

Chapter 173-408 WAC
Landfill Methane Emissions

GENERAL REQUIREMENTS

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WAC 173-408-010 Policy and purpose

- (1) Ecology’s policy under Chapter 70A.540 RCW is to reduce methane emissions from municipal solid waste (MSW) landfills.
- (2) This rule establishes requirements to reduce methane emissions from both active and closed MSW landfills that have received solid waste since Jan. 1, 1992.
- (3) These rules are informed by landfill methane regulations adopted by the California Air Resources Board, the Oregon Environmental Quality Commission, and the United States Environmental Protection Agency.

WAC 173-408-020 Applicability

- (1) Except as exempted in WAC 173-408-030, this chapter applies to:
 - (a) All MSW landfills that received solid waste after January 1, 1992.

WAC 173-408-030 Exemptions

- (1) This chapter does not apply to the following landfills:
 - (a) Landfills that receive or received only hazardous waste(s).
 - (b) “CERCLA regulated landfill” as defined in WAC 173-408-040, if it meets the criteria for exemption set forth in subsection (3) of this section.
 - (c) Landfills that receive only “inert waste or non-decomposable waste(s)” as defined in WAC 173-408-040.
- (2) CERCLA exemption process: This subsection establishes the process for an owner or operator of a “CERCLA regulated landfill,” as defined in WAC 173-408-040, to claim an exemption from the requirements of this chapter.

To claim exemption from the requirements of this chapter, the owner or operator of a CERCLA regulated landfill shall submit the following information to the department:

- (a) The applicable CERCLA removal action memorandum or remedial action record of decision, including any amendments.
 - (b) A map of the portion of the landfill that has been designated as on-site for purposes of the CERCLA response action.
 - (c) Additional information as needed to establish that the CERCLA regulated landfill meets the criteria for exemption set forth in subsection (3) of this section.
- (3) (a) The department will review the submitted information and determine whether the CERCLA regulated landfill meets the following criteria for exemption from the requirements of this chapter:
- (i) The CERCLA response action(s) must be currently under way at the CERCLA regulated landfill;
 - (ii) The owner or operator must demonstrate that complying with the requirements of this chapter would compromise the efficacy of the ongoing CERCLA response action(s);
 - (iii) The CERCLA response action(s) must require the installation or modification of a landfill gas collection and control system (GCCS); and
 - (iv) The owner or operator must demonstrate that the GCCS influences methane capture in the landfill.
- (b) The department may consult with the U.S. Environmental Protection Agency while determining whether the CERCLA regulated landfill meets the above criteria for exemption from the requirements of this chapter.
- (c) For zones or areas of a municipal solid waste landfill that are adjacent to but outside the area designated as on-site for purposes of the CERCLA response action(s), the substantive requirements of this chapter shall be considered as applicable or relevant and appropriate requirements (ARARs) in the selection of a removal or remedial action, and in evaluations of a removal or remedial action's compliance with ARARs during any subsequent five-year reviews required by CERCLA.

WAC 173-408-040 Definitions

When used in this chapter, the following terms have the meanings given below. These definitions should not be interpreted to apply to any other chapter unless expressly provided for therein.

Ecology will pull definitions from the statute and add new definitions as needed.

"Active mining" means actively excavating a landfill or a portion thereof using conventional mining technology to recover and reuse minerals and/or metals until such a time that the landfill cover is replaced.

"Active municipal solid waste (MSW) 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.

“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](#).

“Authority” or “Local authority” means any air pollution control agency whose jurisdictional boundaries are coextensive with the boundaries of one or more counties.

“Ambient air” means the surrounding outside air.

“CERCLA regulated landfill” means the portion of a municipal solid waste landfill that has been designated as on-site for purposes of a CERCLA response action(s).

“CERCLA response action” means a removal or remedial action conducted pursuant to 42 U.S.C. Sections 9604, 9606, 9620, 9621, or 9622.

“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.

“Component” means any equipment that is part of the gas collection and control system and that contains landfill gas including, but not limited to, wells, pipes, flanges, fittings, valves, flame arrestors, knock-out drums, sampling ports, blowers, compressors, or connectors.

“Component leak” means the concentration of methane measured one half of an inch or less from a component source that exceeds 500 parts per million by volume (ppmv), other than non-repeatable, momentary readings. Measurements from any vault must be taken within 3 inches above the surface of the vault exposed to the atmosphere.

“Continuous operation” means that the gas collection and control system is operated continuously, the existing gas collection wells are operating under vacuum while maintaining landfill gas flow, and the collected landfill gas is processed by a gas control system 24 hours per day.

“Department” means the department of ecology.

“Destruction efficiency” means a measure of the ability of a gas control device to combust, transform, or otherwise prevent emissions of methane from entering the atmosphere.

“Emission” means a release of air contaminants into the ambient air.

“Enclosed combustor” means an enclosed flare, steam generating boiler, internal combustion engine, or gas turbine.

“Energy recovery device” means any combustion device that uses landfill gas to recover energy in the form of steam or electricity, including, but not limited to, gas turbines, internal combustion engines, boilers, and boiler-to-steam turbine systems.

“Exceedance” means the concentration of methane measured within 3 inches above the landfill surface that exceeds 500 ppmv, other than non-repeatable, momentary readings, as

determined by instantaneous surface emissions monitoring; or the average methane concentration measurements that exceed 25 ppmv, as determined by integrated surface emissions monitoring.

“Facility” means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste.

“Facility boundary” means the boundary surrounding the entire area on which MSW landfill activities occur and are permitted.

"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.

"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.

"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 offsite, including for transportation fuel and injection into a natural gas pipeline.

“Heat input capacity (HIC)” means the hourly heat content available on a steady state basis in the form of landfill gas generated from a landfill’s waste source material.

“Hydrocarbon detector” means an instrument used for the measurement of methane that meets the calibration, specifications, and performance criteria of EPA Reference Method 21, Determination of Volatile Organic Compound Leaks, 40 CFR Part 60, Appendix A.

