

# 40 C.F.R. § 98.463

## Calculating GHG emissions.

(a) For each industrial waste landfill subject to the reporting requirements of this subpart, calculate annual modeled CH<sub>4</sub> generation according to the applicable requirements in paragraphs (a)(1) through (a)(3) of this section. Apply Equation TT-1 of this section for each waste stream disposed of in the landfill and sum the CH<sub>4</sub> generation rates for all waste streams disposed of in the landfill to calculate the total annual modeled CH<sub>4</sub> generation rate for the landfill.

(1) Calculate annual modeled CH<sub>4</sub> generation using Equation TT-1 of this section.

$$G_{CH_4} = \left[ \sum_{x=S}^{T-1} \left\{ W_x \times DOC_x \times MCF \times DOC_F \times F \times \frac{16}{12} \times (e^{-k(T-x-1)} - e^{-k(T-x)}) \right\} \right] \text{ (Eq. TT-1)}$$

Where:

$G_{CH_4}$  = Modeled methane generation in reporting year T (metric tons CH<sub>4</sub>). X = Year in which waste was disposed. S = Start year of calculation. Use the year 1960 or the opening year of the landfill, whichever is more recent. T = Reporting year for which emissions are calculated.  $W_X$  = Quantity of waste disposed in the industrial waste landfill in year X from measurement data and/or other company records (metric tons, as received (wet weight)).  $DOC_X$  = Degradable organic carbon for waste disposed in year X from Table TT-1 to this subpart or from measurement data [as specified in paragraph (a)(3) of this section], if available [fraction (metric tons C/metric ton waste)].  $DOC_F$  = Fraction of DOC dissimilated (fraction); use the default value of 0.5. If measured values of DOC are available using the 60-day anaerobic biodegradation test procedure identified in § 98.464(b)(4)(i), use a default value of 1.0. MCF = Methane correction factor (fraction). Use the default value of 1 unless there is active aeration of waste within the landfill during the reporting year. If there is active aeration of waste within the landfill during the reporting year, use either the default value of 1 or select an alternative value no less than 0.5 based on site-specific aeration parameters. F = Fraction by volume of CH<sub>4</sub> in landfill gas (fraction, dry basis, corrected to 0% oxygen). If you have a gas collection system, use the annual average CH<sub>4</sub> concentration from measurement data for the current reporting year; otherwise, use the default value of 0.5. k = Decay rate constant from Table TT-1 to this subpart (yr<sup>-1</sup>). Select the most applicable k value for the majority of the past 10 years (or operating life, whichever is shorter).

(2) *Waste stream quantities.* Determine annual waste quantities as specified in paragraphs (a)(2)(i) through (ii) of this section for each year starting with January 1, 1960 or the year the landfills first accepted waste if after January 1, 1960, up until the most recent reporting year. The choice of method for determining waste quantities will vary according to the availability of historical data. Beginning in the first emissions reporting year (2011 or later) and for each year thereafter, use the procedures in paragraph (a)(2)(i) of this section to determine waste stream quantities. These procedures should also be used for any year prior to the first emissions reporting year for which the data are available. For other historical years, use paragraph (a)(2)(i) of this section, where waste

disposal records are available, and use the procedures outlined in paragraph (a)(2)(ii) of this section when waste disposal records are unavailable, to determine waste stream quantities. Historical disposal quantities deposited (*i.e.*, prior to the first year in which monitoring begins) should only be determined once, as part of the first annual report, and the same values should be used for all subsequent annual reports, supplemented by the next year's data on new waste disposal.

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