CLIMATE ACTION RESERVE

Dominican Republic Livestock Protocol V1.0

Workgroup Meeting 3

April 13, 2023

Introduction

Amy Kessler
Director of Latin America

Claudia Jurado
Analytical Associate, Latin America

Rachel Mooney
Analytical Associate

Housekeeping

- Workgroup members have the opportunity to actively participate throughout the meeting
  - Ask that you keep yourselves muted unless / until would like to speak
- We will ask and take questions throughout the session
  - Please use the raise your hand function
- All other attendees/observers are in listen-only mode
- Observers are free to submit questions in the question box
- We will follow up via email to answer any questions not addressed during the meeting
- The slides and a recording of the presentation will be posted online

AGENDA

- Introductions
- Process Overview
- Protocol Considerations and Workgroup Comments
  - Project Definition – Eligible livestock categories
  - Social and Environmental Safeguards
  - Site-specific B_0 value
  - Other
- Open Discussion
- Next Steps

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INTRODUCTIONS

Workgroup Members

Organization (Alphabetical)	Name
AB Energy USA, LLC	Jesus Solano
ATOA Consulting Pty Ltd	Sami Osman
Independent	Thomas Grammig
Independent	Nelly Cuello
Independent	Josefina Fernandez McEnvoy
Independent	José del Carmen Valenzuela
MexiCO2	David Collin
Ministry of Environment, Dominican Republic	Kenia Feliz
Ministry of Environment, Dominican Republic	Cesar Abrill
Nestlé Dominicana	Juan Crousset
Nestlé Dominicana	Leamsy Rodriguez (Alternate)
Ruby Canyon Environmental	Miguel Angel Freyermuth Corona
Terralimpia Biogas Solutions	Carolina Porrello

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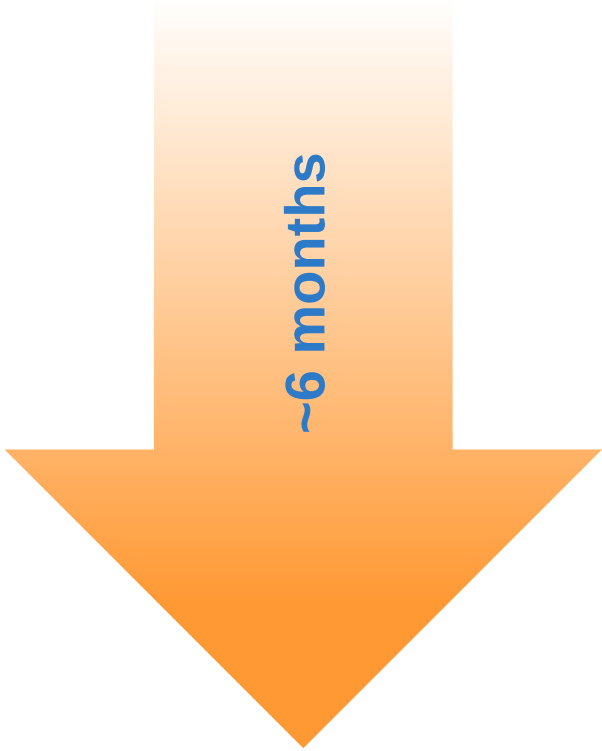
PROCESS OVERVIEW

Protocol Development Overview

- **GOAL**: To create a robust Dominican Republic Livestock Protocol that provides best practices for GHG accounting to generate Climate Reserve Tonnes (CRTs)
  - Incentivize the capture and destruction of methane emissions from livestock operations
  - Direct carbon finance to the livestock sector and make biogas control system projects more financially attractive to investors
  - Adhere to high quality offset criteria and Reserve's principles
  - Leverage lessons learned from the Reserve's US and Mexico Livestock protocols
  - Solicit and incorporate expert stakeholder feedback

Protocol Development Timeline

1. Kick-off meeting (*January 26, 2023*)
2. Workgroup process
   - Formation: February 2023
   - Meeting 1: February 21
   - Meeting 2: March 9, 2023
   - Meeting 3: April 13, 2023
   - Workgroup Protocol Draft Review: *May 1-12 - tentative*
3. 30-day public comment period (*June/July 2023*)
4. Propose to Board adoption *(October 2023)*



Timeline Process Detail

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct
Public webinar	26th									
Workgroup formation										
1st workgroup meeting (webinar)		21st								
Drafting/content development										
2nd workgroup meeting (webinar)			9th							
Drafting/content development										
3rd workgroup meeting (webinar)				**13th**						
Drafting/content development										
Workgroup Review										
Public comment period & webinar (30 days)										
Staff revisions based on feedback										
Internal reviews/formatting										
Deliver Board draft										
Public Board meeting										