"Inactive area" means an area of an active MSW landfill where waste has been placed and a temporary cover system has been installed, but where additional waste is planned to be placed in the future as the facility's waste filling sequence proceeds.

“Inert waste or non-decomposable waste(s)” has the same meaning as "inert waste" in WAC 173-350-100.

"Landfill" means a disposal facility or part of a facility at which solid waste is permanently placed in or on land including facilities that use solid waste as a component of fill.

“Landfill gas” means any untreated, raw gas derived through a natural process from the decomposition of organic waste deposited in a MSW landfill, from the evolution of volatile species in the waste, or from chemical reactions of substances in the waste.

“Landfill surface” means the area of the landfill under which decomposable solid waste has been placed, excluding the working face.

“Municipal solid waste (MSW)” means a subset of solid waste which includes unsegregated garbage, refuse and similar solid waste material discarded from residential, commercial, institutional, and industrial sources and community activities, including residue after recyclables have been separated. Solid waste that has been segregated by source and characteristic may qualify for management as a non-MSW solid waste, at a facility designed and

operated to address the waste's characteristics and potential environmental impacts. The term MSW does not include:

- (a) Dangerous wastes other than wastes excluded from the requirements of chapter 173-303 WAC, Dangerous waste regulations, in WAC 173-303-071 such as household hazardous wastes;
- (b) Any solid waste, including contaminated soil and debris, resulting from response action taken under section 104 or 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. 9601), chapter 70.105D RCW, Hazardous waste cleanup—Model Toxics Control Act, chapter 173-340 WAC, Model Toxics Control Act—Cleanup, or a remedial action taken under those statutes and rules; nor
- (c) Mixed or segregated recyclable material that has been source-separated from garbage, refuse and similar solid waste. The residual from source separated recyclables is MSW.

“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.

“Non-repeatable, momentary readings” means indications of the presence of methane, which persist for less than five seconds and do not recur when the sampling probe of a portable gas detector is placed in the same location.

“On-site” has the same meaning as set forth in 40 C.F.R. 300.400(e)(1).

“Operator” means any person or entity, including but not limited to any government entity, corporation, partnership, trustee, other legal entity, or individual that:

- (a) Operates a MSW landfill;
- (b) Is responsible for complying with any federal, state, or local requirements relating to methane emissions from a source located on real property used for MSW landfill purposes and subject to this chapter;
- (c) Operates any stationary equipment for the collection of landfill gas;
- (d) Purchases untreated landfill gas from an owner or operator of a MSW landfill and operates any stationary equipment for the treatment and/or combustion of the purchased landfill gas.

“Owner” means any person or entity, including but not limited to any government entity, corporation, partnership, trustee, other legal entity, or individual that:

- (a) Holds title to any portion of the real property on which a MSW landfill is located, including but not limited to title held by joint tenancy, tenancy in common, community property, life estate, estate for years, lease, sublease, or assignment, except title held solely as security for a debt such as mortgage;
- (b) Is responsible for complying with any federal, state, or local requirements relating to methane emissions from a source located on real property used for MSW landfill purposes and subject to this chapter.
- (c) Owns any stationary equipment for the collection of landfill gas;

(d) Purchases untreated landfill gas from an owner or operator of a MSW landfill and owns any stationary equipment for the treatment and/or combustion of the purchased landfill gas.

“Person” means an individual, firm, public or private corporation, association, partnership, political subdivision of the state, municipality, or governmental agency.

“Putrescible waste” means solid waste which contains material capable of being readily decomposed by microorganisms and which is likely to produce offensive odors.

“Solid waste” means all putrescible and non-putrescible solid and semisolid wastes including, but not limited to garbage, rubbish, ashes, industrial wastes, commercial waste, swill, sewage sludge, demolition, and construction wastes, abandoned vehicles or parts thereof, discarded commodities and recyclable materials.

“Waste-in-Place” means the total amount of solid waste placed in the MSW landfill estimated in tons. The refuse density is assumed to be 1,300 pounds per cubic yard.

“Working face” means the open area where solid waste is deposited daily and compacted with landfill equipment.

WAC 173-408-045 Certification

(1) Any application form, report, compliance certification, or other information submitted pursuant to this chapter shall contain the following written certifications made and signed by the person making the submission:

- (a) “I certify under penalty of perjury under the laws of the state of Washington that I am duly authorized to make this submission on behalf of the party that is required to provide the information contained therein pursuant to Chapter 173-408 WAC.”
- (b) “I certify under penalty of perjury under the laws of the state of Washington that, based on information and belief formed after reasonable inquiry, all statements and information contained in the submitted document are true, accurate, and complete.”

WAC 173-408-046 Communications format

Any communications required by this chapter must be in a format acceptable to the local authority.

WAC 173-408-050 Waste in place reporting

(1) Each owner or operator of a MSW landfill that received solid waste after January 1, 1992, must submit an initial waste in place report pursuant to WAC 173-408-110(2)(a).

(2) Each owner or operator of an active MSW landfill having fewer than 450,000 tons of waste in place must submit an annual waste in place report to the local authority pursuant to WAC 173-408-110(2)(c) and WAC 173-408-110(2)(d) until either;

- (a) The active MSW landfill reaches a size of greater than or equal to 450,000 tons.
- (b) The owner or operator submits a closure notification pursuant to WAC 173-408-110(2)(h).

