

BUTTE COUNTY AIR QUALITY MANAGEMENT DISTRICT

**RULE 237 - SOIL DECONTAMINATION**

*(Adopted August 22, 2002)*

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**Rule 237**

- 1 **PURPOSE:** To limit emissions of volatile organic compounds (VOC) from soil excavation and remediation, or treatment of soil that has been contaminated by volatile organic compounds.
- 2 **APPLICABILITY:** The provisions of this Rule apply to the excavation, aeration, or treatment of soils contaminated by volatile organic compounds.
- 3 **EXEMPTIONS:** Requirements of this Rule shall not apply to:
  - 3.1 Decontamination of less than one cubic yard of contaminated soil;
  - 3.2 Contaminated soil exposed for the sole purpose of sampling;
  - 3.3 Soil contaminated solely by an organic liquid having an initial boiling point of 302F, or higher, as determined by American Society for Testing and Materials (ASTM) D86-78, provided such soil is not heated above ambient temperature and samples of the contaminating liquid can be obtained; or
  - 3.4 Emergency excavation and/or decontamination of soil performed by, under the jurisdiction of, or pursuant to requirements of, an authorized health officer, agriculture commissioner, fire protection officer, or other agency authorized officer. The Air Pollution Control Officer (APCO) shall be notified prior to commencing such excavation.

## 4 DEFINITIONS

- 4.1 Aeration:** The exposure of excavated contaminated soil to the atmosphere without the use of air pollution control equipment or vapor extraction equipment.
- 4.2 Bioremediation System:** A system that uses endogenous or exogenous biological agents to degrade soil contaminants to less hazardous compounds. In bioremediation, microbial processes are controlled by factors such as soil pH, salinity, oxygen level, water content, and nutrient level.
- 4.3 Contaminant:** Any gasoline, diesel fuel, jet fuel, or other hydrocarbon that may be harmful to the public, as determined by the APCO.
- 4.4 Contaminated:** Any soils containing the above.
- 4.5 Diesel Fuel:** A blend of petroleum #2 fuel in the middle distillate range (heavier than gasoline and less volatile but lighter than lubrication oil) that may contain additional additives.
- 4.6 Gasoline:** Any petroleum distillate having a Reid vapor pressure of 4.0 pounds per square inch or greater, which is sold or intended for sale for use in motor vehicles or engines and is commonly or commercially known or sold as gasoline. Under this definition, methanol 85 (M85) shall be considered gasoline.
- 4.7 Impervious Barrier:** Physical covering for contaminated soil which controls VOC emissions to the extent a VOC analyzer detects less than 50 ppm by volume VOC (measured as hexane) at a distance of three inches above the surface.
- 4.8 School:** Any public or private establishment used for the purpose of educating more than 12 children in kindergarten or any of the grades 1 through 12, inclusive, but does not include any private establishment in which education is primarily conducted in private homes (see California Health & Safety Code 42301.9).
- 4.9 Soil Aeration Project:** One or more operations conducted at a stationary source over any 12-month rolling period, in which contaminated soil is exposed to the atmosphere without the use of air pollution control equipment.
- 4.10 Underground Storage Tank (UST):** Any one or combination of tanks, having at least 10 percent of the underground tank system volume, including the volume of any connected piping, below the ground surface or enclosed below earthen materials.
- 4.11 Vapor Extraction System:** An underground or aboveground system that

extracts contaminants from soil or ground water using air injection and/or suction and routes the vapors to the surface of the contaminated soil. This definition does not include equipment designed or used to expose soil openly to the atmosphere to facilitate evaporation of volatile organic compounds.

**4.12 Volatile Organic Compounds (VOCs):** Any compound containing at least one atom of carbon, excluding any exempt compound as identified in Rule 102 (Definitions) of these Rules and Regulations.

**4.13 Volatile Organic Compound Vapor Analyzer:** A hydrocarbon vapor analyzer, which satisfies the specification requirements of the United States Environmental Protection Agency (EPA) Method 21, 40 CFR Part 60.

## 5 REQUIREMENTS

**5.1 Excavation:** No person shall excavate soils subject to this Rule without first determining with a VOC vapor analyzer, by conducting soil sampling, or other method approved by the APCO, if excavated soils are contaminated.

