



State of Oregon Department of Environmental Quality

## Preliminary Work Plan for Achieving Reductions in Methane Emissions from Landfills

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**Background:** Executive Order No. 20-04 (EO 20-04), signed by Governor Brown on March 10, 2020, directs state agencies to take actions to reduce greenhouse gas emissions, with the purpose of achieving reductions of at least 45 percent by 2035 and 80 percent by 2050. One of the specific actions that is directed by EO 20-04 is for the EQC and DEQ to “take actions necessary to reduce methane gas emissions from landfills, as defined in ORS 459.005(14), that are aligned with the most stringent standards and requirements for reducing methane gas emissions from landfills adopted among the states having a boundary with Oregon.” EO 20-04, at 7.

Methane emissions from landfills represent an important element of Oregon’s overall greenhouse gas (GHG) emissions. Methane is natural byproduct of the decomposition of organic material in landfills. Methane is a potent greenhouse gas, far more effective than CO<sub>2</sub> at trapping heat in the atmosphere over a 100-year period. In 2017, six of the twenty-five largest stationary sources of GHG emissions in Oregon were landfills. Existing and new large landfills are required to have emissions controls under federal regulations, and federal rules were updated in 2016. However, the EPA has delayed implementation of the new requirements.

DEQ has conducted a very preliminary analysis of standards and requirements for reducing methane emissions in states adjoining Oregon. For the most part, it appears that the State of California has the most stringent standards and requirements for methane reduction. To implement this section of EO 20-04 DEQ first will complete an initial documentation of the specific standards and requirements in adjoining states that are the most stringent (in terms of emissions reductions, including emissions avoidance). DEQ and the EQC will then undertake the steps described in summary form in the chart below and in more detail in the written work plan that follows the chart, in order to implement EO 20-04.



production of methane should be considered in the rulemaking, including permit conditions providing for limits or arrangements to limit putrescible waste accepted by a facility.

**2. Rules Advisory Committee Consideration of Options/Public Engagements/EQC Consideration of Proposed Rules:** The goal of this rulemaking is to align DEQ's rules with the most stringent standards and requirements for reducing methane gas emissions from landfills adopted among the states having a boundary with Oregon, consistent with the direction of EO 20-04. Following the scoping phase described above, DEQ will convene a rules advisory committee to consider key policy questions, impacts of policy options, and proposed rule language, along with the fiscal impacts of proposed rules. The preliminary work plan calls for three RAC meetings between November 2020 and February of 2021. Following release of draft rules, and a public comment and hearing opportunity, DEQ will develop a final proposed rule, fiscal impact statement, and responses to comments. DEQ plans to submit the rulemaking proposal for EQC consideration and potential adoption at the commissions' May 2021 meeting.

**3. Modify air permits to include updated landfill rules:** DEQ will modify permits for all landfills affected by this rulemaking, either through a permit reopening or a permit modification. DEQ will provide the required public notice for these permit action.

**4. Design Plan:** Affected landfills will need to submit a design plan to DEQ for a gas collection and control system, or alternative compliance measures. The timing of these plans will be specified in the proposed rules, which will consider how to integrate work already occurring under federal regulations with new state requirements.

**5. DEQ Review and Approval of Design Plan:** DEQ will then review and either approve or disapprove the plans submitted by permit holders.

**6. Installation of a methane gas collection/control system or alternative compliance measures:** DEQ will include a compliance schedule to require installation of a methane gas collection/control system or alternative compliance measures in the permit addenda for all landfills affected by this rulemaking. The permittee must install and operate a gas collection and control system or alternative compliance measures within a period established in the new rules (18 months under the CARB rules)

**7. Compliance demonstration by affected landfills:** DEQ may require source testing of the methane gas collection/control system or other measures to demonstrate compliance with permit requirements. DEQ will perform inspections of all affected landfills.

#### **8. Alternative compliance measures**

**a. Alternative methane control measures at landfills:** A variety landfill operational measures help control environmental releases, migration of explosive methane, odor, and litter. Some of these measures are currently being implemented at some landfills. These measures often have co-benefits of also reducing methane releases from landfills. Below are some of the actions that might be

considered as alternative compliance measures under the proposed rules. The GHG reduction potential of these actions would need to be evaluated for specific landfills seeking an alternative compliance pathway.

<b>Action</b>
Install intermediate covers to be designed as oxidation covers at areas of landfills without active gas collection.
Install horizontal gas collection as waste is placed (reduced installation delay), consistent with current technologies.
Design alternative final covers to reduce GHG emissions.
Speed-up final closure/capping, LFG extraction well installation for completed landfill cells.
At identified methane emission hot-spot areas (where final closure is not forthcoming) install temporary, shallow (less expensive, removable) extraction wells.
Review site development plans (construction sequence plan) in detail to reduce to the greatest extent possible the area of “open/active” landfill. This is mainly done now to control leachate but it can also be done to enhance reduction of methane emissions.
Enhance daily covers. Using biocovers, better tarps, thicker daily cover could reduce methane emissions during non-operating hours.

**b. Alternative measures to reduce incoming (non-food) putrescible waste to landfills:** The actions below focus on reducing putrescible waste going to landfills, but specifically exclude actions to reduce landfill-bound food waste, which are covered in part 4E of EO 20-04. The other materials that cause landfill methane are cardboard, paper fibers, grass clippings, and wood. A small amount of agricultural waste (dead animals, manure, dairy waste) also contributes to landfill methane, but in quantities too small to evaluate as alternative measures. Landfills might recover some of these materials at their facilities, but in many cases would need to contract with other entities to fund their recycling/waste prevention programs. The reduction potentials presented below are statewide estimates as a point of reference.

<b>Action</b>	<b>Statewide Reduction potential (MTCO<sub>2</sub>e) / year (based on 2018 waste generation/recovery)</b>
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Increase recycling of <b>paper fiber</b> waste by 15%	~120,000
Decrease generation of <b>paper fiber</b> waste by 15%	~450,000
Increase recycling of <b>cardboard</b> waste by 15%	~200,000
Decrease generation of <b>cardboard</b> waste by 15%	~250,000
Decrease generation of <b>wood</b> waste by 15%	~135,000

**Alternative formats**

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email [deqinfo@deq.state.or.us](mailto:deqinfo@deq.state.or.us).