

Eastern Kern Air Pollution Control District

Rule 402.2 AGRICULTURAL OPERATIONS

STAFF REPORT

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Prepared by

Glen Stephens, P.E.
Air Pollution Control Officer

Table of Contents

INTRODUCTION	1
BACKGROUND	1
RULE DEVELOPMENT	2
REQUIREMENTS	2
EXEMPTIONS	3
ADMINISTRATIVE REQUIREMENTS	4
RULE CONSISTENCY ANALYSIS	7
PM ₁₀ REDUCTIONS	8
COST EFFECTIVENESS ANALYSIS	11
ENVIRONMENTAL IMPACTS	12
SOCIOECONOMIC IMPACTS.....	13
RULE APPROVAL PROCESS.....	13
APPENDIX A: DRAFT RULE 402.2, AGRICULTURAL OPERATIONS	A-1
APPENDIX B: CONSERVATION MANAGEMENT PRACTICES (CMP) LIST	B-1

I. INTRODUCTION

The Eastern Kern Air Pollution Control District (District) is proposing to adopt Draft Rule 402.2, Agricultural Operations. Draft Rule 402.2 is designed to reduce fugitive particulate matter (with an aerodynamic diameter smaller than or equal to ten microns- PM10) emissions from agricultural operations. The District has 3 attainment classifications:

District Portion	Attainment Status
Indian Wells Planning Area	Attainment/ Maintenance
Cummings and Kern River Valley Areas	Nonattainment/Serious
Balance of District Jurisdiction	Attainment/Unclassifiable

As noted above, the District has a serious nonattainment area for the National Ambient Air Quality Standard (NAAQS) for PM₁₀. The federal Clean Air Act requires areas designated as serious nonattainment for PM₁₀ to implement Best Available Control Measure (BACM) and Best Available Control Technology (BACT) on all significant sources of emissions. It has been determined agricultural operations are a significant source of PM₁₀ emissions because of uncontrolled grading and tilling operations. Agricultural operations over the past twenty years have been minimal; however, with new crops (pistachios, lettuce, and other organic products), agricultural operations in the District have been increasing. Unfortunately, voluntary use of BACT or BACM have not been utilized. Proposed provide BACM to agricultural operation to minimize PM₁₀ emissions.

Appendix A: Copy of proposed Draft Rule 402.2, Agricultural Operations.

II. BACKGROUND

District staff has identified agricultural operations as a significant source of PM₁₀ emissions, and a source where the District can reduce PM₁₀ emissions from these operations. Agricultural operation is defined as any activity or portion of land associated with the commercial growing of crops or the raising of fowl or animals. Proposed Rule 402.2 (Agricultural Operations) is part of the District's particulate matter attainment strategy. In this strategy, Rule 402.2 would be utilized implement BACM on agricultural operations and to achieve PM₁₀ emission reductions and minimize increase in PM₁₀ emissions caused by new agricultural operations. District Staff intends to submit Rule 402.2 to the District Governing Board for consideration of adoption no later than the first quarter of 2015.

Other District Rules and Regulations

There are 35 air pollution control/management districts in California. The following 17 districts have Polyester Resin rules:

Air District	Rule/Regulation No.
Bay Area AQMD	Regulation 2, Rule 10
Butte County AQMD	Rule 450
Imperial County APCD	Rule 217/800
Sacramento Metro AQMD	Rule 496
San Joaquin Valley APCD	Rule 4550
South Coast AQMD	Rule 233
Tehama County APCD	Rule 4:42
Yolo-Solano AQMD	Regulation 2, Rule 30

In order to promote regulatory uniformity throughout Kern County, proposed Draft Rule 402.2 is based on San Joaquin Air Pollution Control District's (SJVAPCD) Rule 4550, Conservation Management Practices, Re-adopted August 19, 2004.

III. RULE DEVELOPMENT

The purpose of this Rule is to limit fugitive dust emissions from agricultural operations that exceed 50 acres. The Rule applies to commercial agricultural operations. Agricultural operation is defined in this rule as any activity or portion of land associated with the commercial growing of crops or the raising of fowl or animals.

IV. REQUIREMENTS

Section IV, Requirements of Draft Rule 402.2 specifies the requirements for Agricultural Operations that will be effective upon full implementation of the rule. The proposed requirements are equivalent to those listed in SJVAPCD Rule 4550 (Conservation Management Practices). Staff has added a 6-month full compliance schedule to allow time for rule dissemination time for Staff to review and approve Conservation Management Plans. Staff believes there will be minimal resistance, because SJVAPCD has implemented Conservation Management Practices since 2004. However, because of increased crop development in the South East Desert region, methodologies to reduce windblown dust have to be implemented to minimize PM₁₀ emissions in the region.

A. Submittal of Conservation Management Practice Plans

1. An owner/operator shall prepare and submit a CMP Application for each agricultural operation site. A CMP Application approved by the APCO shall constitute a CMP Plan.
2. Except as provided by Section IV.D of Rule 402.2, an owner/operator shall implement the CMPs as contained in the CMP Plan approved pursuant to Section V for each agricultural operation site no later than ten (10) days after notification by the APCO of the approval of the CMP Application.
3. An owner/operator that discontinues the implementation of a CMP as committed to in a CMP Plan or makes other changes that are inconsistent with the CMP Plan shall comply with the requirements of Section V.C.4.

B. Conservation Management Practice

The list of Conservation Management Practices (CMP) are be listed in Appendix B below; however, the list of CMP will be included as District policy instead of part of the District Rule. The policy will be approved by District Board of Directors prior to use. Additionally, several operations (poultry, dairy, and feedlot) are not well established within the District; however, there is a possibility these operations may established within the District. Therefore, CMP for these non-established operations are included in the list of CMP to account for possible industry growth.

V. EXEMPTIONS

Section III, Exemptions of Draft Rule 402.2 specifies the exemptions for Agricultural Operations that will be effective upon full implementation of the rule. The proposed exemptions are similar to those listed in SJVAPCD Rule 4550 (Conservation Management Practices). Staff reduced the minimum acreage for rule exemption from 100-acres to 10-acres. Full list of exemptions are listed below:

- A. Agricultural operation site where the total acreage of all agricultural parcels is less than 10 acres excluding animal feeding operations (AFO) and exempted lands (pursuant to Section III.A.2 thru Section III.A.5 of Rule 402.2)
- B. Woodland and wasteland not actually under cultivation or used for pasture.
- C. Land placed in the Conservation Reserve Program meeting the definition and criteria set by the National Resource Conservation Service (NRCS).
- D. Agricultural operation parcel used for the purpose of:

1. Propagating young trees, shrubs, and other miscellaneous crops for transplanting, and exhibiting plants under controlled conditions inside a building with walls and roof, or
 2. Providing grazing rangeland or pasture, or
 3. Forestry, including but not limited to timber harvest operations, silvicultural practices, forest management burning, or forest protection practices.
- E. The provisions of Rule 402.2 (except for the recordkeeping provisions of Section V.E.2 of Rule 402.2) shall not apply to any of the following sources within an agricultural operation site:
1. An AFO of mature dairy cows with less than 500 mature dairy cows, whether milked or dry, or
 2. An AFO of cattle, other than mature dairy cows or veal calves, with less than 190 cattle, other than mature dairy cows or veal calves. Cattle includes, but is not limited to, heifers, steers, bulls and cow/calf pairs, or
 3. An AFO of turkeys with less than 55,000 turkeys, or
 4. An AFO of chickens, other than laying hens, with less than 125,000 chickens (other than laying hens), or
 5. An AFO of laying hens with less than 82,000 laying hens, or
 6. An AFO other than an AFO for mature dairy cows, cattle, turkeys, chickens, or laying hens.

VI. ADMINISTRATIVE REQUIREMENTS

Section V, Administrative Requirements of Draft Rule 402.2 specifies the administrative requirements for Agricultural Operations that will be effective upon full implementation of the rule. The proposed administrative requirements are similar to those listed in SJVAPCD Rule 4550 (Conservation Management Practices). The administrative requirements are summarized below:

- A. CMP Application Preparation: An owner/operator shall prepare a CMP Application for each agricultural operation site. Each CMP Application shall include, but is not limited to, the following information:
1. The name, business address, and phone number of the owner/operator responsible for the preparation and the implementation of the CMP Plan.
 2. The signature of the owner/operator and the date that the application was signed.
 3. A plot plan or map which contains the following information:
 - a. The location of the agricultural operation site,
 - b. The location of each agricultural parcel on the agricultural operation site,
 - c. The location of unpaved roads and unpaved equipment/traffic areas to be covered by the CMP Plan,

- d. The location where the CMP will be implemented.
 - e. The plot plan or map shall be maintained on-site and made available to the APCO upon request.
 4. The following information, for each agricultural parcel of the agricultural site:
 - a. The CMPs, selected (pursuant to Section V.B of Rule 402.2), and
 - b. The crop, AFO, or other use of the agricultural parcel.
 5. Information necessary to calculate emission reductions including, but not limited to:
 - a. The crop or animals and total crop acreage or number of animals and the total length (miles) of unpaved roads, and the total area (acres or square feet) of the unpaved equipment and traffic areas to be covered by the CMP Plan, and
 - b. Other information as determined by the APCO.
- B. CMP Selection: An owner/operator shall select one (1) CMP from the CMP list for each of the applicable CMP categories for each agricultural parcel of an agricultural operation site, except as provided below:
1. If an agricultural operation site or agricultural parcel has crop rotation, an owner/operator shall select one (1) CMP from the CMP list for each of the applicable CMP categories for each rotated crop type.
 2. If a CMP can only be selected for implementation on a portion of an agricultural operation site, an owner/operator shall select an additional CMP within the CMP category to be implemented on the remaining acreage or remaining AFO.
 3. An owner/operator may select a substitute CMP from another CMP category when no feasible CMP can be identified from one category. This provision shall not apply for the unpaved road, and unpaved vehicle/equipment traffic area CMP categories.
 - a. An owner/operator may identify or develop a new CMP not on the CMP list to be used to comply with the requirements of this rule. Prior to use of the new CMP the owner/operator must obtain the interim approval of the APCO to use a new CMP to meet the requirements of Section V.B. The owner/operator shall demonstrate that the new CMP achieves PM₁₀ emission reductions that are at least equivalent to other CMPs on the CMP list that could be selected for the applicable operation.
 - b. The APCO will perform an independent analysis of proposed CMPs to determine that they achieve PM₁₀ emission reductions that are at least equivalent to other CMPs on the CMP list that could be selected for the applicable operation. This analysis shall be made using the most recent emission factors provided by EPA or CARB when available. CMPs that are not shown to achieve equivalent emission reductions will be disapproved. The District shall maintain a list of CMPs determined to be equivalent under this section.