WAC 173-408-060 Landfill gas heat input capacity (HIC)

- (1) Each owner or operator of an active MSW landfill having greater or equal than 450,000 tons of waste in place or a closed MSW landfill having greater than or equal to 750,000 tons of waste in place must submit an initial landfill gas HIC report to the local authority pursuant to WAC 173-408-110(2)(b).
- (2) Each owner or operator of an active MSW landfill having greater or equal than 450,000 tons of waste in place or a closed MSW landfill having greater than or equal to 750,000 tons of waste in place must submit an annual landfill gas HIC report to the local authority pursuant to WAC 173-408-110(2)(c) and WAC 173-408-110(2)(e) until either;
 - (a) The MSW landfill reaches a HIC of greater than or equal to 3,000,000 British thermal units per hour recovered; or
 - (b) The owner or operator submits a closure notification pursuant to WAC 173-408-110(2)(h)
- (3) MSW landfills that have reached a HIC of greater than or equal to 3,000,000 British thermal units per hour recovered must either;
 - (a) Meet the requirements of WAC 173-408-080; or
 - (b) Demonstrate to the satisfaction of the local authority that after four consecutive quarterly monitoring periods there is no measured concentration of 200 parts per million by volume or greater of methane using the instantaneous surface monitoring procedures specified in WAC 173-408-090(3)(b). If there is no measured concentration of 200 parts per million by volume or greater of methane, then the following apply;
 - (i) The owner or operator of an active MSW landfill must recalculate the HIC annually pursuant to WAC 173-408-090(2) until such time that the owner or operator submits a closure notification pursuant to WAC 173-408-100(2)(h).
 - (ii) The owner or operator of a closed MSW landfill no longer has to comply with the requirements of this chapter, provided that the following information is submitted to and approved by the local authority;
 - (A) A waste in place report pursuant to WAC 173-408-110(2)(c) and WAC 173-408-110(d)
 - (B) All instantaneous surface monitoring records.

WAC 173-408-070 Monitoring

- (1) Surface Emissions Monitoring: The owner or operator of a MSW landfill with a gas collection and control system must conduct instantaneous or integrated surface monitoring of the landfill surface according to the procedures specified in WAC 173-408-090(3). A surface monitoring design plan must be developed that includes a topographical map, at a minimum, with the monitoring traverse, exempt areas, and the rationale for any site-specific deviations, and must be available upon request from the local authority. The owner or operator of a MSW landfill must notify the local authority within 72 hours of any exceedance and resulting corrective actions taken. The owner or operator of a MSW landfill may request alternative compliance measures to this section pursuant to WAC 173-408-120.

- (a) Instantaneous Surface Monitoring: Any reading exceeding the limit specified in WAC 173-408-100(1)(a) must be recorded as an exceedance and the following actions must be taken:
 - (i) The owner or operator must record the date, location, and value of each exceedance, along with re-test dates and results. The location of each exceedance must be clearly marked and identified on a topographic map, at a minimum, of the MSW landfill, drawn to scale with the location of both the grids and the gas collection system clearly identified.
 - (ii) Corrective action must be taken by the owner or operator such as, but not limited to, cover maintenance or repair, or well vacuum adjustments and the location must be re-monitored within ten calendar days of a measured exceedance.
 - (A) If the re-monitoring of the location shows a second exceedance, additional corrective action must be taken, and the location must be re-monitored again no later than 10 calendar days after the second exceedance.
 - (B) If the re-monitoring in WAC 173-408-070(1)(a)(ii)(A) shows a third exceedance, the owner or owner or operator must install a new or replacement well, or a jurisdictionally approved alternative active methane control, as determined to achieve compliance no later than 120 calendar days after detecting the third exceedance.
 - (iii) Any closed MSW landfill, or any closed or inactive areas on an active MSW landfill, that has no monitored exceedances of the limit specified in WAC 173-408-100(1)(a) after four consecutive quarterly monitoring periods may monitor annually. Any exceedances of the limit specified in WAC 173-408-100(1)(a) detected during the annual monitoring that cannot be remediated within 10 calendar days will result in a return to quarterly monitoring of the landfill.
 - (iv) Any exceedances of the limit specified in WAC 173-408-100(1)(a) detected during any compliance inspections that cannot be remediated within 10 calendar days will result in a return to quarterly monitoring of the landfill.
- (b) Integrated Surface Monitoring: Any reading exceeding the limit specified in WAC 173-408-100(1)(b) must be recorded as an exceedance and the following actions must be taken:
 - (i) The owner or operator must record the average surface concentration measured as methane for each grid along with re-test dates and results. The location of the grids and the gas collection system must be clearly marked and identified on a topographic map, at a minimum, of the MSW landfill drawn to scale.
 - (ii) Within 10 calendar days of a measured exceedance, corrective action must be taken by the owner or operator such as, but not limited to, cover maintenance or repair, or well vacuum adjustments and the grid must be re-monitored.

- (A) If the re-monitoring of the grid shows a second exceedance, additional corrective action must be taken, and the location must be re-monitored again no later than 10 calendar days after the second exceedance.
 - (B) If the re-monitoring in WAC 173-408-070(1)(b)(ii)(A) shows a third exceedance, the owner or operator must install a new or replacement well, or an alternative active methane control approved by the local authority, as determined to achieve compliance no later than 120 calendar days after detecting the third exceedance.
 - (iii) Any closed MSW landfill, or any closed or inactive areas on an active MSW landfill that has no monitored exceedances of the limit specified in WAC 173-408-100(1)(b) after 4 consecutive quarterly monitoring periods may monitor annually. Any exceedances of the limits specified in WAC 173-408-100(1)(b) detected during the annual monitoring that cannot be remediated within 10 calendar days will result in a return to quarterly monitoring of the landfill.
 - (iv) Any exceedances of the limits specified in WAC 173-408-100(1)(b) detected during any compliance inspections will result in a return to quarterly monitoring of the landfill.
 - (c) An owner or operator of a closed MSW landfill, or any closed or inactive areas on an active MSW landfill, that can demonstrate that in the three years before the effective date of this chapter that there were no measured exceedances of the limits specified in WAC 173-408-100(1) by annual or quarterly monitoring may monitor annually. Any exceedances of the limits specified in WAC 173-408-100(1) detected during the annual monitoring that cannot be remediated within 10 calendar days will result in a return to quarterly monitoring of the landfill.
- (2) Gas Control System Equipment Monitoring: The owner or operator of a MSW landfill with a gas collection and control system must monitor the gas control system according to the following procedures:
- (a) For enclosed flares the following equipment must be installed, calibrated, maintained, and operated according to the manufacturer's specifications:
 - (i) A temperature monitoring device equipped with a continuous recorder which has an accuracy of plus or minus (\pm) 1 percent of the temperature being measured expressed in degrees Celsius or Fahrenheit.
 - (ii) At least one gas flow rate measuring device which must record the flow to the control device(s) at least every 15 minutes.
 - (b) For a gas control device other than an enclosed flare, demonstrate compliance by providing information describing the operation of the gas control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. Alternatives to this section must be submitted as specified in WAC 173-408-120. The local authority may specify additional monitoring procedures.

