G_{CH4} = Modeled methane generation rate in reporting year from Equation HH–1 of this subpart or Equation TT–1 of subpart TT of this part, as applicable, except for application with Equation HH–6 of this subpart (metric tons CH₄). For application with Equation HH–6 of this subpart, the greater of the modeled methane generation rate in reporting year from Equation HH–1 of this subpart or Equation TT–1 of this part, as applicable, and the quantity of recovered CH₄ from Equation HH–4 of this subpart (metric tons CH₄).

CE = Collection efficiency estimated at landfill, taking into account system coverage, operation, and cover system materials from Table HH–3 of this subpart. If area by soil cover type information is not available, use default value of 0.75 (CE4 in table HH–3 of this subpart) for all areas under active influence of the collection system.

N = Number of landfill gas measurement locations (associated with a destruction device or gas sent off-site). If a single monitoring location is used to monitor volumetric flow and CH₄ concentration of the recovered gas sent to one or multiple destruction devices, then N=1.

Rₙ = Quantity of recovered CH₄ from Equation HH–4 of this subpart for the nth measurement location (metric tons CH₄).

f_{Rec,n} = Fraction of hours the recovery system associated with the nth measurement location was operating (annual operating hours/8760 hours per year or annual operating hours/8784 hours per year for a leap year).

§ 98.350 Definition of source category.

This source category consists of the following: anaerobic reactors, anaerobic lagoons, anaerobic sludge digesters, and biogas destruction devices (for example, burners, boilers, turbines, flares, or other devices).

(1) An anaerobic reactor is an enclosed vessel used for anaerobic wastewater treatment (e.g., upflow anaerobic sludge blanket, fixed film).

(2) An anaerobic sludge digester is an enclosed vessel in which wastewater treatment sludge is degraded anaerobically.

(3) An anaerobic lagoon is a lined or unlined earthen basin used for wastewater treatment, in which oxygen is absent throughout the depth of the basin, except for a shallow surface zone. Anaerobic lagoons are not equipped with surface aeration. Anaerobic lagoons are classified as deep (depth more than 2 meters) or shallow (depth less than 2 meters).

(c) This source category does not include municipal wastewater treatment plants or separate treatment of sanitary wastewater at industrial sites.

§ 98.351 Reporting threshold.

You must report GHG emissions under this subpart if your facility meets all of the conditions under paragraphs (a) or (b) of this section:

(a) Petroleum refineries and pulp and paper manufacturing.

(1) The facility is subject to reporting under subpart Y of this part (Petroleum Refineries) or subpart AA of this part (Pulp and Paper Manufacturing).

(2) The facility meets the requirements of either §98.2(a)(1) or (2).

(b) Ethanol production and food processing facilities.

(1) The facility operates an anaerobic process to treat industrial wastewater and/or industrial wastewater treatment sludge.

(b) Ethanol production and food processing facilities.

(1) The facility performs an ethanol production or food processing operation, as defined in §98.358 of this subpart.

(2) The facility meets the requirements of §98.2(a)(2).

(3) The facility operates an anaerobic process to treat industrial wastewater.
§ 98.352 GHGs to report.

(a) You must report CH₄ generation, CH₄ emissions, and CH₄ recovered from treatment of industrial wastewater at each anaerobic lagoon and anaerobic reactor.

(b) You must report CH₄ emissions and CH₄ recovered from each anaerobic sludge digester.

(c) You must report CH₄ emissions and CH₄ destruction resulting from each biogas collection and biogas destruction device.

(d) You must report under subpart C of this part (General Stationary Fuel Combustion Sources) the emissions of CO₂, CH₄, and N₂O from each stationary combustion unit associated with the biogas destruction device, if present, by following the requirements of subpart C of this part.

[75 FR 39767, July 12, 2010, as amended at 76 FR 73903, Nov. 29, 2011]

§ 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.

\[
CH_4 G_n = \sum_{w=1}^{52} \left[ Flow_w \times COD_w \times B_o \times MCF \times 0.001 \right]
\]  (Eq. II-1)

Where:

- CH₄Gₙ = 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).
- B₀ = 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.

\[
CH_4 G_n = \sum_{w=1}^{52} \left[ Flow_w \times BOD_{5,w} \times B_o \times MCF \times 0.001 \right]
\]  (Eq. II-2)

Where:

- CH₄Gₙ = 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).
- BOD₅ₙ = 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).