C. CMP Application Submission: An owner/operator shall submit a complete CMP Application to the APCO (pursuant to Section V.A of Rule 402.2) in accordance with the following schedule:

1. Within 210-days after adoption of this rule, for an agricultural operation existing upon adoption of this rule;
2. Within 180-days after the adoption of this rule, for an agricultural operation or agricultural parcel(s) that are acquired and become subject to the provisions of Section IV after the adoption of this rule;
3. Within 60 days of any modification (operational, administrative, or other) that necessitates the revision of the CMP Plan. A modification includes, but is not limited to, the following:
 - a. Administrative changes to any information provided pursuant to Section V,
 - b. Implementation of a CMP other than the CMP listed in a CMP Plan,
 - c. Change of the crop or AFO on an agricultural parcel, and
 - d. Any other changes as determined by the APCO.

D. CMP Application Review and Evaluation

1. The APCO shall:
 - a. Review the CMP Application and determine whether the submitted CMP Application is complete. Completeness shall be determined by evaluating whether the CMP Application meets the requirements of Section V.A of Rule 402.2 and Rule 301.I
 - b. Notify the owner/operator in writing of the determination that the CMP Application is, or is not, complete and request the owner/operator to provide additional information within 30 days.
 - c. Evaluate and either approve or disapprove the CMP Application and provide written notification to the owner/operator within 180 days after receipt of the complete CMP Application, of the approval or disapproval of the CMP Application.
2. A CMP Application for a modification to a CMP Plan (pursuant to Section V.C.4.a of Rule 402.2) shall be deemed approved as submitted unless written comments are transmitted by the APCO to the owner/operator within 30 days of receipt of the CMP application.
3. A CMP Application for a modification to a CMP Plan (pursuant to Sections V.C.4.b, V.C.4.c, and V.C.4.d of Rule 402.2) shall be deemed conditionally approved as submitted unless written comments are transmitted by the APCO to the owner/operator within 30 days of receipt of the CMP application.
4. The approval of a CMP Application shall not serve to excuse the owner or operator from complying with law, nor shall it excuse any violation.

E. Recordkeeping: An owner/operator shall, upon request, make available to the APCO the records required to be kept pursuant to Section V.E.2 and Section V.E.2 of Rule 402.2.

1. An owner/operator subject to Section V shall maintain the following records for a minimum of five (5) years:
 - a. A copy of each CMP Application and CMP Plan.
 - b. Supporting information necessary to confirm the implementation of the CMPs.
 2. An owner/operator claiming exemption pursuant to Section III shall maintain records for a minimum of five (5) years that demonstrate that the agricultural operation site or agricultural parcel qualified for the exemption.
- F. Loss of Exemption: An owner/operator of an agricultural operation site or agricultural parcel that becomes subject to the provisions of Section IV of Rule 402.2, through loss of exemption, shall comply with all applicable provisions of this rule pursuant to the schedule in Section V.C. of Rule 402.2

VII. RULE CONSISTENCY ANALYSIS

Pursuant to Section 40727.2 of the California Health and Safety Code, prior to adopting, amending, or repealing a rule or regulation, the District is required to perform a written analysis that identifies and compares the air pollution control elements of Draft Rule 402.2 with the corresponding elements of existing or proposed District and EPA rules, regulations, and guidelines that apply to the same source category. Rule elements that were analyzed are emission limits or control efficiency, operating parameters and work practices, monitoring and testing, and recordkeeping and reporting requirements.

Results of Consistency Analysis

District Rules

Facilities subject to Draft Rule 402.2 are not subject to any other District Rules and Regulations. Proposed Rule is developed for agricultural operations; historically, agricultural operation were not subject to District Rules and Regulations.

EPA Rules and Regulations

A. State and Federal Regulations

Currently there are no State regulations specifically to address anthropological dust emissions from agricultural facilities. There are State regulations addressing PM₁₀ emissions from agricultural engines and agricultural burning operations. However, farming in the desert is a regional phenomenon as opposed to a statewide issue. With the increase of desert crops like pistachios, this type of farming is expected to increase.

Currently there are no EPA regulations (Code of Federal Regulations {CFR} Title 40) specifically to address anthropological dust emissions from agricultural facilities. EPA regulations are similar to State regulations for identical reasons.

B. EPA - Alternative Control Technology (ACT)

Currently no EPA ACT guidance documents to address anthropological dust emissions from agricultural facilities.

C. Standards of Performance for New Stationary Sources (NSPS)

Currently no NSPS guidance documents to address anthropological dust emissions from agricultural facilities

D. National Emission Standards for Hazardous Air Pollutants (NESHAP) and Maximum Achievable Control Technologies (MACTs)

Currently no NESHAP guidance documents to address anthropological dust emissions from agricultural facilities.

VIII. PM₁₀ EMISSION REDUCTIONS

ARB emissions inventory shows following state-wide PM₁₀ emissions:

Operation		PM-10 (tons/day)
Farming Operations:	Tilling Dust	67.38
	Harvesting Operations Dust	56.80
	*Livestock Husbandry	20.77
Fugitive Dust:	Dust – Agricultural Land (non-pasture)	77.11
	Dust From Pasture Lands	13.17
	Dust From Unpaved Roads	229.97
Total		465.20

*Livestock Husbandry includes four sub-categories (dairy cattle waste, range cattle waste, feedlot cattle waste, and poultry animal waste).

Clearly, from these agricultural operations a significant amount of PM₁₀ emissions are generated. Draft Rule 402.2 provides a variety of control options.

The Eastern Kern APCD has the following PM₁₀ emissions for agricultural sources:

Operation		PM-10 (tons/day)
Farming Operations:	Tilling Dust	0.09
	Harvesting Operations Dust	0.16
	*Livestock Husbandry	0.00
Fugitive Dust:	Dust – Agricultural Land (non-pasture)	4.40
	Dust From Pasture Lands	0.00
	Dust From Unpaved Roads	0.31
Total		4.96

For the District, there are significant PM₁₀ emissions from agricultural sources. This is a growth industry for the Southeast (Mojave) Desert Region.

A. Assumptions Used for Calculating Emission Reductions

1. For this analysis, agricultural operations subject to Rule 402.2 are expect to achieve an 80% compliance rate for 2015 and beyond. A high compliance rate is expected because identical technology is utilized in the San Joaquin valley portion of Kern County.
2. Currently, based on the Eastern Kern APCD emissions inventory, there are four categories of CMP that can be utilized in the District (based on available industry – District does not have large animal feeding operations, dairy farms, etc.). Categories available are: land preparation, harvesting, unpaved roads, and unpaved equipment and traffic areas. District staff used the same Control Efficiencies San Joaquin Valley APCD used in developing their Rule 4550 (Conservation Management Practices). Listing of CMP category and corresponding control efficiency are listed below:

CMP Category	Control Efficiency (percentage)
Land Preparation	75
Harvesting	65
Unpaved Roads	80
Unpaved Equipment and Traffic areas	85
Totals:	

B. Emission Reduction Calculations:

Emissions Reductions for each CMP category is the product of PM10 Emissions for each category Control Efficiency for each category (see Equation 1 below):

CMP Category	PM-10 Emission (tons/day)	Control Efficiency (percentage)	Emission Reductions (tons/day)
Land Preparation	0.90	75	0.675
Harvesting	0.16	65	0.104
Unpaved Roads	0.31	80	0.248
Unpaved Equipment and Traffic areas	4.4	85	3.74
Totals:	5.77		4.77

Equation 1:

Where: PM-10 Emissions (tons/day) = PM10E
 Control Efficiency (%) = CE
 Emissions Reductions (tons/day) = ER

$$ER \left(\frac{\text{tons}}{\text{day}} \right) = PM10E \left(\frac{\text{tons}}{\text{day}} \right) \times \frac{CE}{100}$$

Sum of Emission Reductions for each category is 4.77- tons/day (as shown above)

Emission Reductions from implementation of Rule 402.2 is product of the Sum of the Emission Reductions for each category and the Compliance Factor (80%).

$$4.77 \text{ (tons/day)} \times 0.80 = \underline{\underline{3.81 \text{ (tons/day)}}}$$

Equation 2

Where: Rule Emissions Reductions (tons/day) = RER
 Compliance Factor (%) = CF
 Emissions Reductions (tons/day) = ER

$$RER \left(\frac{\text{tons}}{\text{day}} \right) = ER \left(\frac{\text{tons}}{\text{day}} \right) \times \frac{CF}{100}$$

$$3.81 \text{ (tons/day)} \times 365 \text{ (days/year)} = \underline{\underline{1390.65 \text{ (tons/year)}}}$$

3.81-tons/day of PM₁₀ emission reductions converts to an annual emission reduction of 1390-tons/year of PM₁₀ emissions reductions.

