

**Chapter 70A.540 RCW**  
**LANDFILLS—METHANE EMISSIONS**

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**RCW 70A.540.010 Definitions.** The definitions in this section apply throughout this chapter unless the context clearly requires otherwise.

(1) "Active municipal solid waste landfill" means a municipal solid waste landfill that has accepted or is accepting solid waste for disposal and has not been closed in accordance with the requirements set forth in WAC 173-351-500 as it existed on January 10, 2022.

(2) "Air pollution" is presence in the outdoor atmosphere of one or more air contaminants in sufficient quantities and of such characteristics and duration as is, or is likely to be, injurious to human health, plant or animal life, or property, or which unreasonably interfere with enjoyment of life and property. For the purpose of this chapter, air pollution does not include air contaminants emitted in compliance with chapter 17.21 RCW.

(3) "Ambient air" means the surrounding outside air.

(4) "Authority" means any air pollution control agency whose jurisdictional boundaries are coextensive with the boundaries of one or more counties.

(5) "Closed municipal solid waste landfill" means a municipal solid waste landfill that is no longer accepting solid waste for disposal and has been closed in accordance with the requirements set forth in WAC 173-351-500 as it existed on January 10, 2022.

(6) "Department" means the department of ecology.

(7) "Emission" means a release of air contaminants into the ambient air.

(8) "Gas collection system" means any system that employs various gas collection wells and connected piping, and mechanical blowers, fans, pumps, or compressors to create a pressure gradient and actively extract landfill gas.

(9) "Gas control device" means any device used to dispose of or treat collected landfill gas including, but not limited to, enclosed flares, internal combustion engines, boilers and boiler-to-steam turbine systems, fuel cells, and gas turbines.

(10) "Gas control system" means any system that disposes of or treats collected landfill gas by one or more of the following means: Combustion; gas treatment for subsequent sale, or sale for processing off-site, including for transportation fuel and injection into a natural gas pipeline.

(11) "Municipal solid waste landfill" means a discrete area of land or an excavation that receives household waste and that is not a land application site, surface impoundment, injection well, or pile.

(12) "Person" means an individual, firm, public or private corporation, association, partnership, political subdivision of the state, municipality, or governmental agency. [2022 c 179 s 1.]

**RCW 70A.540.020 Application of chapter—Rules.** (1) This chapter applies to all municipal solid waste landfills that received solid waste after January 1, 1992, except as provided in subsection (2) of this section.

(2) This chapter does not apply to the following landfills:

(a) Landfills that receive only hazardous waste, or are currently regulated under the comprehensive environmental response, compensation, and liability act, 42 U.S.C. chapter 103; and

(b) Landfills that receive only inert waste or nondecomposable wastes.

(3) The department must adopt rules to implement this chapter. The rules adopted by the department must be informed by landfill methane regulations adopted by the California air resources board, the Oregon environmental quality commission, and the United States environmental protection agency. [2022 c 179 s 2.]

**RCW 70A.540.030 Waste in place report—Calculation of landfill gas heat input capacity.** (1) Each owner or operator of an active municipal solid waste landfill having fewer than 450,000 tons of waste in place must submit an annual waste in place report to the department or local authority pursuant to RCW 70A.540.070.

(a) The waste in place report must be prepared for the period of January 1st through December 31st of each year. The report must be submitted to the department or local authority during the subsequent calendar year, with the date of submission to be established by rule as adopted by the department.

(b) The waste in place report must be submitted annually until either:

(i) The active municipal solid waste landfill reaches a size greater than or equal to 450,000 tons of waste in place; or

(ii) The owner or operator submits a closure notification pursuant to RCW 70A.540.070.

(2) Each owner or operator of either an active municipal solid waste landfill having greater than or equal to 450,000 tons of waste in place or a closed municipal solid waste landfill having greater than or equal to 750,000 tons of waste in place must calculate the landfill gas heat input capacity pursuant to RCW 70A.540.080 and the department's implementing rules and must submit a landfill gas heat input capacity report to the department or local authority.

