

RULE 4642 SOLID WASTE DISPOSAL SITES (Adopted July 20, 1995; Amended April 16, 1998)

1.0 Purpose

The purpose of this rule is to reduce volatile organic compound (VOC) emissions from solid waste disposal sites.

2.0 Applicability

The provisions of this rule apply to any solid waste disposal sites which has a gas collection system and/or control device in operation, or undergoing maintenance or repair.

3.0 Definitions

3.1 Control Device: any equipment which disposes of the collected gas through combustion, on-site gas treatment and subsequent sale, sale and processing off-site, or other equivalent methods.

3.2 Active Disposal Area: An area in a landfill that has not been closed pursuant to California Code of Regulations Title 14, Chapter 3, Article 7.8 and Title 23, Chapter 15, Article 8.

3.3 Destruction Efficiency: a measure of the efficiency of the control device to combust, transform, or otherwise prevent the emissions of VOC-containing landfill gases to the atmosphere.

3.4 Enclosed Flare: a flare which is composed of multiple gas burners that are grouped in an enclosure, and are staged to operate at a wide range of flow rates. The basic elements of an enclosed flare system are described in the California Air Resources Board's Suggested Control Measure for Landfill Gas Emissions, Appendix E, Section C.1, dated September 13, 1990.

3.5 Energy Recovery Device: any combustion device which uses landfill gas to produce energy in the form of steam or electricity, including, but not limited to, gas turbines, internal combustion engines and boilers.

3.6 Gas Collection System: any device which employs mechanical blowers or compressors to create a pressure gradient and extract landfill gas.

3.7 Hazardous Waste: defined in California Code of Regulation Title 14, Division 7, Chapter 3 (Minimum Standards for Solid Waste Handling and Disposal).

- 3.8 Landfill: any location within the solid waste disposal site used for the permanent disposal of waste where the organic portion of the waste is subject to the natural process of aerobic and anaerobic decomposition.
- 3.9 Landfill Gas: any untreated, raw gas derived through a natural process from the decomposition of organic waste deposited in a landfill, from the evolution of organic species in the waste, or from chemical reactions of substances in the waste.
- 3.10 Maintenance: work performed on a gas collection system and/or control device in order to ensure continued compliance with District rules, regulations, and/or Permits to Operate, and to prevent its failure or malfunction.
- 3.11 Minimization: the shutting of valves, insertion of sewer plugs, or any other similar method that reduces emissions of landfill gas to the atmosphere.
- 3.12 Non-repeatable, Momentary Readings: indications of the presence of organic gases on a portable hydrocarbon detection instrument which persist for less than five seconds and do not recur when the sampling probe is placed in the same location.
- 3.13 Open Flare: a vertically or horizontally oriented open pipe flare from which gases are released into the air before combustion is commenced.
- 3.14 Operator: the owner of a solid waste disposal site and any other person who through lease, franchise agreement, or any other arrangement with the landowner becomes responsible to the APCO for the following requirements for a solid waste disposal site:
 - 3.14.1 Obtaining Authority to Construct and/or Permit to Operate for a gas collections system and control device;
 - 3.14.2 Complying with all applicable local air pollution requirements;
 - 3.14.3 The physical operation of the gas collection system and control device; and
 - 3.14.4 Maintaining the gas collection system and control device during the post closure maintenance period.
- 3.15 Portable Hydrocarbon Detection Instrument: a hand held hydrocarbon analyzer using detector types which include, but are not limited to, conductivity, flame ionization, catalytic oxidation, infrared absorption, and photo-ionization, which meet the requirements of USEPA Test Method 21, 40 CFR Part 60.
- 3.16 Repair: work performed on a gas collection system and/or control device in order to return it to compliance with District rules, regulations and/or Permits to operate.