IX. COST EFFECTIVENESS ANALYSIS

Cost Effectiveness is, basically, the cost implementing a regulation (rule) in relation to the amount of emissions reductions generated by that rule; expressed in dollars per ton (\$/ton). The cost can include equipment costs, engineering design costs, additional labor cost and maintenance costs. The cost effectiveness should include and monetary savings generated by the rule implementation.

The cost effectiveness of implementing CMPs depends, largely, on the current farming/operating system. Growers/operators may implement certain CMPs more easily than others; additionally, someone may choose a CMP over another for a myriad of reasons. Selection of CMPs will determine the cost effectiveness, and CMP selection will depend on the industry within the District.

A. Assumptions Used for Calculating Cost Effectiveness

The annual cost of a CMP for a specific Standard Industrial Code (SIC) is based on information in the San Joaquin Valley APCD Staff Report for Rule 4550. According to the Rule 4550 Staff Report, the annual cost of implementing CMP per is the following:

SIC Group No.	SIC Name	CMP Cost (\$/Year)	
		Low Cost Scenario	High Cost Scenario
SIC 011	Cash Grains	(\$49,000)	\$3,813,000
SIC 013	Field crops (except cash grains)	(\$42,000)	\$7,260,000
SIC 016	Vegetable and melons	(\$247,000)	\$1,536,000
SIC 017	Fruit and tree nuts	(\$235,000)	\$8,348,000
SIC 021	Livestock (except dairy and poultry)	\$20,000	\$890,000
SIC 024	Dairy Farms	\$449,000	\$8,733,000
SIC 025	Poultry and egg	\$56	\$276,000

(Parentheses indicates savings)

District does not currently have any significant cash grain (wheat, rice, corn soybean, etc.) operations, livestock operations (including dairy, poultry, and egg farms). Additionally, the District has limited alfalfa and grass seed farms; therefore, a 0.1 factor shall be applied to field crops (except cash grains).

B. Calculating Cost Effectiveness

The annual cost of a CMP for a specific Standard Industrial Code (SIC) for the District is the following:

SIC Group No.	SIC Name	CMP Cost (\$/Year)	
		Low Cost Scenario	High Cost Scenario
SIC 013	Field crops (except cash grains)	(\$4,200)	\$726,000
SIC 016	Vegetable and melons	(\$247,000)	\$1,536,000
SIC 017	Fruit and tree nuts	(\$235,000)	\$8,348,000
Total:		(\$486,000)	(\$10,610,000)

(Parentheses indicates savings)

Cost effectiveness for low and high CMP Scenarios are the following:

Low Cost Scenario:

-\$486,200/year/1390.65 (tons/year) = **\$349/ton – Cost Savings**

High Cost Scenario:

\$10,610,000/year/1390.65 (tons/year) = **\$7,622/ton – Cost Increase**

C. Results

The preliminary cost affective analysis shows a range of \$349 in savings to \$7,622 in cost per ton of PM₁₀ reduced per year. Clearly, the low cost option is cost effective; additionally, the high cost option, in accordance with accepted rule development policies, is considered reasonable (e.g. cost effective)

X. ENVIRONMENTAL IMPACTS

Both the California Environmental Quality Act (CEQA) and ARB policy require an evaluation of the potential adverse environmental impacts of proposed projects. The intent of Draft Rule 402.2 is to protect public health by reducing the public's exposure to potentially harmful PM₁₀ emissions. An additional consideration is the impact that the proposed rule may have on the environment. District has determined that no significant adverse environmental impacts should occur as a result of adopting Draft Rule 402.2.

Pursuant to the Section 15061, Subsections (2) & (3) of the CEQA Guidelines, staff will prepared and file a Notice of Exemption for this project upon adoption.

XI. SOCIOECONOMIC IMPACTS

CHSC Section 40728.5 exempts districts with a population of less than 500,000 persons from the requirement to assess the socioeconomic impacts of proposed rules. Eastern Kern County population is below 500,000 persons.

XII. RULE APPROVAL PROCESS

District will be accepting written comments and concerns from persons interested in Draft Rule 402.2 for a period of 30 days following the workshop September 16, 2014. District anticipates Draft Rule 402.2 will be considered for adoption by the Board at the November 2014 Board Hearing.

APPENDIX A:
DRAFT RULE 402.2
AGRICULTURAL OPERATIONS

RULE 402.2 Agricultural Operations - Adopted X/X/XXXX

I. Applicability

The purpose of this rule is to reduce particulate matter (PM) and dust emissions from agricultural operations.

II. Definitions

A. Administrative change: A change to a CMP Plan that

1. Corrects typographical errors; or
2. Identifies a change in the name, address, or phone number of any person identified in the CMP Plan, or provides a similar minor administrative change which has no effect on the selected CMPs and does not change any information that could be used to determine emissions reduction; or
3. Allows for the change of ownership or operational control of an agricultural operation site or agricultural parcel.

B. Agricultural Operation: The growing and harvesting of crops or the raising of fowl or animals, for the primary purpose of earning a living, or of conducting agricultural research or instruction by an educational institution.

C. Agricultural Operation Site: One or more agricultural parcels that meet the following:

1. Are under the same or common ownership or operation, or which are owned or operated by entities which are under common control; and
2. Are located on one or more contiguous or adjacent properties wholly within the District jurisdiction.

D. Agricultural Parcel: A portion of real property, including, but not limited to, cropland, and animal feeding operation (AFO) used by an owner/operator for carrying out a specific agricultural operation. Roads, vehicle/equipment traffic areas, and facilities, on or adjacent to the cropland or AFO are part of the agricultural parcel.

E. Air Pollution Control Officer (APCO): Air Pollution Control Officer of the Eastern Kern Air Pollution Control District or his

F. Animal Feeding Operation (AFO): A lot or facility where animals have been, are, or will be gathered, fed, stabled, for a total of 45 days or more in any 12 month period and where crops, vegetation, forage growth, or post-harvest residues are not sustained over any portion of the lot or facility (as defined in 40 CFR 122.23 (b) (1)).

G. Board: As defined in Rule 102 (Definitions).

402.2 Staff Report – Proposed Rule

- H. Conservation Management Practice (CMP): An activity or procedure that reduces air pollutants normally emitted by, or associated with, an agricultural activity.
- I. Conservation Management Practice Application (CMP Application): A document prepared and submitted by the owner/operator of an agricultural operation site that lists the selected CMPs for implementation. The CMP application also contains, but is not limited to, contact information for the owner/operator, and a site plan or map describing the agricultural operation site and locations of agricultural parcels where CMPs will be implemented and other information describing the extent, duration of CMP implementation and other information needed by the District to calculate emission reductions.
- J. Conservation Management Practice Category (CMP Category): A grouping, including, but not limited to, agricultural activities related to land preparation, harvesting, handling and raising of fowl or animals, and the use of agricultural unpaved roads, and unpaved vehicle/equipment traffic areas. The CMP category “other” includes CMPs to reduce windblown emissions and agricultural burning emissions.
- K. Conservation Management Practice List (CMP List): The list of CMPs by CMP categories as approved by the District Board on May 20, 2004.
- L. Conservation Management Practice Plan (CMP Plan): A CMP Application approved by the APCO.
- M. Conservation Management Practice Program (CMP Program): A District program with the purpose of reducing air pollutants from agricultural operation sites.
- N. Contiguous or Adjacent Property: As defined in Rule 210.1 (New and Modified Stationary Source Review Rule).
- O. District: As defined in Rule 102 (Definitions).
- P. Fugitive Dust: As defined in Rule 102 (Definitions).
- Q. Mature Dairy Cow: A cow that has had its first calf.
- R. NRCS: The United States Department of Agriculture Natural Resource Conservation Service.
- S. Owner/Operator: Includes, but is not limited to, any person who leases, supervises, or operates equipment, or owns/operates a fugitive dust source, in addition to the normal meaning of owner or operator.
- T. Particulate Matter: As defined in Rule 102 (Definitions).
- T. Paved Road: Any road/area that is covered by concrete, asphaltic concrete, asphalt, or other materials which provides structural support for vehicles.

402.2 Staff Report – Proposed Rule

- V. PM₁₀: As defined in Rule 210.1 (New and Modified Stationary Source Review Rule).
- W. Road: Any road or street, highway, freeway, alley, way, access easement or driveway.
- X. Eastern Kern Air Pollution Control District: As defined in Rule 102 (Definitions).
- Y. Unpaved Road: Any road that is not covered by one of the materials described in the paved road definition.
- Z. Unpaved Vehicle/Equipment Traffic Area: Any nonresidential area that is not covered by asphalt, recycled asphalt, asphaltic concrete, concrete, or concrete pavement that is used for fueling and servicing; shipping, receiving and transfer; or parking or storing equipment, haul trucks, vehicles, and any conveyances.
- AA. Vehicle: As defined in Rule 102 (Definitions).

