairies would result in short-term exhaust emissions from construction equipment. This is a less-than-significant impact.

Heavy-duty construction equipment such as scrapers, graders, trenchers, and earth movers that would be used during the development of a new or expanded dairy would 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_{10}.

The amount of daily exhaust emissions that could result from construction equipment would be dependent on the construction duration, work period, selected construction equipment, and construction activities. Short-term exhaust emissions (ROG, NOx, and PM_{10}) generated during construction-related activities could expose any nearby residents and other sensitive receptors located downwind to temporary substantial pollutant concentrations. The Element addresses the short-term impact of exhaust emissions by including **Policy DE ~~5.1g~~ 5.1f**.

The provisions of the policy require the owner/operator of a proposed dairy development/~~redevelopment~~ or expansion to ~~ensure that~~ follow measures ~~developed by the SJVUAPCD are implemented, as appropriate,~~ to control ~~exhaust~~ emissions (ROG, NOx, and PM_{10}) generated from heavy-duty construction equipment as required by the SJVUAPCD. ~~These measures include:~~

- ~~The idling time of all construction equipment used at the site shall not exceed ten minutes;~~

- ~~Minimize the hours of operation of heavy duty equipment and/or the number of equipment in use at one time;~~