(a) If the calculated landfill gas heat input capacity is less than 3,000,000 British thermal units per hour recovered, the owner or operator must:

(i) Recalculate the landfill gas heat input capacity annually using the procedures specified in RCW 70A.540.080 and the department's implementing rules; and

(ii) Submit an annual landfill gas heat input capacity report to the department or local authority until either of the following conditions are met:

(A) The calculated landfill gas heat input capacity is greater than or equal to 3,000,000 British thermal units per hour recovered; or

(B) If the municipal solid waste landfill is active, the owner or operator submits a closure notification pursuant to RCW 70A.540.070.

(b) If the landfill gas heat input capacity is greater than or equal to 3,000,000 British thermal units per hour recovered, the owner or operator must either:

(i) Comply with the requirements of this chapter and the department's implementing rules; or

(ii) Demonstrate to the satisfaction of the department or local authority that after four consecutive quarterly monitoring periods there is no measured concentration of methane of 200 parts per million by volume or greater using the instantaneous surface monitoring procedures specified in RCW 70A.540.080 and the department's implementing rules. Based on the monitoring results, the owner or operator must do one of the following:

(A) If there is any measured concentration of methane of 200 parts per million by volume or greater from the surface of an active, inactive, or closed municipal solid waste landfill, comply with this chapter and the department's implementing rules adopted pursuant to RCW 70A.540.020;

(B) If there is no measured concentration of methane of 200 parts per million by volume or greater from the surface of an active municipal solid waste landfill, recalculate the landfill gas heat input capacity annually as required in (a) of this subsection until such time that the owner or operator submits a closure notification pursuant to RCW 70A.540.070 and the department's implementing rules adopted pursuant to RCW 70A.540.020; or

(C) If there is no measured concentration of methane of 200 parts per million by volume or greater from the surface of a closed or inactive municipal solid waste landfill, the requirements of this chapter and the department's implementing rules adopted pursuant to RCW 70A.540.020 no longer apply, provided that the following information is submitted to and approved by the department or local authority:

(I) A waste in place report pursuant to RCW 70A.540.070 and the department's implementing rules adopted pursuant to RCW 70A.540.020; and

(II) All instantaneous surface monitoring records. [2022 c 179 s 3.]

**RCW 70A.540.040 Gas collection and control system.** (1) The owner or operator of any municipal solid waste landfill that has a calculated landfill gas heat input capacity greater than or equal to 3,000,000 British thermal units per hour recovered must install a gas collection and control system that meets the requirements of this section and the department's implementing rules adopted pursuant to RCW 70A.540.020, unless the owner or operator demonstrates to the satisfaction of the department or local authority that after four

consecutive quarterly monitoring periods there is no measured concentration of methane of 200 parts per million by volume or greater using the instantaneous surface monitoring procedures specified in RCW 70A.540.080 and the department's implementing rules adopted pursuant to RCW 70A.540.020. If a municipal solid waste landfill partners with a third party to operate all or a portion of the gas collection and control system or energy recovery device, the obligation to comply with the requirements of this chapter are the responsibility of the owner or operator of the relevant portion of the gas collection and control system or energy recovery device.

(2) The gas collection and control system must handle the expected gas generation flow rate from the entire area of the municipal solid waste landfill and must collect gas at an extraction rate to comply with the surface methane emission limits set forth in RCW 70A.540.050 and the department's implementing rules.

(3) The gas collection and control system must be designed and operated so that there is no landfill gas leak that exceeds 500 parts per million by volume, measured as methane, at any component under positive pressure.