III. Exemptions

- A. The provisions of this rule, except for the recordkeeping provisions of Section V.E.2, shall not apply to any of the following sources:
 - 1. Agricultural operation site where the total acreage of all agricultural parcels is less than 10 acres excluding the AFO and exempted lands pursuant to Section III.A.2 thru Section III.A.5.
 - 2. Woodland and wasteland not actually under cultivation or used for pasture.
 - 3. Land placed in the Conservation Reserve Program meeting the definition and criteria set by the NRCS.
 - 4. Agricultural operation parcel used for the purpose of:
 - a. Propagating young trees, shrubs, and other miscellaneous crops for transplanting, and exhibiting plants under controlled conditions inside a building with walls and roof, or
 - b. Providing grazing rangeland or pasture, or
 - c. Forestry, including but not limited to timber harvest operations, silvicultural practices, forest management burning, or forest protection practices.
- B. The provisions of this rule, except for the recordkeeping provisions of Section V.E.2, shall not apply to any of the following sources within an agricultural operation site:
 - 1. An AFO of mature dairy cows with less than 500 mature dairy cows, whether milked or dry, or

402.2 Staff Report – Proposed Rule

2. An AFO of cattle, other than mature dairy cows or veal calves, with less than 190 cattle, other than mature dairy cows or veal calves. Cattle includes, but is not limited to, heifers, steers, bulls and cow/calf pairs, or
3. An AFO of turkeys with less than 55,000 turkeys, or
4. An AFO of chickens, other than laying hens, with less than 125,000 chickens (other than laying hens), or
5. An AFO of laying hens with less than 82,000 laying hens, or
6. An AFO other than an AFO for mature dairy cows, cattle, turkeys, chickens, or laying hens.

C. This rule does not exempt the owner/operator from any other District regulations.

IV. Requirements

- A. Effective six (6) months after adoption of this rule, an owner/operator shall implement the applicable CMPs selected pursuant to Section V.B for each agricultural operation site.
- B. An owner/operator shall prepare and submit a CMP Application for each agricultural operation site, pursuant to Section V, to the APCO for approval. A CMP Application approved by the APCO shall constitute a CMP Plan.
- C. Except as provided by Section IV.D, an owner/operator shall implement the CMPs as contained in the CMP Plan approved pursuant to Section V for each agricultural operation site no later than ten (10) days after notification by the APCO of the approval of the CMP Application.
- D. An owner/operator that discontinues the implementation of a CMP as committed to in a CMP Plan or makes other changes that are inconsistent with the CMP Plan shall comply with the requirements of Section V.C.4.

V. Administrative Requirements

A. CMP Application Preparation

An owner/operator shall prepare a CMP Application for each agricultural operation site. Each CMP Application shall include, but is not limited to, the following information:

1. The name, business address, and phone number of the owner/operator responsible for the preparation and the implementation of the CMP Plan.
2. The signature of the owner/operator and the date that the application was signed.
3. A plot plan or map which contains the following information:

- a. The location of the agricultural operation site,
 - b. The location of each agricultural parcel on the agricultural operation site,
 - c. The location of unpaved roads and unpaved equipment/traffic areas to be covered by the CMP Plan, and
 - d. The location where the CMP will be implemented.
 - e. The plot plan or map shall be maintained on-site and made available to the APCO upon request.
4. The following information, for each agricultural parcel of the agricultural site:
- a. The CMPs, selected pursuant to Section V.B, and
 - b. The crop, AFO, or other use of the agricultural parcel.
5. Information necessary to calculate emission reductions including, but not limited to:
- a. The crop or animals and total crop acreage or number of animals and the total length (miles) of unpaved roads, and the total area (acres or square feet) of the unpaved equipment and traffic areas to be covered by the CMP Plan, and
 - b. Other information as determined by the APCO.

B. CMP Selection

An owner/operator shall select one (1) CMP from the CMP list for each of the applicable CMP categories for each agricultural parcel of an agricultural operation site, except as provided below:

1. If an agricultural operation site or agricultural parcel has crop rotation, an owner/operator shall select one (1) CMP from the CMP list for each of the applicable CMP categories for each rotated crop type.
2. If a CMP can only be selected for implementation on a portion of an agricultural operation site, an owner/operator shall select an additional CMP within the CMP category to be implemented on the remaining acreage or remaining AFO.
3. An owner/operator may select a substitute CMP from another CMP category when no feasible CMP can be identified from one category. This provision shall not apply for the unpaved road, and unpaved vehicle/equipment traffic area CMP categories.
 - a. An owner/operator may identify or develop a new CMP not on the CMP list to be used to comply with the requirements of this rule. Prior to use of the new CMP the owner/operator must obtain the interim approval of the APCO to use a

new CMP to meet the requirements of Section V.B. The owner/operator shall demonstrate that the new CMP achieves PM₁₀ emission reductions that are at least equivalent to other CMPs on the CMP list that could be selected for the applicable operation.

- b. The APCO will perform an independent analysis of proposed CMPs to determine that they achieve PM₁₀ emission reductions that are at least equivalent to other CMPs on the CMP list that could be selected for the applicable operation. This analysis shall be made using the most recent emission factors provided by EPA or CARB when available. CMPs that are not shown to achieve equivalent emission reductions will be disapproved. The District shall maintain a list of CMPs determined to be equivalent under this section.

C. CMP Application Submission

An owner/operator shall submit a complete CMP Application to the APCO, pursuant to Section V.A, in accordance with the following schedule:

1. Within 210-days after adoption of this rule, for an agricultural operation existing upon adoption of this rule;
2. Within 180-days after the adoption of this rule, for an agricultural operation or agricultural parcel(s) that are acquired and become subject to the provisions of Section IV after the adoption of this rule;
3. Within 60 days of any modification (operational, administrative, or other) that necessitates the revision of the CMP Plan. A modification includes, but is not limited to, the following:
 - a. Administrative changes to any information provided pursuant to Section V,
 - b. Implementation of a CMP other than the CMP listed in a CMP Plan,
 - c. Change of the crop or AFO on an agricultural parcel, and
 - d. Any other changes as determined by the APCO.

D. CMP Application Review and Evaluation

1. The APCO shall:
 - a. Review the CMP Application and determine whether the submitted CMP Application is complete. Completeness shall be determined by evaluating whether the CMP Application meets the requirements of Section V.A of this rule and Rule 301.I
 - b. Notify the owner/operator in writing of the determination that the CMP Application is, or is not, complete and request the owner/operator to provide additional information within 30 days.

- c. Evaluate and either approve or disapprove the CMP Application and provide written notification to the owner/operator within 180 days after receipt of the complete CMP Application, of the approval or disapproval of the CMP Application.
2. A CMP Application for a modification to a CMP Plan pursuant to Section V.C.4.a shall be deemed approved as submitted unless written comments are transmitted by the APCO to the owner/operator within 30 days of receipt of the CMP application.
3. A CMP Application for a modification to a CMP Plan pursuant to Sections V.C.4.b, V.C.4.c, and V.C.4.d shall be deemed conditionally approved as submitted unless written comments are transmitted by the APCO to the owner/operator within 30 days of receipt of the CMP application.
4. The approval of a CMP Application shall not serve to excuse the owner or operator from complying with law, nor shall it excuse any violation.

E. Recordkeeping

An owner/operator shall, upon request, make available to the APCO the records required to be kept pursuant to Section V.E.2 and Section V.E.2.

1. An owner/operator subject to Section V shall maintain the following records for a minimum of five (5) years:
 - a. A copy of each CMP Application and CMP Plan.
 - b. Supporting information necessary to confirm the implementation of the CMPs.
2. An owner/operator claiming exemption pursuant to Section III shall maintain records for a minimum of five (5) years that demonstrate that the agricultural operation site or agricultural parcel qualified for the exemption.

F. Loss of Exemption

An owner/operator of an agricultural operation site or agricultural parcel that becomes subject to the provisions of Section IV of this rule, through loss of exemption, shall comply with all applicable provisions of this rule pursuant to the schedule in Section V.C.

VI. Compliance Schedule

Unless otherwise noted, all provisions of this rule shall be effective 210-days after the adoption of this rule.

APPENDIX B:
CONSERVATION MANAGEMENT PRACTICES LIST

LIST OF CONSERVATION MANAGEMENT PRACTICES

AUGUST 15, 2014

CROPLAND - LAND PREPARATION / CULTIVATION

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Alternate Till	Rotate tillage leaving residue on soil	Tilling alternate rows for weed management allows for approximately 50% reduction in field activity. Stabilizes soil surface, reduces soil compaction	Tillage of alternate rows, of vineyard and orchards, thereby reducing passes across field.
Bed-row size or spacing	Increase or decrease the size of the planting area bed (can be done for field and permanent crops)	Reduces the number of passes and soil disturbance by increasing plant density/canopy thru reduction of row width, overhead vineyard production systems, containment of PM within canopy	Planting multi- rows on a wide bed, e.g. tomatoes or melons 2- rows on 60", Narrow row planting of cotton can reduce two to three cultivation passes; overhead vineyard system of vineyards can reduce cultivation and pesticides by shading unwanted vegetation that reduces the need for cultivation and pesticides, other planting systems may have similar benefits, including but not limited to using 80" wide-bed system as well as a 60" system for either cotton or vegetable planting.
Chemigation/Fertigation	Application of chemicals thru an irrigation system	Each application reduces the need to travel in-field for application purposes. Reduces the number of passes and soil disturbance, increases efficiency for application	During irrigation, add herbicide or fertilizer through water application; also includes aerial application
Combined operations	To combine equipment, to perform several operations during one pass	Reduction in the number of passes necessary to cultivate the land will result in fewer disturbances to the soil. Other benefits are reduction of soil compaction and time to prepare fields, both of which can be precursors to additional tillage requirements	Combining cane cutting, discing and flat- furrowing in a single pass for vineyards, use of one- pass till equipment in ground preparation or crop tillage, cultivation and fertilization of field crop in a single pass
Conservation irrigation	To conserve the quantity of water use, e.g.: drip, sprinkler, buried/underground line	Conserves water, reduces weed population, which in turn reduces the need for tillage and reduces soil compaction.	Use drip, or buried line (including permanent or semi-permanent line) in crop production, use of pressure bombs, water flow meters or soil monitoring devices to avoid over-irrigation, using irrigation management consultants, adopting the use of Evapo-transpiration factors

CROPLAND - LAND PREPARATION / CULTIVATION (Continued)

