

SECTION 91: FUGITIVE DUST FROM UNPAVED ROADS, UNPAVED ALLEYS, AND UNPAVED EASEMENT ROADS

91.1 FUGITIVE DUST From Unpaved Roads, Unpaved Alleys, and Unpaved EASEMENT Roads

91.1.1 **Purpose:** To limit the Emission of PARTICULATE MATTER into the AMBIENT AIR from unpaved roads, unpaved alleys, unpaved ROAD EASEMENTS and unpaved access roads for utilities and railroads.

91.1.2 **Applicability:** The provisions of this Regulation shall apply to unpaved roads, which includes unpaved alleys, unpaved ROAD EASEMENTS and unpaved access roads for utilities and railroads which are located in a-PM₁₀ nonattainment area, an area subject to a PM₁₀ maintenance plan defined under 42 U.S. Code § 7505a, or the Apex Valley (hydrographic areas 216 and 217). Nothing in Subsections 91.1 through 91.3 of these Regulations shall be construed to prevent enforcement of Section 40 (Prohibition of NUISANCE Conditions) of these Regulations. The provisions of this Regulation shall not apply to non-commercial and non-institutional private driveways and shall not apply to horse trails, hiking paths, bicycle paths, or other similar paths that have been officially designated by a governing body for exclusive use for purposes other than travel by motor vehicles. The provisions of this Regulation shall not apply to STATIONARY SOURCES as defined in Section 0, except that these control measures shall be considered as part of a BACT determination.

91.1.3 Effective Date Of This Regulation:

91.1.3.1 Regulations 91.1 through 91.3 shall be effective in hydrographic area 212 on their adoption by the District Board of Health of Clark County on June 22, 2000.

91.1.3.2 Regulations 91.1 through 91.3 shall be effective in hydrographic areas 216 and 217 on April 1, 2002.

91.2 Requirements:

91.2.1 **Unpaved Roads:** An OWNER AND/OR OPERATOR of an unpaved road in a PM₁₀ nonattainment area, an area subject to a PM₁₀ maintenance plan defined under 42 U.S. Code § 7505a, or the Apex Valley (hydrographic areas 216 and 217) shall implement one of the CONTROL MEASURES set forth in Subsection 91.2.1.3 of this Regulation, except as set forth in Subsection 91.2.1.1 of this Regulation. For the purpose of this Regulation, the CONTROL MEASURES shall be considered effectively implemented when the unpaved roadway complies with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation. **Advisory Notice:** In order to

conserve water to the greatest extent practicable, the use of RECLAIMED WATER is highly encouraged.

91.2.1.1 Implementation Of CONTROL MEASURES For Existing Unpaved Roads:

91.2.1.1.1 OWNERS AND/OR OPERATORS of existing unpaved roads that were constructed prior to June 22, 2000 in hydrographic area 212 shall implement one of the CONTROL MEASURES set forth Subsection 91.2.1.3 of this Regulation according to the following schedule:

- (a) CONTROL MEASURES shall be implemented for one third (1/3) of the total miles of unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by June 1, 2001.
- (b) CONTROL MEASURES shall be implemented for two thirds (2/3) of the total miles of unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by June 1, 2002.
- (c) CONTROL MEASURES shall be implemented for all unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by June 1, 2003.
- (d) CONTROL MEASURES set forth in Subsection 91.2.1.3 shall be implemented for existing unpaved roads on which vehicular traffic is equal to or greater than 150 vehicles per day that develops after June 1, 2003. CONTROL MEASURES shall be implemented within 365 calendar days following the initial discovery that vehicular traffic equals or exceeds 150 vehicles per day and that the road surface does not comply with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation. The CONTROL OFFICER may require short-term stabilization of any unpaved road subject to Subsection 91.2.1.1(d).
- (e) Non-federal Requirement: CONTROL MEASURES set forth in Subsection 91.2.1.3 shall be implemented for existing unpaved roads having vehicular traffic of less than 150 vehicles per day within 365 calendar days following the initial discovery that the road surface does not comply with the stabilization standards set forth in Section 91.2.1.4 of this Regulation. The requirements of this Subsection (91.2.1.1 (e)) shall not constitute applicable State Implementation Plan requirements pursuant to Section 189 of the federal Clean Air Act. The CONTROL OFFICER may require short-term stabilization of any unpaved road subject to Subsection 91.2.1.1 (e)). For the purpose of this Subsection, the CONTROL

MEASURES shall be considered effectively implemented when the unpaved road complies with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation.

