United States Department of Agriculture
Natural Resources Conservation Service

Air Quality Enhancement Activity – Particulate Matter (EAM43)

Particulate Matter

Particulate matter suspended in the atmosphere is a significant air quality environmental issue. It can cause health problems primarily related to inhalation into the lungs. It also can create safety issues associated with reduced visibility, as well as nuisance problems from particulate deposition. Particulate matter is a regulated "criteria" air pollutant and is classified by particulate size. Coarser particles are generally classified as those larger than 2.5 micrometers and are generally associated with "dust." Finer particles (2.5 micrometers or smaller) are of greater health concern because of their deeper penetration into the human respiratory system, and are most often associated with combustion processes (fire smoke, engines, etc.) or from chemical reactions (such as ammonia combining with nitrates or sulfates).

Benefits

Application of this enhancement will result in mitigation of airborne particulate matter (PM) from a variety of surfaces, including unpaved roads, tilled fields, rangelands, agroforestry, orchards and vineyards, as well as reducing particulate matter generation from wind erosion events. These activities also will manage fine PM from concentrated animal facilities, and from prescribed burning.

Criteria for Particulate Matter Enhancement Activity

This enhancement requires a participant to implement and/or maintain two or more of the following activities that relate to their operation/enterprise.

Note: If the participant selects another air quality enhancement, the participant will only be paid once for implementing and/or maintaining a particular activity if such activity is required in both enhancements. For example, if "the feed management…" activity is chosen as an air quality enhancement activity for both particulate matter and ozone precursors, the participant will only be paid once for implementing and/or maintaining that activity.

Activities applicable to all enterprises:

- Treat unpaved roads with dust suppressant
- Implement, maintain, and enhance windbreaks to disrupt wind flow and dilute, intercept, and filter concentrations of particulate matter in the air

Activities applicable primarily to animal feeding enterprises:

- Handle animal mortality offsite at an approved incineration facility, or with an approved incinerator

Air Quality Enhancement Activity – Particulate Matter (EAM43)

References:

Flocchini, R. G., T. A. Cahill, R. T. Matsumura, O Carvacho, and Z. Lu. 1994. Evaluation of the emission of PM-10 particulates from unpaved roads in the San Joaquin Valley. Air Quality Group, Crosker Nuclear Laboratory, University of California, Davis, CA.

2001. Guide to Agricultural PM10 Best Management Practices, Maricopa County, Arizona PM10 Non-Attainment Area. Governor's Agricultural Best Management Practices Committee, Phoenix, AZ. Available at: http://www.azdeq.gov/environ/air/plan/download/webguide.pdf

Borlander, P. and A Yamada, 1999. "Dust Palliative Selection and Application Guide" Project Report 9977-1207-SDTDC San Dimas Technology Development Center, U.S. Dept. of Agriculture, Forest Service, San Dimas, CA. Available at: http://www.wsdot.wa.gov/TA/T2Center/DustGuide.pdf

Using Windbreaks to Reduce Odors Associated with Livestock Production Facilities available at: http://www.mo.nrcs.usda.gov/technical/forestry/out/odorWB_infosheetfinalmodified12_04.pdf

Using Shelterbelts to Reduce Odors Associated with Livestock Production Barns available at: http://www.omafra.gov.on.ca/english/crops/facts/info_odours.htm

B. Auvermann, Controlling Dust and Odor from Open Lot Livestock Facilities. Available at: http://www.lpes.org/Lessons/Lesson42/42_Controling_Dust_Odor.html

United States Department of Agriculture
Natural Resources Conservation Service

Air Quality Enhancement Activity – Particulate Matter (EAM43)

Activities applicable to all enterprises:

1. Treat unpaved roads and other traffic areas with dust suppressant (PM-01)
Vehicles traveling on unpaved roads and other surfaces produce more dust the farther and faster they travel. Dust suppressants (road oil, other liquid products, or solid emulsifiers) keep road material in aggregates which are large enough to not be entrained in the air.

Producers and cooperators should consult California NRCS Interim Practice Standard 729, Dust Control on Unpaved Roads and Surfaces,* for guidance on selecting an appropriate dust suppressant for their unique situation: http://efotg.nrcs.usda.gov/references/public/CA/729-std-9-07.pdf

Required Elements:
- Attach receipt showing payment for application of dust suppressant or certification of self-application
- Briefly describe your dust suppressant application and your traffic and speed reduction plan and your evaluation of its effectiveness

2. Install, maintain, and enhance windbreaks to disrupt wind flow and dilute, intercept, and filter concentrations of particulate matter in the air (PM-02)
Windbreaks interrupt wind flow downwind of the barrier, reducing wind erosive force over a field. Windbreaks can also intercept dust in the air on the downwind side of the field, reducing the amount of airborne dust leaving the edge of the field. At animal facilities particulate matter carried in air passing through windbreaks can be captured by the windbreak vegetation, reducing the amount of airborne particulate matter that leaves the site. Natural rainfall or supplemental irrigation will wash the accumulated particulate matter from the vegetation onto the ground. Any producer using this enhancement activity shall adhere to the design criteria put forth in Conservation Practice Standard 380, Windbreak/Shelterbelt Establishment.

Required Elements:
- Attach a drawing or aerial photograph of the operation showing the placement of windbreaks with respect to fields and/or animal and manure storage facilities
- Briefly describe your evaluation of the effectiveness of the new or renovated windbreak to control particulate matter at your operation
-

United States Department of Agriculture
Natural Resources Conservation Service

Air Quality Enhancement Activity – Particulate Matter (EAM43)

Activities applicable primarily to animal feeding enterprises:

1. Handle animal mortality offsite at an approved incineration facility, or with an approved incinerator (PM-03)

Animal carcass treatment or disposal should be considered as a component of a manure management system for livestock or poultry operations. It applies where on-farm carcass treatment and disposal are permitted by federal, state, and local laws, rules, and regulations. Use of an approved incinerator onsite, or transport of carcasses to an approved facility will reduce particulate matter generation from dead animal disposal. Any producer using this enhancement activity shall adhere to the design criteria put forth in Conservation Practice Standard 316, Animal Mortality Facility.

Required Elements:

- Provide documentation transport of carcasses off site, or
- Provide certification of acceptable incineration (including technology to reduce particulate matter generation) onsite
- Briefly describe your method of carcass disposal

United States Department of Agriculture
Natural Resources Conservation Service

CSP Enhancement Certification Sheet

Particulate Matter (EAM43)

Participant Acknowledgement Statement:
I agree to apply this enhancement under the terms and conditions of my CSP contract and understand the requirements of the activity.

This enhancement requires a participant to implement and/or maintain two or more of the following activities that relate to their operation/enterprise. **Note:** If the participant selects another air quality enhancement, the participant will only be paid once for implementing and/or maintaining a particular activity if such activity is required in both enhancements.

Activities applicable to all enterprises:

☐ Treat unpaved roads with dust suppressant

☐ Implement, maintain, and enhance windbreaks to disrupt wind flow and dilute, intercept, and filter concentrations of particulate matter in the air

Activities applicable primarily to animal feeding enterprises:

☐ Handle animal mortality offsite at an approved incineration facility, or with an approved incinerator

I agree that the following information will be provided to NRCS upon request:

- Written documentation of the activities performed (use attached worksheets or equivalent)
- Copies of dated receipts for equipment or services purchased

I understand that it is my responsibility to obtain all necessary permits and to comply with all laws, regulations and ordinances pertaining to the application of these activities.

Accepted by: _____ Date: _____