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Conservation tillage (e.g.: no tillage, minimum tillage)	Types of tillage that reduce loss of soil and water in comparison to conventional tillage	Reduces the number of passes, soil disturbance. It improves soil because it retains plant residue and increases organic matter.	Converting to no or low till operations, implement reduced till activities, adding soil/ water amendments to improve resource and reduce tillage needs
Cover crops	Use seeding or natural vegetation/regrowth of plants to cover soil surface	Reduces soil disturbance due to wind erosion and entrainment.	Plant or allow volunteer vegetation to grow in crop without tilling under thereby reducing tillage and increasing stabilizing of that portion of soil
Equipment changes/Technological improvements	To modify the equipment such as combines, cotton pickers, tilling and harvesting equipment, increase equipment size, modify land planing and land leveling, matching the equipment to row spacing, grafting to new varieties or technological improvements	Reduces the number of passes during an operation, therefore reducing soil disturbance.	Convert from conventional raisin operation to D.O.V. or overhead, grafting to new varieties, increase harvester head size to reduce passes, increase tillage equipment size to reduce passes and flame cultivation
Fallowing land	Temporary or permanent removal from production. (e.g.: vineyard pullout, Raisin Industry Diversion program, wildlife/wetlands conservation program)	Eliminates entire operation/passes or reduces activities.	Leaving a portion of field untilled, Install an NRCS approved practice.
Floor management	Smoothing and flattening the soil surface after nut harvest to remove post-harvest residue; maintain clean, smooth, firm floor throughout season by elimination of disking	Reduces passes thru elimination of disking	Maintain level floor, chemical treatment, use one-pass tillage practices, irrigation or otherwise firming of soil to prevent PM

CROPLAND - LAND PREPARATION / CULTIVATION (Continued)

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Integrated Pest Management	A decision process which uses a combination of techniques including organic, conventional, biological farming practices to suppress pests problems	Reduces use of herbicide/pesticide therefore reducing number of passes for spraying, reduced soil compaction, reducing the need for additional tillage, creates beneficial insect habitat, reducing the need for spray passes.	Monitoring crop for pests to accurately and effectively apply control measures, use county Farm Advisor thresholds for spray timing, incorporate biological practices into farming operation to reduce need for spraying
Mulching	Applying or leaving plant residue or other material to soil surface	Reduces entrainment of PM due to winds, reduces weed competition thereby reducing tillage passes & compaction.	May include organic material, gypsum, lime, humus, pre-plant ground covers or plastic mulches for vegetables
Night farming	Operate at night where practical when moisture levels are higher and winds are lighter	Decreases the concentration of PM emissions during daytime, increased ambient humidity reduces PM during high emissions periods	Increased humidity increases soil surface moisture thereby helping contain PM emissions from tillage.
Non tillage / Chemical tillage	Use flail mower, low volume sprayers, use heat delivery system (as harvest pre-conditioner)	Reduces soil compaction, stabilizes soil through elimination or reduction of soil tillage passes	Leaving residue on surface after mowing, using pre-emergent or contact herbicides, scorching of weeds or foliage, mulch to smother weed competition. Semi-permanent crops e.g.: alfalfa will require no tillage.
Organic Practices	Use biological control methods and/or use non-chemical control methods	Reduces chemical use, thereby reducing passes	Organic certification, biological controls mulches, humus,
Precision farming (GPS)	e.g.: GPS, using satellite navigation to calculate position in the field, therefore manage/treat selective area	Reduces overlap, allows operations during inclement weather conditions and at night.	Install overlap reduction technology, pass markers, variable rate application technology, use petiole and soil sampling to reduce unnecessary applications
Time of planting	To modify the time of planting	Assists in distributing PM10 emissions to a period when there's less PM concentration.	When possible plant early season, i.e. tomatoes, sugar beets, vegetables, some tree varieties, includes seasonality and time of day.
Transgenic crops	Use of GMO or Transgenic crops	Reduces need for tillage or cultivation operations, reduces soil disturbance.	May include genetically altered seed, nematode resistant rootstock, grafting
Transplanting	Planting plants already in a growth state	Reduces soil disturbance and number of passes compared to using seeding	Instead of direct seeding, use transplants to avoid tillage; viable in vegetable crops

CROPLAND – HARVEST

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Baling/Large Balers	Using balers to harvest crop	Reduce PM emissions from chopping, truck passes, residue burning	Bale forage, grain stubble, or crop residue
Combined operations	To combine equipment, performing several operations during one pass	Reduction in number of passes necessary to harvest the crop, will result in fewer disturbances to the soil and reduced soil compaction.	Boll buggies, bank-out wagons, bulk movement of commodity from field, gondolas, combined shredding and incorporation
Continuous tray/D.O.V., New drying techniques for dried fruit	Any technology to reduce labor and tillage	Reduces the number of equipment passes, field entry, and soil erosion	Will reduce passes in field because of change in technology to dry fruit, i.e. terracing and throwing back in raisin operation
Equipment changes/Technological improvements	To modify the equipment such as combines, cotton pickers, tilling and harvesting equipment, increase equipment size, modify land planning and land leveling, matching the equipment to row spacing, and technological improvements	Reduces the number of passes during an operation, therefore reducing soil disturbance.	Convert cotton operation from 2 to 4 or greater. Convert from conventional raisin operation to D.O.V. or overhead, changing variety, increase harvester head size to reduce passes, increase tillage equipment size to reduce passes
Fallowing land	Temporary or permanent removal from production. (e.g.: vineyard pullout, Raisin Industry Diversion program, wildlife/wetlands conservation program)	Eliminates entire operation/passes or reduces activities.	remove or leave out an area of farm from planting to reduce need for tillage pesticide application, harvest requirements
Floor management	Smoothing and flattening the soil surface after nut harvest to remove post-harvest residue; maintain clean, smooth, firm floor throughout season by elimination of disking	Allows for proper calibration of harvest equipment to reduce soil surface disturbance.	Maintain level floor, chemical treatment, use one-pass tillage practices, irrigation or otherwise firming of soil to prevent PM

CROPLAND – HARVEST (Continued)

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Green Chop	The harvesting of a forage crop without allowing it to dry in the field.	Reduces multiple equipment passes in-field, reduces soil disturbance, reduces soil compaction, and reduces dust emissions from dry materials.	Alfalfa, winter forage, silage corn.
Hand harvesting	Harvesting crop by hand	Reduces soil disturbance due to machinery passes.	Increased humidity may increase soil surface moisture thereby helping contain PM emissions from tillage.
Night Harvesting	Implementing cultural practices at night, or at times of high humidity.	Reduces PM by operating when ambient air is moist, thereby reducing emissions.	Non- burning may include eliminating burning of paper tray drying materials
No burning	Switching to a crop/system that would not require waste burning	Reduces emissions associated with burning	A light application of water to soil prior to garlic harvest, to help control dust.
Pre-Harvest soil preparation	Applying a light amount of water or stabilizing material to soil prior to harvest (when possible)	Reduces PM emissions at harvest	Moving crops out of field, by way of bulk transport systems, to a designated pack area.
Shed Packing	Packing commodities in a covered or closed area	Reduces field traffic, thereby reducing PM emissions	Boll buggies, cotton modules versus trailers, bank-out wagons, gondolas, bulk movement of commodity from field
Shuttle system/larger carrier	Multiple bin/trailer	Haul multiple or larger trailers/bins per trip thereby reducing emissions through reduced passes.	Increased humidity may increase soil surface moisture thereby helping contain PM emissions from tillage.

CROPLAND - OTHER

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Alternate Till	Rotate tillage, leaving residue on soil	Tilling alternate rows for weed management allows for approximately 50% reduction in field activity. Stabilizes soil surface, reduces soil compaction, and reduces windblown dust.	Tillage of alternate rows, of vineyard and orchards, thereby reducing passes across field.
Application Efficiencies	Use compact, low volume, or concentrate quantity with spray equipment, aerial applications, use micro-heads or infrared spot sprayer, electrostatic sprayers	Reduces soil compaction, passes, and chemical usage	Low volume sprayer heads, photosynthetic i.d heads, hand- spot spraying, variable rate applicators & shielded sprayers, to reduce spray emissions and apply spray to desired pest.
Baling/Large Balers	Using balers to harvest crop	Reduce PM emissions from chopping, truck passes, residue burning	Bale forage, grain stubble, or crop residue.
Bulk materials control	Minimize visible dust emissions from bulk materials	Reduces entrainment of fugitive dust	To apply water or suitable chemical/organic , or cover the bulk materials with tarps, plastic or suitable material, or construct wind barriers surrounding the bulk materials
Chemigation/ Fertigation	Application of chemicals thru an irrigation system	Each application reduces the need to travel in-field for application purposes. Reduces the number of passes and soil disturbance, increases efficiency for application	During irrigation, add herbicide or fertilizer through water application; also includes aerial application.
Conservation irrigation	To conserve the quantity of water use, e.g.: drip, sprinkler, buried/underground line	Conserves water, reduces weed population, which in turn reduces the need for tillage and reduces soil compaction.	Use drip, or buried line (including permanent or semi-permanent line) in crop production, use of pressure bombs, water flow meters or soil monitoring devices to avoid over-irrigation, using irrigation management consultants, adopting the use of Evapo-transpiration factors
Cover crops	Use seeding or natural vegetation/regrowth of plants to cover soil surface	Reduces soil disturbance due to wind erosion and entrainment, improves water penetration, increases organic matter, improves soil's ability to be tilled	Plant or allow volunteer vegetation to grow in crop without tilling under thereby reducing tillage and increasing stabilizing of that portion of soil
Fallowing land	Temporary or permanent removal from production. (e.g.: vineyard pullout, Raisin Industry Diversion program, wildlife/wetlands conservation program)	Eliminates entire operation/passes or reduces activities.	Remove or leave out an area of farm from planting to reduce need for tillage pesticide application, harvest requirements

