

40 C.F.R. § 98.353

Calculating GHG emissions.

(a) For each anaerobic reactor and anaerobic lagoon, estimate the annual mass of CH₄ generated according to the applicable requirements in paragraphs (a)(1) through (a)(2) of this section.

(1) If you measure the concentration of organic material entering the anaerobic reactors or anaerobic lagoon using methods for the determination of chemical oxygen demand (COD), then estimate annual mass of CH₄ generated using Equation II-1 of this section.

$$CH_4G_n = \sum_{w=1}^{52} [Flow_w * COD_w * B_o * MCF * 0.001] \quad (\text{Eq. II-1})$$

Where:

CH₄G_n = Annual mass CH₄ generated from the nth anaerobic wastewater treatment process (metric tons). n = Index for processes at the facility, used in Equation II-7. w = Index for weekly measurement period. Flow_w = Volume of wastewater sent to an anaerobic wastewater treatment process in week w (m³/week), measured as specified in § 98.354(d). COD_w = Average weekly concentration of chemical oxygen demand of wastewater entering an anaerobic wastewater treatment process (for week w)(kg/m³), measured as specified in § 98.354(b) and (c). B_o = Maximum CH₄ producing potential of wastewater (kg CH₄/kg COD), use the value 0.25. MCF = CH₄ conversion factor, based on relevant values in Table II-1 of this subpart. 0.001 = Conversion factor from kg to metric tons.

(2) If you measure the concentration of organic material entering an anaerobic reactor or anaerobic lagoon using methods for the determination of 5-day biochemical oxygen demand (BOD₅), then estimate annual mass of CH₄ generated using Equation II-2 of this section.

$$CH_4G_n = \sum_{w=1}^{52} [Flow_w * BOD_{5,w} * B_o * MCF * 0.001] \quad (\text{Eq. II-2})$$

Where:

CH₄G_n = Annual mass of CH₄ generated from the anaerobic wastewater treatment process (metric tons). n = Index for processes at the facility, used in Equation II-7. w = Index for weekly measurement period. Flow_w = Volume of wastewater sent to an anaerobic wastewater treatment process in week w(m³/week), measured as specified in § 98.354(d). BOD_{5,w} = Average weekly concentration of 5-day biochemical oxygen demand of wastewater entering an anaerobic wastewater treatment process for week w(kg/m³), measured as specified in § 98.354(b) and (c). B_o = Maximum CH₄ producing potential of wastewater (kg CH₄/kg BOD₅), use the value 0.6. MCF = CH₄ conversion factor, based on relevant values in Table II-1 to this subpart. 0.001 = Conversion factor

from kg to metric tons.

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