- (c) Components containing landfill gas must be monitored quarterly for leaks. Any component leak must be tagged and repaired within 10 calendar days.
 - (i) At facilities located which combust landfill gas for energy production, or which treat landfill gas for other beneficial uses, and which are located at MSW landfill facilities subject to this chapter, component leak testing may be conducted prior to scheduled maintenance or planned outage periods.
- (3) Wellhead Monitoring: The owner or operator of a MSW landfill with a gas collection and control system must monitor each individual wellhead monthly to determine the gauge pressure. If there is any positive pressure reading other than as provided in WAC 173-408-080(6), the owner or operator must take the following actions:
 - (a) Initiate corrective action within five calendar days of the positive pressure measurement.
 - (b) If the problem cannot be corrected within 15 days of the date the positive pressure was first measured, the owner or operator must initiate further action, including, but not limited to, any necessary expansion of the gas collection system, to mitigate any positive pressure readings.
 - (c) Corrective actions, including any expansion of the gas collection and control system, must be completed and any new wells must be operating within 120 days of the date the positive pressure was first measured.

WAC 173-408-080 Gas collection and control systems

- (1) General Requirements: Any owner or operator of a MSW landfill that exceeds the HIC threshold specified in WAC 173-408-060(3), unless the owner or operator demonstrates that there is no measured concentration of methane 200 parts per million by volume or greater of methane using the instantaneous monitoring methods specified in WAC 173-408-090(3)(b), must install a gas collection and control system. If a MSW 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) Design Plan and Installation: If a gas collection and control system which meets the requirements of either WAC 173-408-080(3), WAC 173-408-080(4), or WAC 173-408-080(5) has not been installed, the owner or operator of a MSW landfill must submit a Design Plan to the local authority within one year after the effective date of this subchapter, or within one year of detecting any leak on the landfill surface exceeding a methane concentration of 200 ppmv pursuant to WAC 173-408-060(3)(b). The local authority must review and either approve or disapprove the Design Plan within 120 days. The local authority may request that the owner or operator submit additional information as part of the review of the Design Plan.
 - (a) The Design Plan must meet the following requirements:
 - (i) The Design Plan must be prepared and certified by a professional engineer.

- (ii) The Design Plan must provide for the control of the collected gas through the use of a gas collection and control system meeting the requirements of either WAC 173-408-080(3), WAC 173-408-080(4) or WAC 173-408-080(5).
- (iii) The Design Plan must include any proposed alternatives to the requirements, test methods, procedures, compliance measures, monitoring, and recordkeeping or reporting requirements pursuant to WAC 173-408-120.
- (iv) The Design Plan must include a description of potential mitigation measures to be used to prevent the release of methane or other pollutants into the atmosphere during the installation or preparation of wells, piping, or other equipment; during repairs or the temporary shutdown of gas collection system components, or, when solid waste is to be excavated and moved.
- (v) For active MSW landfills, the Design Plan must identify areas of the landfill that are closed or inactive.
- (vi) The Design Plan must show the gas collection and control system will handle the expected gas generation flow rate from the entire area of the MSW landfill and to collect gas at an extraction rate to comply with the surface methane emission limits in WAC 173-408-100(1) and component leak standard in WAC 173-408-080(3)(b). The expected gas generation flow rate from the MSW landfill must be calculated pursuant to WAC 173-408-090(5).
 - (A) Any areas of the landfill that contain only inert waste or non-decomposable waste(s) may be excluded from collection provided that the owner or operator submits documentation to the local authority containing the nature, date of deposition, location and amount of inert waste or non-decomposable waste(s) deposited in the area. This documentation may be included as part of the Design Plan.
- (vii) The owner or operator must develop acceptable pressure limits for the wellheads and include them in the Design Plan.
- (viii) Any owner or operator of an active MSW landfill must install and operate a gas collection and control system within 18 months after approval of the Design Plan.
- (ix) Any owner or operator of a closed MSW landfill must install and operate a gas collection and control system within 30 months after approval of the Design Plan by the local authority.
- (x) If an owner or operator is modifying an existing gas collection and control system to meet the requirements of this subchapter, the existing Design Plan must be amended to include any necessary updates or addenda and must be certified by a professional engineer.
- (xi) An amended design plan must be submitted to the local authority within 90 days of any event that requires a change to the Design Plan.

- (xii) The gas collection system must be operated, maintained, and expanded in accordance with the procedures and schedules in the approved Design Plan.
- (3) Gas Collection and Control System Requirements: The owner or operator must satisfy the following requirements when operating a gas collection and control system:
 - (a) Route the collected gas to a gas control device or devices and operate the gas collection and control system continuously except as provided in WAC 173-408-080(7), WAC 173-408-080(8), and WAC 173-408-080(9).
 - (b) Operate the gas collection and control system so that there is no landfill gas leak that exceeds 500 ppmv, measured as methane, at any component under positive pressure.
 - (c) The gas collection system must be designed and operated to draw all the gas toward the gas control device or devices.
- (4) Requirements for Flares: An MSW landfill owner or operator who operates a flare must satisfy the following requirements:
 - (a) Route the collected gas to an enclosed flare that meets the following requirements:
 - (i) Achieves a methane destruction efficiency of at least 99 percent by weight.
 - (ii) Is equipped with automatic dampers, an automatic shutdown device, a flame arrester, and continuous recording temperature sensors.
 - (iii) During restart or startup there must be sufficient flow of propane or commercial natural gas to the burners to prevent unburned collected methane from being emitted to the atmosphere.
 - (iv) The gas control device must be operated within the parameter ranges established during the initial or most recent source test.
 - (b) Route the collected gas to an open flare that meets the following requirements:
 - (i) 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);
 - (ii) 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 WAC 173-408-0909(2), and is insufficient to support the continuous operation of an enclosed flare or other gas control device; and
 - (iii) 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 offsite gas migration issues. Any owner or operator seeking to temporarily operate an open flare must submit a written request to the local authority pursuant to WAC 173-408-120.