CROPLAND - OTHER (Continued)

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Grinding/Chipping/ Shredding	Grinding prunings and orchard removals, instead of burning, incorporate to soil, to reduce emissions	Reducing PM from burning crop residues.	Using Bio-mass, chippers rather than burning to grind broken or downed limbs, flailing of vegetation instead of tilling, send prunings, and/or orchard removal material to power co-gen plants, compost residue and use for soil amendment, or, incorporate into soil.
Integrated Pest Management	A decision process which uses a combination of techniques including organic, conventional, biological farming practices to suppress pests problems	Reduces use of herbicide/pesticide therefore reducing number of passes for spraying, reduced soil compaction, reducing the need for additional tillage, creates beneficial insect habitat, reducing the need for spray passes.	Monitoring crop for pests to accurately and effectively apply control measures, use county Farm Advisor thresholds for spray timing
Irrigation Power Units	Use cleaner burning engines, electric motors (CMP only applicable if engines are cleaner than current rule requirements)	Reduces PM and NOx emissions.	New Tier II engines, electric motor, other alternative fuels.
Mulching	Applying plant residue or other material to soil surface or incorporating into soil.	Reduces entrainment of PM due to winds, reduces weed competition thereby reducing passes, compaction.	May include organic material, gypsum, lime, humus, pre-plant ground covers
Night farming	Operate at night where practical when moisture levels are higher and winds are lighter	Decreases the concentration of PM emissions during daytime, increased ambient humidity reduces PM during high emissions periods, reduces PM10 precursors.	Increased humidity increases soil surface moisture thereby helping contain PM emissions from tillage. Night time spraying.
No burning	Switching to a crop/system that would not require waste burning	Reduces practices associated with pruning and chipping	Non- burning may include; pesticide and seed containers, weeds, prunings, other residual crop residues.
Non tillage / Chemical tillage	Use flail mower, low volume sprayers, e.g.: use heat delivery system for cotton defoliation	Reduces soil compaction, stabilizes soil through elimination or reduction of soil tillage passes	Leaving residue on surface after mowing, using pre-emergent or contact herbicides, scorching of weeds instead of tilling, mulch to smother weed competition
Organic Practices	Use biological control methods, use non-chemical control methods	Reduces chemical use	Organic certification, biological controls mulches, humus.

CROPLAND - OTHER (Continued)

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Permanent Crops	Having an established permanent crop	Reduces incidence of wind-blown dust	Trees, Vines or certain semi-permanent field crops
Reduced pruning	Reduce frequency of pruning (e.g.: one time per year, or every other year)	Reduces soil disturbance due to machinery passes and reduce fuel use.	Topping, hedging, alternate row pruning, alternate year pruning
Soil amendments	Organic or chemical materials applied to the soil for improvement (e.g.: gypsum, lime, polyacrylamide)	Increase moisture retention, reduce soil compaction, and stabilize soil.	May include Organic material, gypsum, lime, humus, pre-plant ground covers
Soil incorporation	Disking residues and/or soil incorporation of residue	Reduces emissions from burning.	May include discing of chips or crop residue at site, movement to other points on farm or other farms for incorporation, use chips or grindings for bio-mass, humus
Sulfur - reduction or elimination of dusting	Organic chemical used to control disease in crop, ornamental and home and gardens	Reduced dry particulates.	Control disease through alternative measures such as, wettable sulfur, biological or other controls
Surface roughening	Leaving soil surface as it stands or clods of soil when fallow, preparing planting surface perpendicular to wind direction	Reduces entrainment of PM due to winds	Till perpendicular to predominate wind direction. Can be used in the SJV especially during the high wind period such as March -June to reduce geologic emissions.
Transgenic crops	Use "herbicide-ready"	Reduces soil disturbance and weeding passes, and lessens drift.	May include genetically altered seed, nematode resistant rootstock, grafting
Wind barrier	Artificial or vegetative wall/fence that disrupts the erosive flow of wind over unprotected land	Reduces entrainment of PM due to winds	Plant various wind breaks around farmstead with plants such as, oleanders, eucalyptus, juniper, and native grass.

CROPLAND - UNPAVED ROADS

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
<p>Chips / Mulches</p> <hr/> <p>Organic Materials</p> <hr/> <p>Polymers</p> <hr/> <p>Road oil</p> <hr/> <p>Sand</p>	<p>Application of any non-toxic chemical or organic dust suppressant which meets any specification required by any federal, state, or local water agency and is not prohibited for use by any applicable regulations. See Regulation VIII for additional requirements and see Agriculture Improving Resources (AIR) Partner's list of products</p>	<p>Reduces entrainment of fugitive dust</p>	<p>Application of suppressant to areas meeting the vehicle trips per day threshold</p>
<p>Gravel</p>	<p>Placing a layer of gravel with enough depth to minimize dust generated from vehicle movement and to dislodge any excess debris which can become entrained</p>	<p>Reduces entrainment of fugitive dust</p>	<p>To add a layer of washed gravel, rock, or crushed rock</p>
<p>Mechanical Pruning</p>	<p>Using a machine instead of hand labor to prune</p>	<p>Reduced vehicle trips, thereby reducing PM emissions</p>	<p>Pruning style can include tree hedging, topping, summer pruning, trimming, vineyard hedging or other mechanical pruning operations</p>
<p>Paving</p>	<p>To pave currently unpaved roads</p>	<p>Prevent dust from vehicle traffic</p>	<p>To pave unpaved roads</p>
<p>Restricted Access</p>	<p>To restrict public access to private roads</p>	<p>Reduces vehicle traffic and thus reduces associated fugitive dust</p>	<p>To install a device which will limit use of road on or surrounding an operation</p>
<p>Speed Limits</p>	<p>Enforcement of speeds that reduce visible dust emissions</p>	<p>Dust emissions from unpaved roads are a function of speed meaning reducing speed reduces dust</p>	<p>Posting speed limits on or surround the operation</p>

CROPLAND - UNPAVED ROADS (Continued)

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Track out control	Minimize any and all material that adheres to and agglomerates on all vehicles and equipment from unpaved roads and falls onto a paved public road or the paved shoulder of a paved public road	Reduces entrainment of fugitive dust	Accomplished by maintaining sufficient length of paved/ graveled interior roads to allow mud and dirt to drop off vehicles before exiting the site; or use of a grizzly to dislodge debris from tires and undercarriage of vehicles leaving site.
Water	Application of water to unpaved roads and traffic areas	Reduces entrainment of fugitive dust	Application of water to areas meeting a vehicle trip threshold
Wind barrier	Artificial or vegetative wall/fence that disrupts the erosive flow of wind over unprotected land	Reduces entrainment of fugitive dust due to winds	Plant various wind breaks around farmstead with plants such as, oleanders, eucalyptus, juniper native grass or tillage perpendicular to field till, etc

CROPLAND-UNPAVED VEHICLE/EQUIPMENT TRAFFIC AREAS

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Chips / Mulches	Application of any non-toxic chemical or organic dust suppressant which meets any specification required by any federal, state, or local water agency and is not prohibited for use by any applicable regulations. See Regulation VIII for additional requirements	Reduces entrainment of fugitive dust	Application of suppressant to areas meeting the vehicle trips per day threshold
Organic Materials			
Polymers			
Road oil			
Sand			

CROPLAND-UNPAVED VEHICLE/EQUIPMENT TRAFFIC AREAS (Continued)

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Gravel	Placing a layer of gravel with enough depth to minimize dust generated from vehicle movement and to dislodge any excess debris which can become entrained	Reduces entrainment of fugitive dust	To add a layer of washed gravel, rock, or crushed rock
Paving	To pave currently unpaved areas	Prevent dust from vehicle traffic	To pave unpaved areas
Restricted Access	To restrict public access to private roads	Reduces vehicle traffic and thus reduces associated fugitive dust	To install a device which will limit use of road on or surrounding an operation
Speed Limits	Enforcement of speeds that reduce visible dust emissions	Dust emissions from unpaved roads are a function of speed meaning reducing speed reduces dust	Posting speed limits on or surround the operation
Track out control	Minimize any and all material that adheres to and agglomerates on all vehicles and equipment from unpaved roads and falls onto a paved public road or the paved shoulder of a paved public road	Reduces entrainment of fugitive dust	Accomplished by maintaining sufficient length of paved/ graveled interior roads to allow mud and dirt to drop off vehicles before exiting the site; or use of a grizzly to dislodge debris from tires and undercarriage of vehicles leaving site.
Water	Application of water to unpaved roads and traffic areas	Reduces entrainment of fugitive dust	Application of water to areas meeting a vehicle trip threshold
Wind barrier	Artificial or vegetative wall/fence that disrupts the erosive flow of wind over unprotected land	Reduces entrainment of fugitive dust due to winds	Plant various wind breaks around farmstead with plants such as, oleanders, eucalyptus, juniper native grass or tillage perpendicular to field till, etc.