(4) The gas collection and control system, if it uses a flare, must achieve a methane destruction efficiency of at least 99 percent by weight and must use either an enclosed flare or, if the system uses an open flare, the open flare must comply with the following requirements:

(a) The open flare must meet the requirements of 40 C.F.R. Sec. 60.18 (as last amended by 73 Fed. Reg. 78209, December 22, 2008);

(b) An open flare installed and operating prior to December 31, 2022, may operate until January 1, 2032, unless the owner or operator demonstrates to the satisfaction of the department or local authority that the landfill gas heat input capacity is less than 3,000,000 British thermal units per hour pursuant to RCW 70A.540.080 and the department's implementing rules adopted pursuant to RCW 70A.540.020 and is insufficient to support the continuous operation of an enclosed flare or other gas control device; and

(c) The owner or operator may temporarily operate an open flare during the repair or maintenance of the gas control system, or while awaiting the installation of an enclosed flare, or to address off-site gas migration issues. Any owner or operator seeking to temporarily operate an open flare must submit a written request to the department or local authority pursuant to RCW 70A.540.100 and the department's implementing rules adopted pursuant to RCW 70A.540.020.

(5) If the gas collection and control system does not use a flare, it must either route the collected gas to an energy recovery device or devices, or must route the collected gas to a treatment system that processes the collected gas for subsequent sale or use.

(6) If a gas collection and control system routes the collected gas to an energy recovery device or devices, the owner or operator of the energy recovery device or devices must comply with the following requirements:

(a) The device or devices must achieve a methane destruction efficiency of at least 97 percent by weight, except for lean-burn internal combustion engines that were installed and operating prior to January 1, 2022, which must reduce the outlet methane concentration to less than 3,000 parts per million by volume, dry basis corrected to 15 percent oxygen; and

(b) If a boiler or a process heater is used as the gas control device, the landfill gas stream must be introduced into the flame

zone, except that where the landfill gas is not the primary fuel for the boiler or process heater, introduction of the landfill gas stream into the flame zone is not required.

(7) If a gas collection and control system routes the collected gas to a treatment system that processes the collected gas for subsequent sale or use, the owner or operator of the treatment system must ensure the system achieves a methane leak rate of three percent or less by weight. Venting of processed landfill gas to the ambient air is not allowed. If the processed landfill gas cannot be routed for subsequent sale or use, then the treated landfill gas must be controlled according to subsection (4) of this section.

(8) The owner or operator of a municipal solid waste landfill must conduct a source test for any gas control device or devices subject to this section using the test methods identified in RCW 70A.540.080 and the department's implementing rules adopted pursuant to RCW 70A.540.020. If a gas control device is currently in compliance with source testing requirements as of June 9, 2022, the owner or operator must conduct the source test no less frequently than once every five years. If a gas control device is currently not in compliance with source testing requirements as of June 9, 2022, or if a subsequent source test shows the gas control device is out of compliance, the owner or operator must conduct the source test no less frequently than once per year until two subsequent consecutive tests both show compliance. Upon two subsequent consecutive compliant tests, the owner or operator may return to conducting the source test no less frequently than once every five years. [2022 c 179 s 4.]

**RCW 70A.540.050 Methane concentration limits.** (1) Except as provided in RCW 70A.540.040, beginning January 1st of the year following the year in which the department adopts rules to implement this chapter, or upon commencing operation of a newly installed gas collection and control system or modification of an existing gas collection and control system pursuant to RCW 70A.540.040, whichever is later, and except as provided by the department to accommodate significant technological improvements, which may include the installation of an energy recovery device or devices, not to exceed 24 months after the department adopts rules to implement this chapter, no location on a municipal solid waste landfill surface may exceed the following methane concentration limits, dependent upon whether the owner or operator of the municipal solid waste landfills conducts, pursuant to RCW 70A.540.060, instantaneous surface emissions monitoring or integrated surface emissions monitoring:

(a) Five hundred parts per million by volume, other than nonrepeatable, momentary readings, as determined by instantaneous surface emissions monitoring; or

(b) An average methane concentration limit of 25 parts per million by volume as determined by integrated surface emissions monitoring.