- (5) Requirements of Gas Control Devices other than Flares: An MSW landfill owner or operator who operates a gas control device other than a flare must satisfy one of the following requirements:
- (a) 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:
 - (i) 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
 - (ii) 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.
 - (iii) The gas control device must be operated within the parameter ranges established during the initial or most recent source test.
 - (b) 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 WAC 73-408080(4).
- (5) Source Test Requirements: The owner or operator of a municipal solid waste landfill must conduct a source test for any gas control device or devices subject to WAC 173-408-080(4)(a) or WAC 173-408-080(5)(a) using the test methods identified in WAC 173-408-090(6). The gas control device or devices must meet the following requirements:
- (a) An initial source test must be conducted within 180 days of initial start-up of the gas collection and control system.
 - (b) 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.
 - (c) 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.

- (6) Wellhead Gauge Pressure Requirement: Each wellhead must be operated under a vacuum (negative pressure), except as provided in WAC 173-408-080(7), WAC 173-408-080(8) and WAC 173-408-080(9), or under any of the following conditions:
 - (a) Use of a geomembrane or synthetic cover; or
 - (b) A decommissioned well.
- (7) Well Raising: The requirements of sections WAC 173-408-080(3)(a), WAC 173-408-080(3)(b), and WAC 173-408-080(6), do not apply to individual wells involved in well raising, provided the following conditions are met:
 - (a) New fill is being added or compacted in the immediate vicinity around the well.
 - (b) Once installed, a gas collection well extension is sealed or capped until the raised well is reconnected to a vacuum source.
- (8) Repairs and Temporary Shutdown of Gas Collection System Components: The requirements of sections WAC 173-408-080(3)(a), WAC 173-408-080(3)(b), and WAC 173-408-080(6) do not apply to individual landfill gas collection system components that must be temporarily shut down to repair or modify components of the gas collection system, to connect new landfill gas collection system components to the existing system, to extinguish landfill fires, or if the MSW landfill engages in construction, active mining, or law enforcement activities, provided the following requirement is met;
 - (i) Methane emissions are minimized during shutdown pursuant to WAC 173-408-080(2)(a)(iv).
- (9) Permanent Shutdown and Removal of the Gas Collection and Control System: The gas collection and control system at a closed MSW landfill can be capped or removed provided the following requirements are met:
 - (a) The gas collection and control system were in operation for at least 15 years, unless the owner or operator can demonstrate to the satisfaction of the local authority that due to declining methane rates the MSW 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 WAC 173-408-100(1).
 - (c) The owner or operator submits an Equipment Removal Report to the local authority pursuant to WAC 173-408-110(2)(i).
 - (d) The owner or operator of the landfill that has capped or removed a gas collection and control system must conduct surface emissions monitoring over the portion of the landfill with the capped or removed gas collection and control system pursuant to WAC 173-408-090(3) for at least eight consecutive calendar quarters after the gas collection and control system is capped or removed. Surface monitoring must comply with the following requirements:
 - (i) The walking grid in WAC 173-408-090(3)(a)(ii) may be increased to 100-foot spacing so long as the walking grid is offset by 25-feet each quarter so that by the end of one year of monitoring, the entire surface area has been monitored every 25 feet;

- (ii) If there is any measured concentration of methane from the surface of the closed landfill that exceeds the limits specified in WAC 173-408-100(1), the owner or operator must restart the operation of the GCCS.

WAC 173-408-090 Test methods and procedures

- (1) Hydrocarbon Detector Specifications: Any instrument used for the measurement of methane must be a hydrocarbon detector or other equivalent instrument approved by the local authority that meets the calibration, specifications, and performance criteria of either WAC 173-408-090(1)(a) or WAC 173-408-090(1)(b), as applicable:
 - (a) EPA reference Method 21, Determination of Volatile Organic Compound Leaks, 40 CFR Part 60, Appendix A (as last amended 65 Fed.Reg. 61744 (October 17, 2000)), which is incorporated by reference herein, except for the following:
 - (i) Methane replaces all references to volatile organic compounds (VOC).
 - (ii) The calibration gas shall be methane.
 - (b) Other approved EPA test methods with concurrent local authority approval.
- (2) Determination of Landfill Gas Heat Input Capacity: The landfill gas HIC must be determined pursuant to WAC 173-408-090(2)(a), WAC 173-408-090(2)(b), or WAC 173-408-090(2)(c), as applicable:
 - (a) MSW Landfills without Carbon Adsorption or Passive Venting Systems: The HIC must be calculated using the procedure as specified in _____. Additional information may be requested as necessary to verify the heat input capacity from the MSW landfill. Site-specific data may be substituted when available.
 - (b) MSW Landfills with Carbon Adsorption Systems: The landfill gas HIC must be determined by measuring the actual total landfill gas flow rate, in standard cubic feet per minute (scfm), using a flow meter or other flow measuring device such as a standard pitot tube and methane concentration (percent by volume) using a hydrocarbon detector meeting the requirements of WAC 173-408-090(1). The total landfill gas flow rate must be multiplied by the methane concentration and then multiplied by the gross heating value (GHV) of methane of 1,012 Btu/scf to determine the landfill gas heat input capacity.
 - (c) MSW Landfills with Passive Venting Systems: The landfill gas HIC must be determined pursuant to both of the following and is the higher of those determined values:
 - (i) WAC 173-408-090(2)(a); and
 - (ii) The owner or operator must measure actual landfill gas flow rates (in units of scfm) by using a flow measuring device such as a standard pilot tube and methane concentration (percent by volume) using a hydrocarbon detector meeting the requirements of 173-408-090(1) from each venting pipe that is within the waste mass. Each gas flow rate must then be multiplied by its corresponding methane concentration to obtain the individual methane flow rate. The individual methane flow rates must

be added together and then multiplied by the GHV of methane of 1,012 Btu/scf to determine the landfill gas heat input capacity.

