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Project Summary

Landfill Air Emissions Estimation Model User's Manual

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This document is a user's guide for the computer program, "Landfill Air Emissions Estimation Model." It provides step-by-step guidance for using the program to estimate landfill air emissions. The purpose of the program is to aid local and state agencies in estimating landfill air emission rates for nonmethane organic compounds and individual air toxics. This program will also be helpful to landfill owners and operators affected by the upcoming New Source Performance Standard (NSPS) and Emission Guidelines for Municipal Solid Waste Landfill Air Emissions.

The model is based on the Scholl Canyon Gas Generation Model, used in the development of the soon-to-be proposed regulation for landfill air emissions. The Scholl Canyon Model is a first-order decay equation that uses site-specific characteristics for estimating the gas generation rate. In the absence of site-specific data, the program provides conservative default values taken from the soon-to-be proposed NSPS for new landfills and emission guidelines for existing landfills. These default values may be revised based upon any future information collected by the EPA.

This Project Summary was developed by EPA's Air and Energy Engineering Research Laboratory, Research Triangle Park, NC, to announce key findings of the research project that is fully documented in a separate report of the same title (see Project Report ordering information at back).

Overview

In the past year, the EPA has received over 100 calls from state and local regulatory agencies requesting assistance in estimating landfill air emissions. The Control Technology Center has developed user-friendly computer software and a user's manual to enable states and local regulatory agencies to estimate landfill air emissions. Guidance is provided on estimating volatile organic compounds, toxics, and methane. The guidance that is provided is based on what was developed for the New Source Performance Standards and Emission Guidelines for municipal solid waste (MSW) landfills which are to be proposed later this year.

Landfill gas is generated by the anaerobic decomposition of landfilled MSW. Air emissions from MSW landfills are a concern due to their contribution to tropospheric ozone, air toxics, global warming, odor nuisance, and explosion hazards. The gas composition is typically 50% methane, 50% carbon dioxide and trace constituents of nonmethane organics and air toxics including vinyl chloride, benzene, and carbon tetrachloride.

The method for estimating landfill air emissions is based on a first-order decomposition rate equation and uses site-specific characteristics such as the year the landfill began accepting waste, the amount of waste in place, and the year that the landfill closed or is expected to close. Guidance is also provided for obtaining gas composition data using EPA test methods. Defaults are suggested for inputs when site-specific data are not available.

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The complete report consists of paper copy and diskettes entitled "Landfill Air Emissions Estimation Model User's Manual:"
Paper Copy (Order No. PB 91- 167 718/AS; Cost: $15.00, subject to change)
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