- 3.17 Solid Waste: all putrescible and non-putrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semisolid wastes, sludge, and other discarded solid and semisolid wastes.
 - 3.18 Solid Waste Disposal Site: the place, location, tract of land, area, or premises in use, intended to be used, or which has been used for the landfill disposal of wastes and/or evaporation of liquid chemical wastes.
 - 3.19 Total Organic Compounds: all hydrocarbon compounds containing hydrogen and carbon with or without other chemical elements.
 - 3.20 Volatile Organic Compound (VOC): defined in Rule 1020 (Definitions).
- 4.0 Exemptions
- 4.1 The requirements of this rule shall not apply to:
 - 4.1.1 Active disposal areas in a landfill.
 - 4.1.2 Any solid waste disposal site which is subject to the requirements of 40 CFR 60 Subpart WWW (Standards of Performance for Municipal Solid Waste Landfills), or Subpart Cc (Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills).
 - 4.1.3 Hazardous waste disposal sites.
 - 4.2 The requirements of Section 5.1 and 5.2 shall not apply to solid waste disposal sites during maintenance of the landfill gas collection system and/or control device provided the requirements of Section 5.4 are met.
 - 4.3 For existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of this rule shall be exempt from Best Available Control Technology and Offset requirements of Rule 2201 (New and Modified Stationary Source Review Rule) for all air pollutants provided the conditions in Sections 4.3.1 through 4.3.4 are met.
 - 4.3.1 there shall be no change in the physical or operational design of the existing facility, except for those changes to the design needed for the installation or modification of the emission control technique itself;
 - 4.3.2 there shall be no change in the permitted rating or permitted operating schedule of the permitted unit;

- 4.3.3 there shall no increase in emissions from the stationary source that will cause or contribute to any violation of a National Ambient Air Quality Standard, Prevention of Significant Deterioration increment, or Air Quality Related Value in Class I areas; and
- 4.3.4 the project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO_x, or 25 tons per year of VOC, or 15 tons per year of SO_x, or 15 tons per year of PM-10, or 50 tons per year of CO.

5.0 Requirements

5.1 Solid Waste Disposal Site Gas Collection System

- 5.1.1 The gas collection system shall be operated in such a manner that the surface emissions testing of the landfill shows the concentrations of total organic compounds (measured as methane) do not exceed 1,000 ppmv at any point on the surface of the solid waste disposal site or along the gas transfer path of the gas collection system. Sampling ports shall be installed on each well head. Surface emissions testing shall be conducted according to Section 6.1.1.
- 5.1.2 The gas collection system shall be operated in a manner which maximizes the amount of landfill gas extracted while preventing overdraw that can cause fires or damage the gas collection system.
- 5.1.3 All landfill gas collected by a gas collection system shall be controlled by a control device which meets the requirements of Section 5.2.

5.2 Control Device

- 5.2.1 Except for control devices subject to Section 5.2.2, a control device shall achieve a VOC destruction efficiency of at least 98 percent by weight, or reduce the VOC concentration to 20 ppmv or less (measured as methane) corrected to 3 percent oxygen.
- 5.2.2 For control devices which have an Authority to Construct issued prior to July 20, 1995, such control devices shall achieve a destruction efficiency of at least 90 percent by weight or reduce the VOC concentration to 30 ppmv or less (measured as methane) corrected to 3 percent oxygen.
- 5.2.3 Compliance with the VOC destruction efficiency requirement shall be verified in accordance with Section 6.1.4 and 6.3.2.

5.2.4 An enclosed flare or an open flare may be used as a control device provided the operator submits, for approval by the APCO, a flare manufacturer's written guarantee and supporting data to demonstrate that the flare achieves the VOC destruction efficiency in Section 5.2.1 or 5.2.2. The operator shall maintain and operate the flare according to the manufacturer's specification, and shall meet the following operational requirements:

5.2.4.1 An enclosed flare shall be operated in accordance with the applicable provisions of 40 CFR 60.756(b) and 40 CFR 60.18.