- (3) Surface Emissions Monitoring Procedures: 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 WAC 173-408-090(1). The landfill surface must be inspected using the following procedures:
 - (a) Monitoring Area: The entire landfill surface must be divided into individually identified 50,000 square foot grids. The grids must be used for both instantaneous and integrated surface emissions monitoring.
 - (i) Testing must be performed by holding the hydrocarbon detector's probe within 3 inches of the landfill surface while traversing the grid.
 - (ii) The walking pattern must be no more than a 25-foot spacing intervals and must traverse each monitoring grid.
 - (A) If the owner or operator has no exceedances of the limits specified in WAC 173-408-100(1), after any four consecutive quarterly monitoring periods, the walking pattern spacing may be increased to 100-foot intervals. The owner or operator must return to a 25-foot spacing interval upon any exceedances of the limits specified in WAC 173-408-100(1) that cannot be remediated within 10 calendar days or upon any exceedances detected during a compliance inspection.
 - (B) If an owner or operator of a MSW landfill can demonstrate that in the past three years before the effective date of this chapter that there were no measured exceedances of the limits specified in WAC 173-408-100(1), by annual or quarterly instantaneous surface emissions monitoring, the owner or operator may increase the walking pattern spacing to 100-foot intervals. The owner or operator must return to a 25-foot spacing interval upon any exceedances of the limits specified in WAC 173-408-100(1) that cannot be remediated within 10 calendar days or upon any exceedances detected during a compliance inspection. The demonstration must prove that any instrument used for methane detection meets the requirements of WAC 173-408-090(1).
 - (iii) Surface testing must be terminated when the average wind speed exceeds five miles per hour, or the instantaneous wind speed exceeds 10 miles per hour. The local authority may approve alternatives to this wind speed surface testing termination for MSW landfills consistently having measured winds in excess of these specified limits. Average wind speed must be determined on a 15-minute average using an on-site anemometer with a continuous recorder for the entire duration of the monitoring event.
 - (iv) Surface emissions testing must be conducted only when there has been no measurable precipitation in the preceding 72 hours. The local

- authority may approve alternatives to this procedure for MSW landfills that cannot meet the requirements of this subsection.
- (v) Monitoring should be conducted during typical meteorological conditions to the extent possible.
- (b) Instantaneous Surface Emissions Monitoring Procedures:
- (i) The owner or operator must record any instantaneous surface readings of methane 200 ppmv or greater, other than non-repeatable, momentary readings.
 - (ii) Surface areas of the MSW landfill that exceed a methane concentration limit of 500 ppmv must be marked and remediated pursuant to WAC 173-408-070(1)(a).
 - (iii) The landfill surface areas with cover penetrations, distressed vegetation, cracks, or seeps must also be inspected visually and with a hydrocarbon detector that meets the requirements of WAC 173-408-090(1).
 - (iv) The wind speed must be recorded during the sampling period.
- (c) Integrated Surface Emissions Monitoring Procedures:
- (i) Integrated surface readings must be recorded and then averaged for each grid.
 - (ii) Individual monitoring grids that exceed an average methane concentration of 25 ppmv must be identified and remediated pursuant to WAC 173-408-070(1)(b).
 - (iii) The wind speed must be recorded during the sampling period.
- (4) Gas Collection and Control System Leak Procedures: The owner or operator of a MSW landfill must measure leaks using a hydrocarbon detector meeting the requirements of WAC 173-408-090(1).
- (5) Determination of Expected Gas Generation Flow Rate: The expected gas generation flow rate must be determined as prescribed by the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories, Chapter 3, which is incorporated by reference herein, using a recovery rate of 75 percent.
- (6) Control Device Destruction Efficiency Determination: The control device destruction efficiency must be determined according to the following methods:
- (a) Enclosed Combustors: One of the following test methods, all of which are incorporated by reference herein (and all as promulgated in 40 CFR, Part 60, Appendix A, as last amended 65 Fed.Reg. 61744 (October 17, 2000) at the pages cited below must be used to determine the efficiency of the control device in reducing methane by at least 99 percent, or in reducing the outlet methane concentration for lean burn engines to less than 3,000 ppmv, dry basis, corrected to 15 percent oxygen:
 - (i) U.S. EPA Reference Method 18, Measurement of Gaseous Organic Compound Emissions by Gas Chromatography (65 Fed.Reg. at 62007);
 - (ii) U.S. EPA Reference Method 25, Determination of Total Gaseous Nonmethane Organic Emissions as Carbon (65 Fed.Reg. at 62044);

- (iii) U.S. EPA Reference Method 25A, Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer (65 Fed.Reg. at 62062);
or
- (iv) U.S. EPA Reference Method 25C, Determination of Nonmethane Organic Compounds in Landfill Gases (65 Fed.Reg. at 62066).
- (v) The following equation must be used to calculate destruction efficiency:

$$\text{Destruction Efficiency} = \left[1 - \left(\frac{\text{Mass of Methane} - \text{Outlet}}{\text{Mass of Methane} - \text{Inlet}} \right) \right] \times 100\%$$

- (b) Open Flares: Open flares must meet the requirements of 40 CFR § 60.18 (as last amended 73 Fed.Reg. 78209 (December 22, 2008)).
- (7) Determination of Gauge Pressure: Gauge pressure must be determined using a hand-held manometer, magnehelic gauge, or other pressure measuring device approved by the local authority. The device must be calibrated and operated in accordance with the manufacturer's specifications.
- (8) Alternative Test Methods: Alternative test methods may be used if they are approved in writing by the local authority pursuant to WAC 173-408-120.