**5.1.1** If excavated soil is contaminated soil, such soil shall be transported off-site for treatment, recycling, or disposal at an approved disposal site; stockpiled on site for aeration pursuant to Section 5.2 below; or returned to the excavation site from which the soil originated. Soil returned to the excavation site shall be covered with a layer of uncontaminated soil no less than six inches deep, or it may be covered by an impervious barrier.

**5.1.2** Contaminated soil not being aerated in accordance with Section 5.2 shall be covered except when soil is being added or removed. Contaminated soil shall be covered with a layer of uncontaminated soil no less than six inches deep, or it may be covered by an impervious barrier.

**5.2 Aeration:** No person shall cause or allow the aeration of soil that contains gasoline, diesel fuel, jet fuel, or any other hydrocarbon that may be harmful to the public, as determined by the APCO, without first obtaining an Authority to Construct permit from the APCO, subject to the following limitations:

**5.2.1** Aeration shall be prohibited within 1000 feet of any school, unless a screening health risk assessment is performed, using methodology described in the "CAPCOA Air Toxics Assessment Manual" and the screening health risk assessment indicates an excess cancer risk of less than one in a million and a chronic and acute health hazard indexes are less than 1, and

**5.2.2** The maximum addition rate of contaminated soil to an active soil aeration pile shall comply with the following limits:

### **Maximum Allowable Addition Rates of Contaminated Soil**

<b>Organic Content of Soil (ppm by weight)</b>	<b>Allowable Soil Addition Rate (Cubic yards/day)</b>
0 – 50	Any Amount
51 – 100	600
101 – 500	120
501 – 1000	60
1001 – 2000	30
2001 – 3000	15
3001 – 4000	10
4001 – 5000	6
5001 or greater	none

**5.2.3** No aeration of contaminated soils shall be permitted to cause a nuisance, as defined in the California Health and Safety Code Section 41700 and District Rules and Regulations.

**5.3 Treatment Systems:** Treatment of contaminated soil, except as allowed in Section 5.2 (Aeration) of this Rule, shall be accomplished by:

**5.3.1** Installation and operation of a VOC collection and control system for in-situ treatment of contaminated soil;

**5.3.2** Installation and operation of a VOC collection and control system for on-site treatment of contaminated soil; or,

**5.3.3** Installation of any alternative VOC control technology, which provides an equivalent or greater level of control, may be approved by the APCO on a case-by-case basis.

## 6 ADMINISTRATIVE REQUIREMENTS

**6.1 Test Methods:** The following test methods shall be used to determine VOC content of soils:

**6.1.1** Initial boiling point of organic liquids shall be measured in accordance with ASTM D86.

**6.1.2** For purposes of measuring volatilization of organic compounds from contaminated soils, organic compound concentrations shall be measured using a VOC analyzer, which satisfies the requirements of EPA reference Method 21, 40 CFR part 60.

**6.1.3** The organic content of soil shall be determined, as appropriate, by EPA Reference Method 8015, 8260 or the gas chromatographic method contained in the “Leaking Underground Fuel Tank (LUFT) Manual (October, 1989)” as approved by the California Department of Health Services.

**6.2 Soil Sampling Procedure (Used in Determining Organic Content):** One composite sample shall be collected and analyzed for every 50 cubic yards of excavated contaminated soil to be aerated. At least one composite sample shall be collected from each inactive, uncovered storage pile within one (1) hour after excavation. (Samples are not required if soil is not “contaminated soil”.)

- 6.2.1** A composite sample shall consist of one sample taken from the center of each of the four equal sectors of the area required to be sampled using procedures described below unless the APCO approves another method.
- 6.2.2** Samples shall be taken from at least three inches below the surface of a pile using a driven-tube type sampler, capped and sealed with inert materials, and extruded in the lab to reduce loss of volatile materials; or by using a clean brass or stainless steel tube (at least three inches long) driven into the soil with a suitable instrument. Ends of the tube shall then be covered with aluminum foil, then plastic end caps, and finally wrapped with a suitable tape. Samples shall be immediately placed on ice, or dry ice, for transport to a laboratory.
- 6.2.3** Chain-of-custody records shall be kept to document possession of a sample from collection in the field until it is analyzed.