NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

DUST CONTROL ON UNPAVED ROADS AND SURFACES

(Sq. Ft.)

CODE 373

DEFINITION

Controlling direct particulate matter emissions produced by vehicle and machinery traffic or wind action from unpaved roads and other surfaces by applying a palliative on the surface.

PURPOSE

This practice may be applied as part of a conservation management system to control dust from unpaved roads and other surfaces which is generated by vehicle or machinery traffic, and/or wind.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to any non-vegetated, unpaved surface where vehicle movement or wind action would normally occur, such as an unpaved road, traffic area, parking lot, staging or assembly area, equipment storage lot, runway, or loading/unloading area. It does not apply to paved surfaces, vegetated areas, rangeland or cropland, or to surfaces that are normally subject to animal activity, such as pens and corrals.

CRITERIA

General Criteria Applicable to all Purposes

The practice shall be applied following all label directives, in accordance with federal, state, and local laws and regulations.

The palliative (dust control product) shall be one of the following:

- Water
- Water absorbing suppressant (hygroscopic palliative)
- Adhesive
- Petroleum emulsion
- Polymer emulsion
- Clay Additive
- Bituminous (petroleum-based road oil)

Examples of product types and names are available in the specification.

Hygroscopic palliatives (those that control dust by absorbing water from the air) shall not be used in arid and semi-arid environments. Calcium chloride and magnesium chloride shall not be used in locations where the daily summertime relative humidity averages below 30%. For more details, see the specification.

The surfaces to be treated shall be graded and/or smoothed as needed and prescribed by the product guidance before the dust control product is applied.

The area shall be treated to achieve a minimum of 50% dust control at time of application of material. The amount of dust control achieved will be determined by standardized emission reduction factors for the various materials.

The area shall be re-treated if it is heavily disturbed by grading or other major disturbance after prior treatment.

If continued effectiveness of the product is warranted after natural weathering has reduced its effectiveness to the point where airborne particulate matter from the surface is visible, the palliative control product shall be re-applied.

Where dust control for more than 12 hours is needed, water as a dust control product shall not be used unless it is reapplied.

In locations where runoff from a treated surface could immediately enter into fish

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spawning waters, lignosulfonate shall not be used as a dust control product.

Where drainage from the treated surface may directly impact a nearby water body, bituminous palliatives shall not be used.

When determining an appropriate product to use, do not select products that have a “poor” rating for your specific location and situation. See specification for more detail on ratings.

CONSIDERATIONS

Consider additional activities like speed control or vehicle exclusion on unpaved roads to help control dust.

When there is concern over possible runoff of sediments from the unpaved area to a water body, consider using additional practices or activities like buffers strips on the side of the road or unpaved area to minimize runoff of the palliative to the water body.

Consider using a sieve analysis of the upper layer of the unpaved surface to determine percent fines less than 75 µm. Select a product that is appropriate based on this analysis.

In regions where snow covers the unpaved area over winter, consider applying the dust control product after the spring melt to minimize the loss of product effectiveness over winter.

Where practical, other dust suppression techniques, such as the use of Mulching (484), the establishment of vegetation (Critical Area Planting, 342), or the installation of windbreaks (Windbreak/Shelterbelt Establishment, 380) may be used if additional dust control is needed.

PLANS AND SPECIFICATIONS

Specifications for installation of Dust Control on Unpaved Roads and Surfaces shall be prepared for each site or planning unit according to the criteria. Specifications shall be recorded using State-developed specification sheets, job sheets, practice requirement sheets, narrative statements in conservation plans, or other acceptable documents.

As a minimum, the plans and specifications shall provide the following:

1. Identification and description of the type and amount of material being used for dust control, and method of application.
2. Specifications on grading requirements.
3. Plans for any re-applications of materials.
4. Identification of any adjacent sensitive areas (e.g. fish spawning areas and nearby water bodies).
5. List of criteria to follow during application.
6. List of items to consider during application.
7. Identification of any additional practices used in conjunction with the palliative.

OPERATION AND MAINTENANCE

An operation and maintenance plan shall be developed that is consistent with the purposes of this practice, its intended life, safety requirements, and the criteria used for its design. The plan shall contain requirements including but not limited to:

1. Re-application of dust control materials, as needed, and including any additional grading requirements.
2. Maintenance of any mitigating practices.
3. Documentation requirements for emissions reduction.

REFERENCES

These references are available in the documents section of the NRCS Air Quality website.

Bolander, 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.

San Joaquin Valley Air Pollution Control District, 2002. Products available for controlling dust.