CROPLAND-Glossary of terms

Term	Definition
Alternate	To do activity in an every-other-month rotation, or every-other row fashion
Bed, Bed Row	A surface prepared for the planting of seeds or crop
Chemigation	Applying chemicals through an irrigation system
Disturb, Disturbance	To work the soil in a fashion where it would no longer be in a firm or stable state
Disc,Disk,Disking	An implement designed and used, when pulled behind a tractor, mixes soil and eliminates weeds
Equipment	Implement of farm husbandry including but not limited to; tractor, disk, plow, spray machine, cultivator, trailer.
Fertigation	Applying plant nutrients through an irrigation system
Floor	The area of ground that is between the width of trees or vines. Also called the centers.
Tillage	Using an implement to disturb the soil surface or sub-surface
Non-Tillage	A system whereby the soil is not moved through mechanical means

POULTRY OPERATIONS - MANURE HANDLING & STORAGE

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Time of manure spreading	To spread the manure at a time that would help reduce the amount of PM10 released in the air	Reduces the amount of fugitive dust released in the air	To spread manure during cooler times of day such as morning or evening and during times of low wind.
Cleanout frequency	To adjust the frequency of cleanouts from the houses	Reduces particulates released from poultry litter/manure accumulating or stored inside houses. The less disturbance and handling of the litter/manure, the less emissions. Any time poultry bedding material is moved, some of the bulk material may become airborne. The bedding may be used for several grow out cycles before it becomes so laden with waste that it is unsuitable for continued use. Optimizing the reuse of the bedding material can reduce the number of material transfers, thus the opportunity for some of the material to become airborne. Implementation of this CMP implies that the generation of dust will become a factor in the determination to perform a house clean-out, and more reuse of bedding is anticipated.	To allow bedding materials and manure to remain in the house for multiple flocks or grow out cycles, or to decrease the frequency of house cleanouts to minimize dust emissions.
Outdoor Storage	To use of a structure design to store the bulk materials (e.g.: used poultry litter/manure) or to securely cover the bulk materials if it must be stored outdoors not within any enclosure	Prevents contact with precipitation and prevents windblown dispersion. Poultry litter consists mainly of light organic materials such as rice hulls or wood shavings. During a poultry house cleanout the used litter is scrapped out of the house and left in piles outdoors. If left in these outdoor piles for extended periods, winds can cause material to become airborne. Any technique that will shield the litter from wind will prevent or reduce the amount of material becoming airborne. Securely tarping the piles will protect the used litter from precipitation and windblown dispersal until the liter can be removed from the ranch. A partially enclosed structure, with walls situated in the prevailing wind direction, may be used to protect used litter stored onsite from precipitation and windblown dispersal.	To employ a structure design to store used poultry litter (manure and bedding material) onsite or to cover the bulk materials with tarps, plastics or suitable materials.

POULTRY OPERATIONS - FEEDING

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Boot or sock	Feed is loaded into the feed storage bins by employing a sock or boot on the feed delivery truck auger	To reduce the release of particulates	Use of a sock or boot on the delivery truck auger

POULTRY OPERATIONS – OPEN AREAS

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Vegetation	Maintaining some vegetation, such as native grasses, on vacant land	Reduces windblown dust.	Allowing vegetative material to grow on vacant sections of the operation
Reduced tillage	To reduce the number of tillings	Reducing soil disturbance by stabilizing soil surface	Leaving residue on surface after mowing, using pre-emergent or contact herbicides, scorching of weeds instead of tilling, mulch to smother weed competition
Wind blocks	To establish a perimeter physical barrier to reduce windblown dust.	Disrupts the erosive flow of wind over unprotected areas thus helping to reduce fugitive dust	Use of perimeter physical barriers or vegetation barriers to disrupt wind flow
Dust suppressants	Application of any non-toxic chemical or organic dust suppressant which meets any specification required by any federal, state, or local water agency and is not prohibited for use by any applicable regulations. See Regulation VII for additional requirements	Reduces entrainment of fugitive dust	To use a variety of products: water application, hygroscopic suppressants (road salts), petroleum emulsions, adhesives, polymers emulsions, and bituminous materials (road oil). Water or chemical dust suppressants will bind soils. r, sodium chloride, road oil, chippings from farm, etc.

POULTRY OPERATIONS – UNPAVED ROADS

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Gravel	Placing a layer of gravel with enough depth to minimize dust generated from vehicle movement and to dislodge any excess debris which can become entrained	Reduces entrainment of fugitive dust	To add a layer of washed gravel, rock, or crushed rock
Access restriction	To restrict public access to private roads	Reduces vehicle traffic and thus reduces particulates emissions	To install a device which will limit use of road on or surrounding an operation
Pavement	To pave currently unpaved areas	Reduces entrainment of fugitive dust	To pave unpaved roads to prevent dust from vehicle traffic
Dust suppressants	Application of any non-toxic chemical or organic dust suppressant which meets any specification required by any federal, state, or local water agency and is not prohibited for use by any applicable regulations. See Regulation VII for additional requirements	Reduces entrainment of fugitive dust	To use a variety of products: water application, hygroscopic suppressants (road salts), petroleum emulsions, adhesives, polymers emulsions, and bituminous materials (road oil). Water or chemical dust suppressants will bind soils. r, sodium chloride, road oil, chippings from farm, etc.
Speed reduction	Enforcement of speeds that reduce visible dust emissions	Dust emissions from unpaved roads are a function of speed so reducing speed reduces dust	Posting speed limits on or surround the operation
Track out control	Minimize any and all material that adheres to and agglomerates on all vehicles and equipment from unpaved roads and falls onto a paved public road or the paved shoulder of a paved public road	Reduces entrainment of fugitive dust	Accomplished by maintaining sufficient length of paved/ graveled interior roads to allow mud and dirt to drop off vehicles before exiting the site; or use of a grizzly to dislodge debris from tires and undercarriage of vehicles leaving site.
Vegetation	To establish or maintain natural vegetation	Vegetation prevents wind erosion	Allowing vegetative material to grow on vacant sections of the operation

POULTRY OPERATIONS – UNPAVED VEHICLE/EQUIPMENT TRAFFIC AREAS

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Access restriction	To restrict public access to private roads	Reduces vehicle traffic and thus reduces particulates emissions	To install a device which will limit use of road on or surrounding an operation
Gravel	Placing a layer of gravel with enough depth to minimize dust generated from vehicle movement and to dislodge any excess debris which can become entrained	Reduces entrainment of fugitive dust	To add a layer of washed gravel, rock, or crushed rock
Pavement	To pave currently unpaved areas	Reduces entrainment of fugitive dust	To pave unpaved areas to prevent dust from vehicle traffic
Dust suppressants	Application of any non-toxic chemical or organic dust suppressant which meets any specification required by any federal, state, or local water agency and is not prohibited for use by any applicable regulations. See Regulation VIII for additional requirements	Reduces entrainment of fugitive dust	To use a variety of products: water application, hygroscopic suppressants (road salts), petroleum emulsions, adhesives, polymers emulsions, and bituminous materials (road oil). Water or chemical dust suppressants will bind soils. r, sodium chloride, road oil, chippings from farm, etc.
Vegetation	To establish/maintain natural vegetation or vegetation to prevent wind erosion	Vegetation prevents wind erosion	Allowing vegetative material to grow on vacant sections of the operation

DAIRY OPERATIONS – CORRAL/MANURE HANDLING

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Sprinkling of open corral	Ensure adequate corral surface moisture level to prevent visible dust emissions. *This measure is not recommended for lactating cows	Stabilizes soil surface allowing for fugitive dust reduction. Sprinkling provides higher moisture content and causes soil compaction rather than loose, dry dirt being kicked up in the air by animal movement action.	Installation of sprinklers or other watering devices to maintain an adequate moisture level
Frequent scraping and or manure removal	Removal of manure from open corrals	Reduces potential for dust disturbance caused by animal's hoof action by maintaining minimal amount of dry dust on corral surface.	Prevent build-up of powdery dust in designated areas
Freestall housing	Use of freestall housing	Reduction in amount of generated dust. Concrete floor for manure deposition allows cleaning of manure through a flushing system, also the manure would already be in a high moist state.	Use of freestall
Fibrous layer in dusty areas	Addition of fibrous material to working pens	Prevents dust disturbance and dust entrainment by retaining moisture	Adding wood chips or other materials to sorting alleys and high traffic areas to hold moisture and keep down dust disturbance, and putting damp manure solids right off of the separator into the heifer pens on a daily basis and working it with a rotary harrow. Applies to heifers
Pull-type Manure harvesting equipment	Using a pull-type piece of equipment to leave an even corral surface	Stabilizes soil surface allowing for fugitive dust reduction by avoiding floor depression for dust accumulation and accumulation of dry soil/manure.	Piece of equipment should allow operators to leave an even corral surface of compacted manure on top of the soil. Pulling blades will do better than pushing blades
Scraping/harrowing	Scraping/ harrowing in morning hours when moisture is higher.	Reduction in amount of generated dust by retaining moisture.	Scraping/ harrowing in early morning when moisture is higher
Shaded areas in open corrals	Animals in open pens will loaf in shade areas increasing stocking density and reducing dust	Reduction in amount of generated dust by retaining moisture.	Providing shaded areas for animals to loaf in

DAIRY OPERATIONS – OVERALL MANAGEMENT/FEEDING

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Bulk materials control	Minimize visible dust emissions from bulk materials	Reduces entrainment of fugitive dust	To apply water or suitable chemical/organic , or cover the bulk materials with tarps, plastic or suitable material, or construct wind barriers such as a 3-sided structure surrounding the bulk materials (e.g.: feed commodity story barns)
Feeding near dusk	Feeding young stock during evening hours	Reduce dust-generating behaviors. For example, young stocks at dairies tend to play when temperature cools off. By feeding them at a later time breaks that activity pattern.	Feeding animals during the evening hours when conditions will generate less dust
Wet feed during mixing	To increase moisture feed levels	Avoid excessive dust.	Addition of water or moist supplements to reduce the amount of generated dust
Place wet material in feedwagon first before mixing	Mix wet feed with dry feed for suppression.	Avoid excessive dust.	Place wet material into feedwagon fist to suppress dust generation
Downwind shelterbelts/ boundary trees	Planting rows of vegetation around facility and surrounding to create a barrier for air exiting from the facilities	Reduces windblown dust.	Use of perimeter barriers or vegetation to disrupt the wind flow

DAIRY OPERATIONS – OVERALL UNPAVED ROADS

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Dust suppressants	Application of any non-toxic chemical or organic dust suppressant which meets any specification required by any federal, state, or local water agency and is not prohibited for use by any applicable regulations. See Regulation VIII for additional requirements	Reduces entrainment of fugitive dust	To use a variety of products: water application, hygroscopic suppressants (road salts), petroleum emulsions, adhesives, polymers emulsions, and bituminous materials (road oil). Water or chemical dust suppressants will bind soils. r, sodium chloride, road oil, chippings from farm, etc.