WAC 173-408-100 Methane concentration limits

- (1) Except as provided in WAC 173-408-080, 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 WAC 173-408-080, 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 MSW landfill surface may exceed the following methane concentration limits, dependent upon whether the owner or operator of the MSW conducts, pursuant to WAC 173-408-070, 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 WAC 173-408-100(1) 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, at a minimum, 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 re-monitored 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 in which the landfill owner or operator, or a designee, which is a person or entity that has express, written permission from the owner or operator, is engaged in active mining for minerals or metals;
 - (d) Areas of the landfill surface where the landfill cover material has been removed for law enforcement activities requiring excavation; or
 - (e) Areas of the landfill surface where the landfill cover material has been removed for non-routine maintenance construction activities.

WAC 173-408-110 Recordkeeping and reporting requirements.

- (1) Recordkeeping requirements: The owner or operator of a MSW landfill must maintain records as prescribed in this section. The records must be provided by the owner or operator to the local authority within five business days of a request. Records must be kept at a location within the State of Washington.
- (a) An owner or operator must maintain the following records for at least five years:
 - (i) All surface emission monitoring plans and monitoring records.
 - (ii) All gas collection system downtime exceeding five calendar days, including individual well shutdown and disconnection times, and the reason for the downtime.
 - (iii) All gas control system downtime in excess of one hour, the reason for the downtime, and the length of time the gas control system was shutdown.
 - (iv) Expected gas generation flow rate calculated pursuant to WAC 173-408-090(5).
 - (v) Records of all instantaneous surface readings of 200 ppmv or greater; all exceedances of the limits in WAC 173-408-100(1), including the location of the leak (or affected grid), leak concentration in ppmv, date and time of measurement, the action taken to repair the leak, date of repair, any required re-monitoring and the re-monitored concentration in ppmv, and wind speed during surface sampling; and the installation date and location of each well installed as part of a gas collection system expansion.
 - (vi) Records of any positive wellhead gauge pressure measurements, the date of the measurements, the well identification number, and the corrective action taken.
 - (vii) Annual solid waste acceptance rate and the current amount of waste in place.

- (viii) Records of the nature, location, amount, and date of deposition of non-decomposable waste for any landfill areas excluded from the collection system.
- (ix) Results of any source tests conducted pursuant to section WAC 173-408-090(6).
- (x) Records describing the mitigation measures taken to prevent the release of methane or other emissions into the atmosphere:
 - (A) When solid waste was brought to the surface during the installation or preparation of wells, piping, or other equipment;
 - (B) During repairs or the temporary shutdown of gas collection system components; or,
 - (C) When solid waste was excavated and moved.
- (xi) Records of the equipment operating parameters specified to be monitored under WAC 173-408-070(2)(a) and WAC 173-408-070(2)(b), as well as records for periods of operation during which the parameter boundaries established during the most recent source test are exceeded. The records must include the following information:
 - (A) For enclosed flares, all 3-hour periods of operation during which the average temperature difference was more than 28 degrees Celsius (or 50 degrees Fahrenheit) below the average combustion temperature during the most recent source test at which compliance with WAC 173-408-080(4) and WAC 173-408-080(5)(a) was determined.
 - (B) For boilers or process heaters, whenever there is a change in the location at which the vent stream is introduced into the flame zone pursuant to WAC 173-408-080(5)(a)(ii).
 - (C) For any owner or operator who uses a boiler or process heater with a design heat input capacity of 44 megawatts (150 MMBtu/hr) or greater to comply with WAC 173-408-080(5), all periods of operation of the boiler or process heater (e.g., steam use, fuel use, or monitoring data collected pursuant to other federal, State, local, or tribal regulatory requirements).
- (xii) Records of any disturbance or removal of 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. The records must contain the following information:
 - (A) A description of the actions being taken, the areas of the MSW landfill that will be affected by these actions, the reason the actions are required, and any landfill gas collection system components that will be affected by these actions.

- (B) Disturbance or removal start and finish dates, projected equipment installation dates, and projected shut down times for individual gas collection system components.
 - (C) A description of the mitigation measures taken to minimize methane emissions and other potential air quality impacts.
 - (xiii) Records of any non-routine maintenance construction activities pursuant. The records must contain the following information:
 - (A) A description of the actions being taken, the areas of the MSW landfill that will be affected by these actions, the reason the actions are required, and any landfill gas collection system components that will be affected by these actions.
 - (B) Construction start and finish dates, and projected shut down times for individual gas collection system components.
 - (C) A description of the mitigation measures taken to minimize methane emissions and other potential air quality impacts.
 - (xiv) Records of any active mining activities as defined in WAC 173-408-040. The records must contain the following information:
 - (A) A description of the actions being taken, the areas of the MSW landfill that will be affected by these actions, the reason the actions are required, and any landfill gas collection system components that will be affected by these actions.
 - (B) Active mining start and finish dates and projected shut down times for individual gas collection system components.
 - (C) A description of the mitigation measures taken to minimize methane emissions and other potential air quality impacts.
 - (xv) Records of any law enforcement activities. The records must contain the following information:
 - (A) A description of the actions being taken, the areas of the MSW landfill that will be affected by these actions, the reason the actions are required, and any landfill gas collection system components that will be affected by these actions.
 - (B) Law enforcement activity start and finish dates and projected shut down times for individual gas collection system components.
 - (C) A description of the mitigation measures taken to minimize methane emissions and other potential air quality impacts.
- (b) The owner or operator must maintain the following records for the life of each gas control device, as measured during the initial source test or compliance determination:
 - (i) The control device vendor specifications
 - (ii) The expected gas generation flow rate as calculated pursuant to WAC 173-408-090(5).
 - (iii) The percent reduction of methane achieved by the control device determined pursuant to WAC 173-408-090(6).