91.2.1.1.2 OWNERS AND/OR OPERATORS of existing unpaved roads that were constructed prior to April 1, 2002 in hydrographic areas 216 and 217 shall implement one of the CONTROL MEASURES set forth Subsection 91.2.1.3 of this Regulation according to the following schedule:

- (a) CONTROL MEASURES shall be implemented for one third (1/3) of the total miles of unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by April 1, 2003.
- (b) CONTROL MEASURES shall be implemented for two thirds (2/3) of the total miles of unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by April 1, 2004.
- (c) CONTROL MEASURES shall be implemented for all unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by April 1, 2005.
- (d) CONTROL MEASURES set forth in Subsection 91.2.1.3 shall be implemented for existing unpaved roads on which vehicular traffic is equal to or greater than 150 vehicles per day that develops after April 1, 2005. CONTROL MEASURES shall be implemented within 365 calendar days following the initial discovery that vehicular traffic equals or exceeds 150 vehicles per day and that the road surface does not comply with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation. The CONTROL OFFICER may require short-term stabilization of any unpaved road subject to Subsection 91.2.1.1(d).
- (e) Non-federal Requirement: CONTROL MEASURES set forth in Subsection 91.2.1.3 shall be implemented for existing unpaved roads having vehicular traffic of less than 150 vehicles per day within 365 calendar days following the initial discovery that the road surface does not comply with the stabilization standards set forth in Section 91.2.1.4 of this Regulation. The requirements of this Subsection (91.2.1.1 (e)) shall not constitute applicable State Implementation Plan requirements pursuant to Section 189 of the federal Clean Air Act. The CONTROL OFFICER may require short-term stabilization of any unpaved road subject to Subsection 91.2.1.1 (e)). For the purpose of this Subsection, the CONTROL MEASURES shall be considered effectively implemented when the

unpaved road complies with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation.

91.2.1.2 No unpaved roads or alleys may be constructed in public thoroughfares in hydrographic area 212 after June 22, 2000, or in hydrographic areas 216 and 217 after April 1, 2002, unless the unpaved road is an interim component of an active paving project.

91.2.1.3 **CONTROL MEASURES:**

- (a) PAVE, or
- (b) Apply DUST PALLIATIVES, in compliance with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation, or
- (c) Apply and maintain an alternative CONTROL MEASURE approved in writing by the CONTROL OFFICER and the Region IX Administrator of the EPA.

91.2.1.4 **Stabilization Standards:** For the purpose of this rule, CONTROL MEASURES shall be considered effectively implemented when stabilization observations for FUGITIVE Dust EMISSIONS from unpaved roads and unpaved alleys do not exceed 20% OPACITY and do not equal or exceed 0.33 oz/ft² silt loading, or do not exceed 6% silt content, as determined by Subsection 91.4.1 of these Regulations.

91.3 **Record Keeping Requirements**

91.3.1 **Record Keeping:** Any person subject to the requirements of this Regulation shall compile and retain records that provide evidence of CONTROL MEASURE application, by indicating type of treatment or CONTROL MEASURE, extent of coverage, and date applied. The records and supporting documentation shall be made available to the CONTROL OFFICER within 24 hours from written or verbal request.

91.3.2 **Records Retention:** Copies of the records required by Subsection 91.3.1 (Record Keeping Requirements) of this Regulation shall be retained for at least one year.

91.3.3 **Reports Required:** In addition to complying with the record keeping requirements specified in Subsection 91.3.1, OWNERS of unpaved roads shall be subject to the requirements set forth in Subsection 91.2.1.1, and shall prepare and submit a written report to the CONTROL OFFICER documenting compliance with the provisions of Subsection 91.2.1.1. This report shall be prepared for the years 2001, 2002, and 2003 for OWNERS of unpaved roads in hydrographic areas 212, for the years 2003, 2004, and 2005 for OWNERS of unpaved roads in hydrographic areas 216 and

217, and shall be submitted to the CONTROL OFFICER no later than October first of each year and shall include:

91.3.3.1 The total miles of unpaved roads under the jurisdiction of the OWNER and the miles PAVED during the reporting period subject to the requirements of Subsection 91.2.1.1. Miles of PAVING for roads subject to Subsections 91.2.1.1.1(a), 91.2.1.1.1(b), and 91.2.1.1.1(c) must be listed separately from paving of roads found to be subject Subsection 91.2.1.1.1 (d). Miles of PAVING for roads subject to Subsections 91.2.1.1.2(a), 91.2.1.1.2(b), and 91.2.1.1.2(c) must be listed separately from paving of roads found to be subject Subsection 91.2.1.1.2(d).