DAIRY OPERATIONS – OVERALL UNPAVED ROADS (Continued)

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Gravel	Placing a layer of gravel with enough depth to minimize dust generated from vehicle movement and to dislodge any excess debris which can become entrained	Reduces entrainment of fugitive dust	To add a layer of washed gravel, rock, or crushed rock
Speed reduction	Enforcement of speeds that reduce visible dust emissions	Dust emissions from unpaved roads are a function of speed so reducing speed reduces dust	Posting speed limits on or surround the operation
Access restriction	To restrict public access to private roads	Reduces vehicle traffic and thus reduces particulates emissions	To install a device which will limit use of road on or surrounding an operation
Pavement	To pave currently unpaved areas	Prevent dust from vehicle traffic	To pave unpaved roads
Track out control	Minimize any and all material that adheres to and agglomerates on all vehicles and equipment from unpaved roads and falls onto a paved public road or the paved shoulder of a paved public road	Reduces entrainment of fugitive dust	Accomplished by maintaining sufficient length of paved/ graveled interior roads to allow mud and dirt to drop off vehicles before exiting the site; or use of a grizzly to dislodge debris from tires and undercarriage of vehicles leaving site.
Speed Bumps	Installation of mechanisms to slow traffic	Dust emissions from unpaved road are a function of speed so reducing speed reduces dust	To install physical devices which slow down the speed of traffic
Appropriate equipment and vehicles	Using trip appropriate vehicles	Reduces the amount of generated dust	Using four wheelers or electric carts rather than trucks for routine trips

DAIRY OPERATIONS – UNPAVED VEHICLE/EQUIPMENT TRAFFIC AREAS

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Dust suppressants	Application of any non-toxic chemical or organic dust suppressant which meets any specification required by any federal, state, or local water agency and is not prohibited for use by any applicable regulations. See Regulation VIII for additional requirements	Reduces entrainment of fugitive dust	To use a variety of products: water application, hygroscopic suppressants (road salts), petroleum emulsions, adhesives, polymers emulsions, and bituminous materials (road oil). Water or chemical dust suppressants will bind soils. r, sodium chloride, road oil, chippings from farm, etc.
Gravel	Placing a layer of gravel with enough depth to minimize dust generated from vehicle movement and to dislodge any excess debris which can become entrained	Reduces entrainment of fugitive dust	To add a layer of washed gravel, rock, or crushed rock
Access restriction	To restrict public access to private roads	Reduces vehicle traffic and thus reduces particulates emissions	To install a device which will limit use of road on or surrounding an operation
Speed reduction	Enforcement of speeds that reduce visible dust emissions	Dust emissions from unpaved roads are a function of speed so reducing speed reduces dust	Posting speed limits on or surround the operation
Pavement	To pave currently unpaved areas	Prevent dust from vehicle traffic	To pave unpaved roads
Appropriate equipment and vehicles	Using trip appropriate vehicles	Reduces the amount of generated dust	Using four wheelers or electric carts rather than trucks for routine trips

FEEDLOT OPERATIONS - PENS/MANURE HANDLING

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Sprinkle	Ensure adequate pen surface moisture level to prevent visible dust emissions	Stabilizes soil surface allowing for fugitive dust reduction. Sprinkling provides higher moisture content and causes soil compaction rather than loose, dry dirt being kicked up in the air by animal movement action.	Installation of sprinklers or other watering devices to maintain an adequate moisture level
Frequent scraping and or manure removal	Removal of powdery dust	Reduces potential for dust disturbance caused by animal's hoof action by maintaining minimal amount of dry dust.	Prevent build-up of powdery dust in designated areas
Fibrous layer in working areas (for alley, etc.)	Addition of fibrous material to areas	Prevents dust disturbance.	Adding wood chips or other materials to sorting alleys and high traffic areas to hold moisture and keep down dust disturbance, and putting damp manure solids right off of the separator into the heifer pens on a daily basis and working it with a rotary harrow. Applies to heifers
Pull-type Manure harvesting equipment	Using a piece of equipment to leave an even corral surface	Stabilizes soil surface allowing for fugitive dust reduction by avoiding floor depression for dust accumulation and accumulation of dry soil/manure.	Piece of equipment should allow operators to leave an even corral surface of compacted manure on top of the soil. Pulling blades will do better than pushing blades
Shade for animal	Animals in open pens will loaf in shade areas increasing stocking density and reducing dust	Reduction in amount of generated dust by retaining moisture.	Providing shaded areas for animals to loaf in

FEEDLOT OPERATIONS - OVERALL MANAGEMENT/FEEDING

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Bulk materials control	Minimize visible dust emissions from bulk materials	Reduces entrainment of fugitive dust	To apply water or suitable chemical/organic , or cover the bulk materials with tarps, plastic or suitable material, or construct wind barriers such as a 3-sided structure surrounding the bulk materials (e.g.: feed commodity story barns)

FEEDLOT OPERATIONS - OVERALL MANAGEMENT/FEEDING (Continued)

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Feeding near dusk	Feeding during evening hours	Reduce dust-generating behaviors. For example, animals tend to play when temperature cools off. By feeding them at a later time breaks that activity pattern.	Feeding animals during the evening hours when conditions will generate less dust
Wet feed during mixing	To increase moisture feed levels	Ability to avoid excessive dust	Addition of water or moist supplements to reduce the amount of generated dust
Place wet material in feedwagon first	Mix wet feed with dry feed for suppression	Ability to avoid excessive dust	Place wet material into feedwagon fist to suppress dust generation
Downwind shelterbelts/ boundary trees	Planting rows of vegetation around facility and surrounding to create a barrier for air exiting from the facility	Reduces windblown dust	Use of perimeter barriers or vegetation to disrupt the wind flow

FEEDLOT OPERATIONS - UNPAVED ROADS

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Dust suppressants	Application of any non-toxic chemical or organic dust suppressant which meets specifications required by federal, state, or local water agency and is not prohibited for use by any applicable regulations. See Rule 402.2 for additional requirements	Reduces entrainment of fugitive dust	To use a variety of products: water application, hygroscopic suppressants (road salts), petroleum emulsions, adhesives, polymers emulsions, and bituminous materials (road oil). Water or chemical dust suppressants will bind soils. r, sodium chloride, road oil, chippings from farm, etc
Gravel	Placing a layer of gravel with enough depth to minimize dust generated from vehicle movement and to dislodge any excess debris which can become entrained	Reduces entrainment of fugitive dust	To add a layer of washed gravel, rock, or crushed rock

FEEDLOT OPERATIONS - UNPAVED ROADS (Continued)

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Access restriction	To restrict public access to private roads	Reduces vehicle traffic and thus reduces particulates emissions	To install a device which will limit use of road on or surrounding an operation
Speed reduction	Enforcement of speeds that reduce visible dust emissions	Dust emissions from unpaved roads are a function of speed so reducing speed reduces dust	Posting speed limits on or surround the operation
Pavement	To pave currently unpaved areas	Prevent dust from vehicle traffic	To pave unpaved roads
Track out control	Minimize any and all material that adheres to and agglomerates on all vehicles and equipment from unpaved roads and falls onto a paved public road or the paved shoulder of a paved public road	Reduces entrainment of fugitive dust	Accomplished by maintaining sufficient length of paved/ graveled interior roads to allow mud and dirt to drop off vehicles before exiting the site; or use of a grizzly to dislodge debris from tires and undercarriage of vehicles leaving site.
Appropriate equipment and vehicles	Using trip appropriate vehicles	Reduces the amount of generated dust	Using four wheelers or electric carts rather than trucks for routine trips

FEEDLOT OPERATIONS - UNPAVED VEHICLE/EQUIPMENT TRAFFIC AREAS

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Dust suppressants	Application of any non-toxic chemical or organic dust suppressant which meets any specification required by any federal, state, or local water agency and is not prohibited for use by any applicable regulations. See Rule 402.2 for additional requirements	Reduces entrainment of fugitive dust	To use a variety of products: water application, hygroscopic suppressants (road salts), petroleum emulsions, adhesives, polymers emulsions, and bituminous materials (road oil). Water or chemical dust suppressants will bind soils. r, sodium chloride, road oil, chippings from farm, etc.

FEEDLOT OPERATIONS - UNPAVED VEHICLE/EQUIPMENT TRAFFIC AREAS (Continued)

PRELIMINARY CMPs	DESCRIPTION	BENEFITS	EXAMPLES
Gravel	Placing a layer of gravel with enough depth to minimize dust generated from vehicle movement and to dislodge any excess debris which can become entrained	Reduces entrainment of fugitive dust	To add a layer of washed gravel, rock, or crushed rock
Access restriction	To restrict public access to private roads	Reduces vehicle traffic and thus reduces particulates emissions	To install a device which will limit use of road on or surrounding an operation
Speed reduction	Enforcement of speeds that reduce visible dust emissions	Dust emissions from unpaved roads are a function of speed so reducing speed reduces dust	Posting speed limits on or surround the operation
Pavement	To pave currently unpaved areas	Prevent dust from vehicle traffic	To pave unpaved roads
Appropriate equipment and vehicles	Using trip appropriate vehicles	Reduces the amount of generated dust	Using four wheelers or electric carts rather than trucks for routine trips