(2) Any reading exceeding the limits set forth in subsection (1) of this section must be recorded as an exceedance and the following actions must be taken:

(a) The owner or operator must record the date, location, and value of each exceedance, along with retest dates and results. The location of each exceedance must be clearly marked and identified on a topographic map of the municipal solid waste landfill, drawn to scale,

with the location of both the monitoring grids and the gas collection system clearly identified; and

(b) The owner or operator must take corrective action, which may include, but not be limited to, maintenance or repair of the cover, or well vacuum adjustments. The location or locations of any exceedance must be remonitored within 10 calendar days of a measured exceedance.

(3) The requirements of this section do not apply to:

(a) The working face of the landfill;

(b) Areas of the landfill surface where the landfill cover material has been removed for the purpose of installing, expanding, replacing, or repairing components of the landfill cover system, the landfill gas collection and control system, the leachate collection and removal system, or a landfill gas condensate collection and removal system;

(c) Areas of the landfill surface where the landfill cover material has been removed for law enforcement activities requiring excavation; or

(d) Areas of the landfill in which the landfill owner or operator, or a designee of the owner or operator, is engaged in active mining for minerals or metals. [2022 c 179 s 5.]

**RCW 70A.540.060 Monitoring.** (1) The owner or operator of a municipal solid waste landfill with a gas collection and control system must conduct instantaneous or integrated surface monitoring of the landfill surface according to the requirements specified in implementing rules adopted by the department pursuant to RCW 70A.540.020.

(2) The owner or operator of a municipal solid waste landfill with a gas collection and control system must monitor the gas control system according to the requirements specified in implementing rules adopted by the department pursuant to RCW 70A.540.020.

(3) The owner or operator of a municipal solid waste landfill with a gas collection and control system must monitor each individual wellhead to determine the gauge pressure according to the requirements specified in implementing rules adopted by the department pursuant to RCW 70A.540.020. [2022 c 179 s 6.]

**RCW 70A.540.070 Records and reporting requirements.** (1) The owner or operator of a municipal solid waste landfill must maintain records and prepare reports as prescribed in this section and in the department's implementing rules adopted pursuant to RCW 70A.540.020.

(2) The owner or operator of a municipal solid waste landfill must maintain records related to monitoring, testing, landfill operations, and the operation of the gas control device, gas collection system, and gas control system. The records must be provided by the owner or operator to the department or local authority within five business days of a request from the department or local authority.

(3) The owner or operator of a municipal solid waste landfill that ceases to accept waste must submit a closure notification to the department or local authority within 30 days of ceasing to accept waste.

(4) The owner or operator of a municipal solid waste landfill must submit a gas collection and control system equipment removal report to the department or local authority within 30 days of well

capping or the removal or cessation of operation of the gas collection, treatment, or control system equipment.

(5) The owner or operator of either an active municipal solid waste landfill with 450,000 or more tons of waste in place or a closed municipal solid waste landfill with 750,000 or more tons of waste in place must prepare an annual report for the period of January 1st through December 31st of each year. The annual report must include a calculation of landfill gas heat input capacity. Each annual report must be submitted to the department and local authority during the subsequent calendar year, with the date of submission to be established through rules adopted by the department.

(6) The owner or operator of an active municipal solid waste landfill with fewer than 450,000 tons of waste in place must submit a waste in place report to the department or local authority. [2022 c 179 s 7.]

**RCW 70A.540.080 Measurements—Test methods.** (1) Any instrument used for the measurement of methane must be a hydrocarbon detector or other equivalent instrument approved by the department or local authority based on standards adopted by the department that address calibration, specifications, and performance criteria.

(2) The determination of landfill gas heat input capacity must be calculated consistent with the department's implementing rules adopted pursuant to RCW 70A.540.020.

(3) The owner or operator of a municipal solid waste landfill must measure the landfill surface concentration of methane using a hydrocarbon detector meeting the requirements of this section and the department's implementing rules adopted pursuant to RCW 70A.540.020.