91.4 **Test Methods**

91.4.1 **Stabilization Test Methods For Unpaved Roads And Unpaved Alleys:**

91.4.1.1 **OPACITY Test Method:** The purpose of this test method is to estimate the percent OPACITY of FUGITIVE DUST plumes caused by vehicle movement on unpaved roads, unpaved alleys, and unpaved EASEMENTS. This method can only be conducted by an individual who has received certification as a qualified Visible EMISSIONS Evaluator.

- (a) Step 1: Stand at least 16.5 feet from the FUGITIVE DUST source in order to provide a clear view of the EMISSIONS with the sun oriented in the 140-degree sector to the back. Following the above requirements, make OPACITY observations so that the line of vision is approximately perpendicular to the dust plume and wind direction. If multiple plumes are involved, do not include more than one plume in the line of sight at one time.
- (b) Step 2: Record the FUGITIVE DUST source location, source type, method of control used, if any, observer's name, certification data and affiliation, and a sketch of the observer's position relative to the FUGITIVE DUST source. Also, record the time, estimated distance to the FUGITIVE DUST source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position to the FUGITIVE DUST source, and color of the plume and type of background on the visible emission observation form both when OPACITY readings are initiated and completed.
- (c) Step 3: Make OPACITY observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make OPACITY observations approximately 1 meter above the surface from which the plume is generated. Note that the observation is to be made at only one visual point upon generation of a plume, as opposed to visually tracking the entire length of a

dust plume as it is created along a surface. Make two observations per vehicle, beginning with the first reading at zero seconds and the second reading at five seconds. The zero-second observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume but, instead, observe the plume briefly at zero seconds and then again at five seconds.

- (d) Step 4: Record the OPACITY observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average OPACITY of EMISSIONS for a 5-second period. While it is not required by the test method, EPA recommends that the observer estimate the size of vehicles which generate dust plumes for which readings are taken (e.g. mid-size passenger car or heavy-duty truck) and the approximate speeds the vehicles are traveling when readings are taken.
- (e) Step 5: Repeat Step 3 (Subsection 91.4.1.1(c) of this Regulation) and Step 4 (Subsection 91.4.1.1 (d) of this Regulation) until you have recorded a total of 12 consecutive OPACITY readings. This will occur once six vehicles have driven on the source in your line of observation for which you are able to take proper readings. The 12 consecutive readings must be taken within the same period of observation but must not exceed 1 hour. Observations immediately preceding and following interrupted observations can be considered consecutive.
- (f) Step 6: Average the 12 OPACITY readings together. If the average OPACITY reading equals 20% or lower, the source is in compliance with the OPACITY standard described in Section 91 of these Regulations.

91.4.1.2 **Silt Content Test Method:** The purpose of this test method is to estimate the silt content of the trafficked parts of unpaved roads, unpaved alleys, and unpaved EASEMENTS. The higher the silt content, the greater the amount of fine dust particles that are entrained into the atmosphere when cars and trucks drive on unpaved roads, unpaved alleys, and unpaved EASEMENTS.

- (a) Equipment:
 - (1) A set of sieves with the following openings: 4 millimeters (mm), 2 mm, 1 mm, 0.5 mm and 0.25 mm, a lid, and collector pan
 - (2) A small whiskbroom or paintbrush with stiff bristles and dustpan 1 foot in width (the broom/brush should preferably

have one, thin row of bristles no longer than 1.5 inches in length)