5.2.4.2 An open flare shall be operated in accordance with the applicable provisions of and 40 CFR 60.756(c) and 40 CFR 60.18.

5.3 Emission Control During Excavation of Solid Waste

Whenever buried solid waste is brought to the surface during the installation or preparation of wells, trenches, piping, or other equipment or when landfill solid waste is excavated or moved, the operator shall cover the excavated solid waste using fresh soil, plastic sheeting, or vapor retarding foam as necessary in order to prevent odorous emissions and to minimize the release of landfill gas.

5.4 Emission Control During Maintenance

During maintenance of the gas collection system and/or control device the following conditions shall be met:

5.4.1 Notify the APCO by telephone at least 24 hours before performing any maintenance work that requires the system to be shutdown. The notification shall include a description of work, the date work will be performed and the amount of time needed to complete the maintenance work.

5.4.2 Emissions of landfill gas to the atmosphere shall be minimized during shutdown.

5.4.3 The gas collection system and/or control device shall not be shut down for more than 144 cumulative hours in any calendar year.

6.0 Administrative Requirements

6.1 Test Methods

6.1.1 Surface Emissions Testing

The operator shall perform the surface emission testing of solid waste disposal sites in accordance with Sections 6.1.1 and 6.3.1 to insure the requirements of Section 5.1 are met. Prior to testing, the operator shall submit a written Surface Emission Testing Protocol for approval by the APCO. The testing protocol shall meet the following requirements:

- 6.1.1.1 Testing shall be conducted using a portable hydrocarbon detection test instrument. The instrument shall be calibrated before and after each test using zero air and an approximately 500 parts per million by volume (ppmv) methane based standard calibration gas in accordance with the manufacturer's recommendations. The instrument serial number and instrument calibration data shall be recorded for each calibration and maintained as a permanent record.
- 6.1.1.2 Testing shall be performed by holding the detector probe within three inches of the surface while walking a pattern of parallel paths not more than 90 feet apart over the entire surface area of the solid waste disposal site which contains buried refuse, and along the gas transfer path of the gas collection system. The operator shall monitor the instrument readings at least once every 30 seconds, at normal walking speed (approximately 2 miles per hour), record only the readings that exceed 1,000 ppmv, and geographically locate the specific area on the landfill surface where the exceedances occur. Cracks, holes and other breaches in the solid waste disposal site cover, as well as areas where buried waste interfaces with undisturbed native soil, shall be tested. Sampling is not required on steep slopes or other areas posing an unavoidable hazard to testing personnel.
- 6.1.1.3 Testing shall be terminated when the average wind speed exceeds five miles per hour or the instantaneous wind speed exceeds ten miles per hour. Average wind speed shall be determined on a ten-minute average using an on-site anemometer. The APCO may approve exceptions to the wind speed requirement for solid waste disposal sites which consistently have winds in excess of these limits.

Application for this exemption must be made in writing prior to testing.

- 6.1.1.4 Testing shall be conducted when the solid waste disposal site is dry and no rain is falling. The site is considered dry when there has been no rain for 72 hours prior to testing.
- 6.1.2 Measurement of the volumetric flow shall be performed using CARB Method 2.
- 6.1.3 Heating value of process gas shall be determined by using the latest revision of test method ASTM D1826 or ASTM D3588.
- 6.1.4 The destruction efficiency of the control device shall be evaluated as follows:
 - 6.1.4.1 The operator shall measure, in dry standard cubic feet, the volumetric flow rate of the collected landfill gas entering the control device and the volumetric flow rate of the control device effluent gases;
 - 6.1.4.2 Simultaneous grab samples shall be taken at the inlet to the control device and in the control device. The VOC concentrations of the samples shall be determined by using USEPA Test Method 25;
 - 6.1.4.3 The control device destruction efficiency shall be computed using the following equation:

$$Destruction\ Efficiency = \left[1 - \frac{VOC_o \times exhaust\ flow}{VOC_i \times inlet\ flow} \right] \times 100\%$$

Where:

VOC_o = measured concentration of VOC in the control device exhaust

VOC_i = measured concentration of VOC in the landfill gas entering the control device

6.2 Recordkeeping

The operator shall maintain the following written records for a period of five years from the date of each entry. The records shall be made available during normal

business hours from Monday through Friday, and shall be submitted to the APCO upon request.