Workgroup Process and Expectations

CAR/Process:

- Manage the protocol development process
- Hold 2 workgroup meetings
- Reserve staff identify and solicit feedback on specific protocol criteria
  - **Specific questions for WG will be highlighted in red**
- Reserve staff will share the draft protocol with WG
- Revise protocol based on feedback

WG/Expectations:

- Attend all (~2) workgroup sessions
- Be active participants: provide input and ask questions on protocol concepts and language
- After meetings, share additional input and expertise as needed
- Review draft protocol and provide written feedback to Reserve staff
- Be constructive, collaborative, and productive

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PROTOCOL CONSIDERATIONS

Swine Flu

- Livestock operations that were previously collecting and destroying biogas but went offline due to the impact of the H1N1 virus, commonly known as the swine flu, on their swine operation may be eligible. In such cases, the start date will be associated with the date at which the system begins producing and destroying methane gas prior to going offline. To list under the Protocol, project developers must demonstrate the each of the following at the time of listing:

1. The impact swine flu had on the herd's population (e.g., tests indicating positive testing for the swine flu or a mandate from the government to slaughter the swine population).
2. No destruction has occurred between the time of going offline and listing with the Reserve (e.g., biogas flow data and/or operational status of the destruction device(s) from monitoring equipment).
3. A significant investment was required to bring the project back online (e.g., receipts or invoices pertaining to the construction, maintenance, and/or ongoing costs associated with project activities).

Feedback on documentation?

Legal Requirements Test

"**Law No 225-20 Article 125: Treatment of Organic Waste** states that the treatment of waste of animal origin may be carried out using biodigesters where the biogas is then burned. To date, it's purpose has not been to mandate the installation of a biodigester nor the destruction of biogas, but instead, has been to encourage the use biodigesters and biogas destruction in order to protect the environment, public health, and reduce greenhouse gas emissions. The Reserve will continue to monitor the impact Law No 225-20 Article 125 has on project eligibility."

The Reserve added the following language. Feedback?

Social and environmental safeguards

- Per WG comment, updated the social safeguards to make reference to an ongoing dispute resolution process:
  - The Reserve holds public comment on all listed projects prior to registration and has an ongoing dispute resolution process. See the Reserve Offset Program Manual and website for further information on programmatic and project specific public consultation and dispute resolution processes. Projects that receive material complaints will not be registered until a satisfactory dispute resolution plan has been approved.
  - Comments?

Site-Specific Determination of B_0 Value

- **B_0 Value: Maximum Methane Potential**
- Adopted in US protocol with consultation from experts since the default values for dairy cattle were very conservative.
- **Sampling schedule:** six samples at regular intervals throughout the day and combined to represent one sampling event for each livestock category separately. Samples taken at pre-defined month range.
  - Sample procedures vary depending on the manure management system
  - Methane potential is positively correlated with milk production. To prevent overestimation, samples must be taken in average or below-average milk production periods.
- **Laboratory Requirements:** 3 years using Biochemical Methane Potential (BMP) Assay procedures and ISO 11734

Site-Specific Determination of B_0 Value

- Is there a dataset with monthly milk production trends to determine months for sampling?
  - Reserve has not received the dataset or response from CONALECHE
- Reserve has contacted the Junta Agroempresarial Dominicana, Inc. regarding laboratory analysis for BMP testing
  - There are no labs in the DR that have the relevant experience, but projects are allowed to use laboratories outside of the jurisdiction
- Comment that sampling may be costly, regardless if labs are located in the DR. Sampling is voluntary, default values are available.

Reserve still needs dataset with monthly milk production trends by month to apply site-specific methodology; default values are still included as an option.

Reserve will consider allowing with project-specific data to demonstrate samples are from a below average production month.

Can update in future versions if we obtain the data at the national level.

Project Monitoring

- Monitoring requirements for biogas flow meters are costly: consider using the CDM AMS-III.R methodology
  - Biogas flow: average quantity monitored through sampling campaigns at randomly selected sites with a sample size to achieve 90/10 CI. Measured continuously for 30 days but disjointed to account for seasonal variation
  - Methane concentration: utilize the standard, sampling, and surveys for CDM project activities and programme of activities. Continuous analyzer or with periodic measurements at 90/10 confidence level or a default 60%
    - This standard does not have a methodology, but principals for sampling
  - No QA/QC guidance identified under the CDM