- (3) A spatula without holes
 - (4) A small scale with half ounce increments (e.g., postal/package scale)
 - (5) A shallow, lightweight container (e.g., plastic storage container)
 - (6) A sturdy cardboard box or other rigid object with a level surface
 - (7) A calculator
 - (8) Cloth gloves (optional for handling metal sieves on hot, sunny days)
 - (9) Sealable plastic bags (if sending samples to a laboratory)
 - (10) A pencil/pen and paper
- (b) Step 1: Look for a routinely traveled surface, as evidenced by tire tracks (only collect samples from surfaces that are not damp due to precipitation or dew). This statement is not meant to be a standard in itself for dampness where watering is being used as a CONTROL MEASURE. It is only intended to ensure that surface testing is done in a representative manner. Use caution when taking samples to ensure personal safety with respect to passing vehicles. Gently press the edge of a dustpan (1 foot in width) into the surface four times to mark an area that is 1 square foot. Collect a sample of loose surface material using a whiskbroom or brush and slowly sweep the material into the dustpan, minimizing escape of dust particles. Use a spatula to lift heavier elements such as gravel. Only collect dirt/gravel to an approximate depth of 3/8 inch or 1 cm in the 1 square foot area. If you reach a hard, underlying subsurface that is greater than 3/8 inch in depth, do not continue collecting the sample by digging into the hard surface. In other words, you are only collecting a surface sample of loose material down to 1 cm. In order to confirm that samples are collected to 1 cm in depth, a wooden dowel or other similar narrow object at least one foot in length can be laid horizontally across the survey area while a metric ruler is held perpendicular to the dowel.
- At this point, you can choose to place the sample collected into a plastic bag or container and take it to an independent

laboratory for silt content analysis. A reference to the procedure the laboratory is required to follow is at the end of this section.

- (c) Step 2: Place a scale on a level surface. Place a lightweight container on the scale. Zero the scale with the weight of the empty container on it. Transfer the entire sample collected in the dustpan to the container, minimizing escape of dust particles. Weigh the sample and record its weight.
- (d) Step 3: Stack a set of sieves in order according to the size openings specified above, beginning with the largest size opening (4 mm) at the top. Place a collector pan underneath the bottom (0.25 mm) sieve.
- (e) Step 4: Carefully pour the sample into the sieve stack, minimizing escape of dust particles by slowly brushing material into the stack with a whiskbroom or brush (on windy days, use the trunk or door of a car as a wind barricade). Cover the stack with a lid. Lift up the sieve stack and shake it vigorously up, down and sideways for at least 1 minute.
- (f) Step 5: Remove the lid from the stack and disassemble each sieve separately, beginning with the top sieve. As you remove each sieve, examine it to make sure that all of the material has been sifted to the finest sieve through which it can pass; e.g. material in each sieve (besides the top sieve that captures a range of larger elements) should look the same size. If this is not the case, re-stack the sieves and collector pan, cover the stack with the lid, and shake it again for at least 1 minute (you only need to reassemble the sieve(s) that contain material, which requires further sifting).
- (g) Step 6: After disassembling the sieves and collector pan, slowly sweep the material from the collector pan into the empty container originally used to collect and weigh the entire sample. Take care to minimize escape of dust particles. You do not need to do anything with material captured in the sieves; only the collector pan. Weigh the container with the material from the collector pan and record its weight.
- (h) Step 7: If the source is an unpaved road, multiply the resulting weight by 0.38. If the source is an UNPAVED PARKING LOT, multiply the resulting weight by 0.55. The resulting number is the estimated silt loading. Then, divide by the total weight of the sample you recorded earlier in Step 2 (Subsection 91.4.1.2(c) of this Regulation) and multiply by 100 to estimate the percent silt content.

- (i) Step 8: Select another two routinely traveled portions of the unpaved road or UNPAVED PARKING LOT and repeat this test method. Once you have calculated the silt loading and percent silt content of the 3 samples collected, average your results together.
- (j) Step 9: Examine Results. If the average silt loading is less than 0.33 oz/ft², the surface is stable. If the average silt loading is greater than or equal to 0.33 oz/ft², then proceed to examine the average percent silt content. If the source is an unpaved road, unpaved alley, or unpaved EASEMENT and the average percent silt content is 6% or less, the surface is stable. If your field test results are within 2% of the standard (for example, 4%-8% silt content on an unpaved road, alley, or EASEMENT), it is recommended that you collect 3 additional samples from the source according to Step 1 (Subsection 91.4.1.2(b) of this Regulation) and take them to an independent laboratory for silt content analysis.
- (k) Independent Laboratory Analysis: You may choose to collect 3 samples from the source, according to Step 1 (Subsection 91.4.1.2(b) of this Regulation), and send them to an independent laboratory for silt content analysis rather than conduct the sieve field procedure. If so, the test method the laboratory is required to use is:

"Procedures For Laboratory Analysis Of Surface/Bulk Loading Samples", (Fifth Edition, Volume I, Appendix C.2.3 "Silt Analysis", 1995), AP-42, Office of Air Quality Planning & Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina

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