- 6.2.1 Records of surface emissions tests including: the time; weather conditions, including precipitation records; areas sampled; calibration records; and test results.
- 6.2.2 If applicable, emission control device source test reports showing the VOC destruction efficiency.
- 6.2.3 If applicable, records of flare combustion temperature including the dates and times of temperature readings, net heating value of landfill gas being combusted, volumetric gas flow rate and flare exit velocity.
- 6.2.4 Maintenance-related or other collection system and control device downtime, including individual well shutdown.

6.3 Compliance Testing

The operator shall notify the District not later than 30 days prior to any compliance test required by Section 6.3.1 and 6.3.2. Compliance test reports shall be submitted to the District within 60 days of completion of testing.

- 6.3.1 Surface emissions testing performed to evaluate the effectiveness of a gas collection system shall be conducted at least once in every six month period per calendar year. Upon completion of two successive semi-annual tests without an exceedance of the 1,000 ppmv standard, other than non-repeatable, momentary readings, the testing frequency may be reduced to once every calendar year. Subsequent exceedances of the 1,000 ppmv standard shall result in the re-establishment of the semi-annual testing requirement.
- 6.3.2 Compliance source testing of an energy recovery device used as a control device shall be conducted in accordance with the testing requirements of other applicable District's rules.

6.4 Emission Control Plan

The operator of a solid waste disposal site subject to this rule shall submit an Emission Control Plan as required by Section 7.3 to the APCO indicating the actions to be taken to comply with the requirements of the rule. A written approval of the plan shall be obtained from the APCO prior to implementing the plan. As operating experience is gained and site conditions change, the plan may be revised subject to the approval of the APCO. The plan shall, at a minimum, contain:

- 6.4.1 An engineering evaluation of the expected landfill gas generation rate and design specifications which demonstrate that the gas collection system will meet the requirements of this rule;
- 6.4.2 A map showing the location, spacing, and depths of extraction wells or trenches, and the direction of flow through the header system to the control device;
- 6.4.3 A map showing the areas with steep slopes and other safety hazards to personnel performing the surface emissions testing. A brief explanation of these hazards must be given;
- 6.4.4 Locations of sampling probes;
- 6.4.5 A schedule detailing inspection and maintenance intervals. The schedule must include the dates and durations of expected system shutdowns as well as the work or maintenance expected;
- 6.4.6 Written justification for less than continuous operation of the gas collection system;
- 6.4.7 Operating procedures including system start-up, balancing, routine maintenance, and shutdown;
- 6.4.8 Qualifications and training requirements for all on-site personnel;
- 6.4.9 A description of techniques used to ensure that excess vacuum and gas withdrawal resulting in air intrusion into the landfill are minimized.

7.0 Compliance Schedule

- 7.1 By July 20, 1996, the operator shall submit a Surface Emissions Testing Protocol to the APCO for approval.
- 7.2 Within 12 months after approval of the Surface Emission Testing Protocol by the APCO, the operator shall achieve full compliance with the requirements of this rule.
- 7.3 If any two (2) or more surface emissions tests exceed the 1,000 ppmv standard, the operator shall:
 - 7.3.1 submit an Emission Control Plan and a complete application for Authority to Construct, if necessary, within 12 months from the date of the second test failure;

- 7.3.2 be in full compliance with the rule within 12 months after the Authority to Construct is issued, or after approval of the Emission Control Plan; and
- 7.3.3 conduct compliance testing pursuant to Sections 6.3.1 and 6.3.2.