- (iv) For a boiler or process heater, the description of the location at which the collected gas vent stream is introduced into the boiler or process heater over the same time-period of the performance test.
 - (v) For an open flare: the flare type (i.e., steam-assisted, air-assisted, or non-assisted); all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR § 60.18 (as last amended 73 Fed.Reg. 78209 (December 22, 2008), which is incorporated by reference herein; and records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame or the flare flame is absent.
- (2) Reporting Requirements: The owner or operator of a MSW landfill must prepare reports as prescribed in this section. Reports must be kept at a location within the State of Washington.
 - (a) Initial Waste in Place Report: Each owner or operator of a MSW landfill that meets the requirements of WAC 173-408-050(1) must submit an initial waste in place report. The report must be submitted within 90 days of the effective date of this chapter.
 - (b) Initial Landfill Gas Heat Input Capacity Report: Any owner or operator of a MSW landfill subject to the requirements of WAC 173-408-060(1) must calculate the landfill gas HIC, using the procedures specified in WAC 173-408-090(2), and submit the calculation to the local authority. The calculation must be submitted within 90 days of the effective date of this chapter.
 - (c) Annual Report: The owner or operator of a MSW landfill must prepare the following reports as required pursuant to subsections (c) through (g) of this section. The reports must be prepared for the period of January 1 through December 31 of each year and be submitted to the local authority as part of an annual report on April 1 of the subsequent year. In each report, the following information must be included:
 - (i) MSW landfill name, owner and operator, address, and Facility/Site ID (FS ID) number.
 - (ii) Most recent topographic map, at a minimum, of the site showing all types of cover with corresponding percentages over the landfill surface.
 - (d) Annual Waste in Place Report: Any owner or operator of a MSW landfill subject to the requirements of WAC 173-408-050(2) must report the following information:
 - (i) The estimated waste in place, in tons.
 - (e) Annual Landfill Gas Heat Input Capacity Report: Any owner or operator subject to the requirements of WAC 173-408-060(2) must calculate the landfill gas HIC, using the procedures specified in WAC 173-408-090(2), and submit the calculation to the local authority.
 - (f) Quarterly Instantaneous surface monitoring: Any owner or operator who conducts instantaneous surface emissions monitoring pursuant to WAC 173-408-070 must provide the following information to the local authority:

- (i) Date of monitoring.
- (ii) Location of the monitoring grid coordinates, as well as coordinates of areas exempted from monitoring on a topographic map.
- (iii) Measured concentration of methane in ppmv.
- (g) Gas Collection and Control System Operations: Any owner or operator of a MSW landfill that has a gas collection and control system must report following:
 - (i) Total volume of landfill gas collected (reported in standard cubic feet).
 - (ii) Average composition of the landfill gas collected over the reporting period (reported in percent methane and percent carbon dioxide by volume).
 - (iii) Gas control device type, year of installation, rating, fuel type, and total amount of landfill gas combusted in each control device.
 - (iv) The date that the gas collection and control system was installed and in full operation.
 - (v) The percent methane destruction efficiency of each gas control device(s).
 - (vi) Type and amount of supplemental fuels burned with the landfill gas in each device.
 - (vii) Total volume of landfill gas shipped off-site, the composition of the landfill gas collected (reported in percent methane and percent carbon dioxide by volume), and the recipient of the gas.
 - (viii) A copy of the most recent source test for each gas control device.
- (h) Closure Notification Report: The owner or operator of a MSW landfill that ceases to accept waste must submit a closure notification to the local authority within 30 days of ceasing to accept waste.
 - (i) The closure notification must include the last day solid waste was accepted, the anticipated closure date of the MSW landfill, and the estimated waste in place.
 - (ii) If a MSW landfill with greater than or equal to 450,000 tons of waste in place submits a closure notification pursuant to this section, the owner or operator of the landfill must submit a 30-year projection of their estimated HIC calculation, according to the procedures in _____, as part of this report.
 - (iii) Additional information may be requested as necessary to verify that permanent closure has taken place in accordance with the requirements of any applicable federal, state, local, or tribal statutes, regulations, and ordinances in effect at the time of closure.
 - (iv) If a closure report has been submitted, no additional wastes may be placed into the landfill without filing a notification.
- (l) Equipment Removal Report: The owner or operator of a MSW landfill must submit a gas collection and control system equipment removal report to the local authority within 30 days of well capping or the removal or cessation of operation of the gas collection, treatment, or control system equipment. The report must contain the following information:

- (i) A copy of the Closure Notification Report submitted pursuant to WAC 173-408-110(2)(h).
- (ii) A copy of the initial source test report, or other documentation demonstrating that the gas collection and control system has been installed and operated for a minimum of 15 years, unless the owner or operator can demonstrate that due to declining methane rates the landfill is unable to operate the gas collection and control system for a 15-year period.
- (iii) Eight consecutive quarterly instantaneous or integrated emissions monitoring results needed to verify that landfill surface methane concentration measurements do not exceed the limits specified in WAC 173-408-100(1).

WAC 173-408-120 Alternative compliance measures

- (1) The owner or operator of a MSW landfill may request alternatives to the compliance measures, monitoring requirements, and test methods and procedures set forth in WAC 173-408-070, WAC 173-408-080, and WAC 173-408-090. Any alternatives requested by the owner or operator must be submitted in writing to the local authority.
- (2) The criteria that the local authority 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 local authority 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 local authority 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.

WAC 173-408-130 Applicability demonstration

- (1) The local authority may request that any owner or operator of a MSW landfill demonstrate that a landfill does not meet the applicability criteria specified in WAC 173-408-010(3), WAC 173-408-020, and WAC 173-408-030. Such a demonstration must be submitted to the local authority within 90 days of a written request received from the department or local authority.

WAC 173-408-140 Civil penalty

- (1) 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 173-408 WAC.