(4) The owner or operator of a municipal solid waste landfill must measure leaks using a hydrocarbon detector meeting the requirements of this section and the department's implementing rules adopted pursuant to RCW 70A.540.020.

(5) The expected gas generation flow rate must be determined according to the department's implementing rules adopted pursuant to RCW 70A.540.020.

(6) The control device destruction efficiency must be determined according to the department's implementing rules adopted pursuant to RCW 70A.540.020.

(7) Gauge pressure must be determined using a hand-held manometer, magnehelic gauge, or other pressure measuring device approved by the department or local authority.

(8) Alternative test methods may be used if they are approved in writing by the department or local authority. [2022 c 179 s 8.]

**RCW 70A.540.090 Gas collection and control system—Capping or removal.** (1) The department or local authority must allow the capping or removal of the gas collection and control system at a closed municipal solid waste landfill, provided the following three requirements are met:

(a) The gas collection and control system was in operation for at least 15 years, unless the owner or operator demonstrates to the satisfaction of the department or local authority that due to declining methane rates, the municipal solid waste landfill will be

unable to operate the gas collection and control system for a 15-year period;

(b) Surface methane concentration measurements do not exceed the limits specified in RCW 70A.540.050; and

(c) The owner or operator submits an equipment removal report to the department or local authority pursuant to RCW 70A.540.070 and the department's implementing rules adopted pursuant to RCW 70A.540.020.

(2) Nothing in this section may be interpreted to modify or supersede requirements related to the capping or removal of gas collection and control systems that may exist under the state clean air act, the federal clean air act, or rules adopted pursuant to either the state clean air act or the federal clean air act. [2022 c 179 s 9.]

**RCW 70A.540.100 Alternative compliance measures.** (1) The owner or operator of a municipal solid waste landfill may request alternatives to the compliance measures, monitoring requirements, and test methods and procedures set forth in RCW 70A.540.040, 70A.540.060, and 70A.540.080, and the department's implementing rules adopted pursuant to RCW 70A.540.020. Any alternatives requested by the owner or operator must be submitted in writing to the department.

(2) The criteria that the department may use to evaluate alternative compliance option requests include, but are not limited to: Compliance history; documentation containing the landfill gas flow rate and measured methane concentrations for individual gas collection wells or components; permits; component testing and surface monitoring results; gas collection and control system operation, maintenance, and inspection records; and historical meteorological data.

(3) The department must review the requested alternatives and either approve or disapprove the alternatives within 120 days. The department may request that additional information be submitted as part of the review of the requested alternatives.

(4) If a request for an alternative compliance option is denied, the department must provide written reasons for the denial.

(5) The department must deny a request for alternative compliance measures if the request does not provide levels of enforceability or methane emissions control that are equivalent to those set forth in this chapter or in the department's implementing rules adopted pursuant to RCW 70A.540.020. [2022 c 179 s 10.]

**RCW 70A.540.110 Applicability criteria specified in RCW 70A.540.020—Request for demonstration.** The department or local authority may request that any owner or operator of a municipal solid waste landfill demonstrate that a landfill does not meet the applicability criteria specified in RCW 70A.540.020. Such a demonstration must be submitted to the department or local authority within 90 days of a written request received from the department or local authority. [2022 c 179 s 11.]

**RCW 70A.540.120 Violation of chapter—Civil penalty.** Any person who violates this chapter or any rules that implement this chapter may incur a civil penalty pursuant to RCW 70A.15.3160. The department shall waive penalties in the event the owner or operator of the



landfill is actively taking corrective actions to control any methane exceedances. Penalties collected under this section must be deposited into the air pollution control account created in RCW 70A.15.1010 and may only be used to implement chapter 70A.540 RCW. [2022 c 179 s 12.]

**RCW 70A.540.130 Fees—Assessment and collection.** The department and local authorities may assess and collect such fees as may be necessary to recover the direct and indirect costs associated with the implementation of this chapter. [2022 c 179 s 13.]