	CDM	Reserve Protocol
Biogas Flow	Continuously for 30 days (may be disjointed to account for seasonal variation) at randomly selected sites to achieve 90/10 confidence level	Continuously and recorded every 15 minutes OR totalized and recorded at least daily prior to delivery to the destruction device(s)
Methane Concentration	Continuous analyzer or with periodic measurements at a 90/10 confidence level, or a default value of 60%	Continuous analyzer or, alternatively, with quarterly measurements

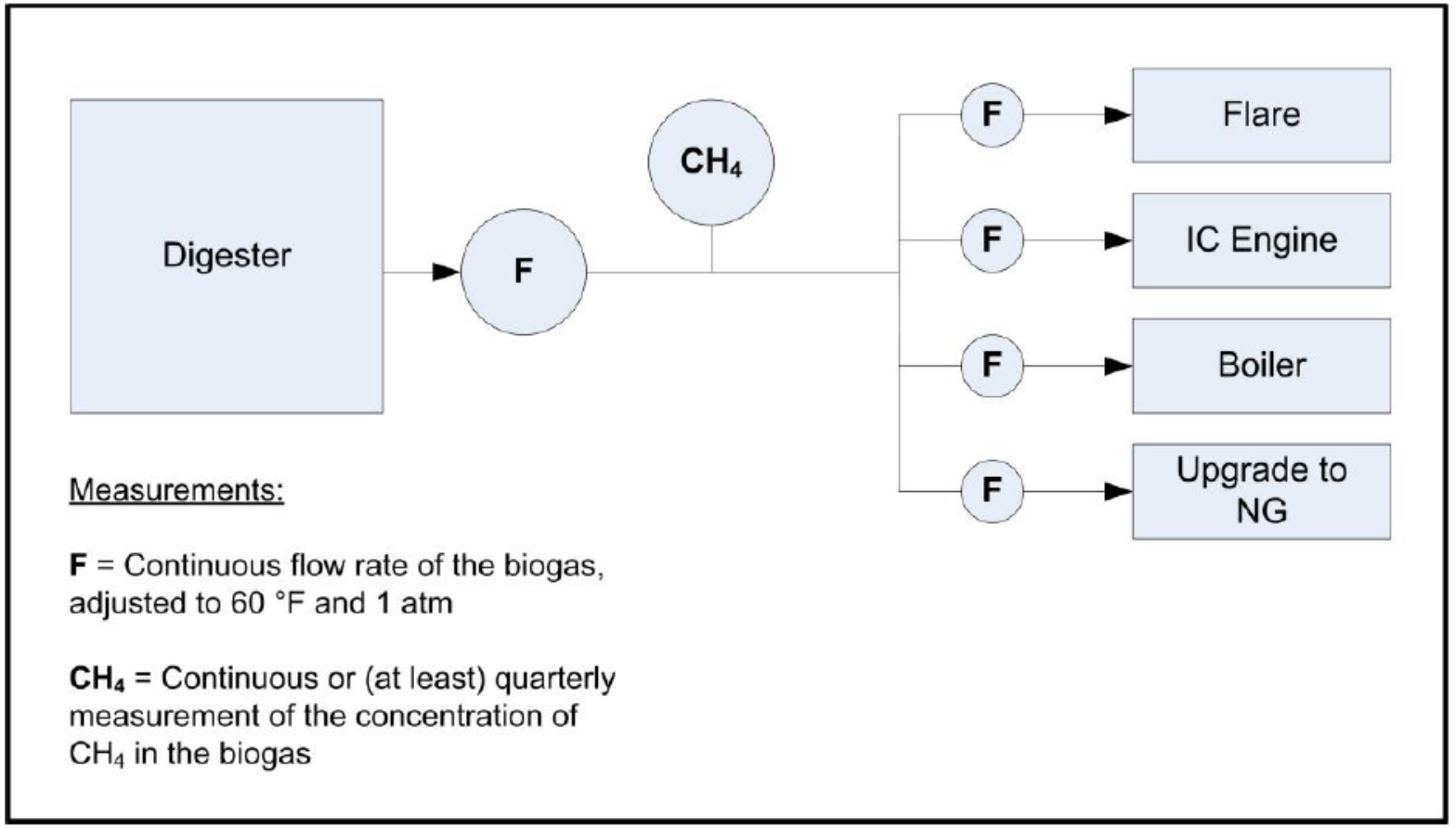
Project Monitoring

- The Reserve believes our monitoring requirements are more rigorous.
- The Reserve will not make a change to the methane concentration as there is an alternative option for quarterly measurements instead of continuous monitoring.

Project design considerations to reduce costs:

- Multiple livestock operations can be combined into one destruction device
- The number of flow meters must be sufficient to track the total flow and the flow to each combustion device (does not require redundancies)
- Allow for a single flow meter to monitor multiple destruction devices

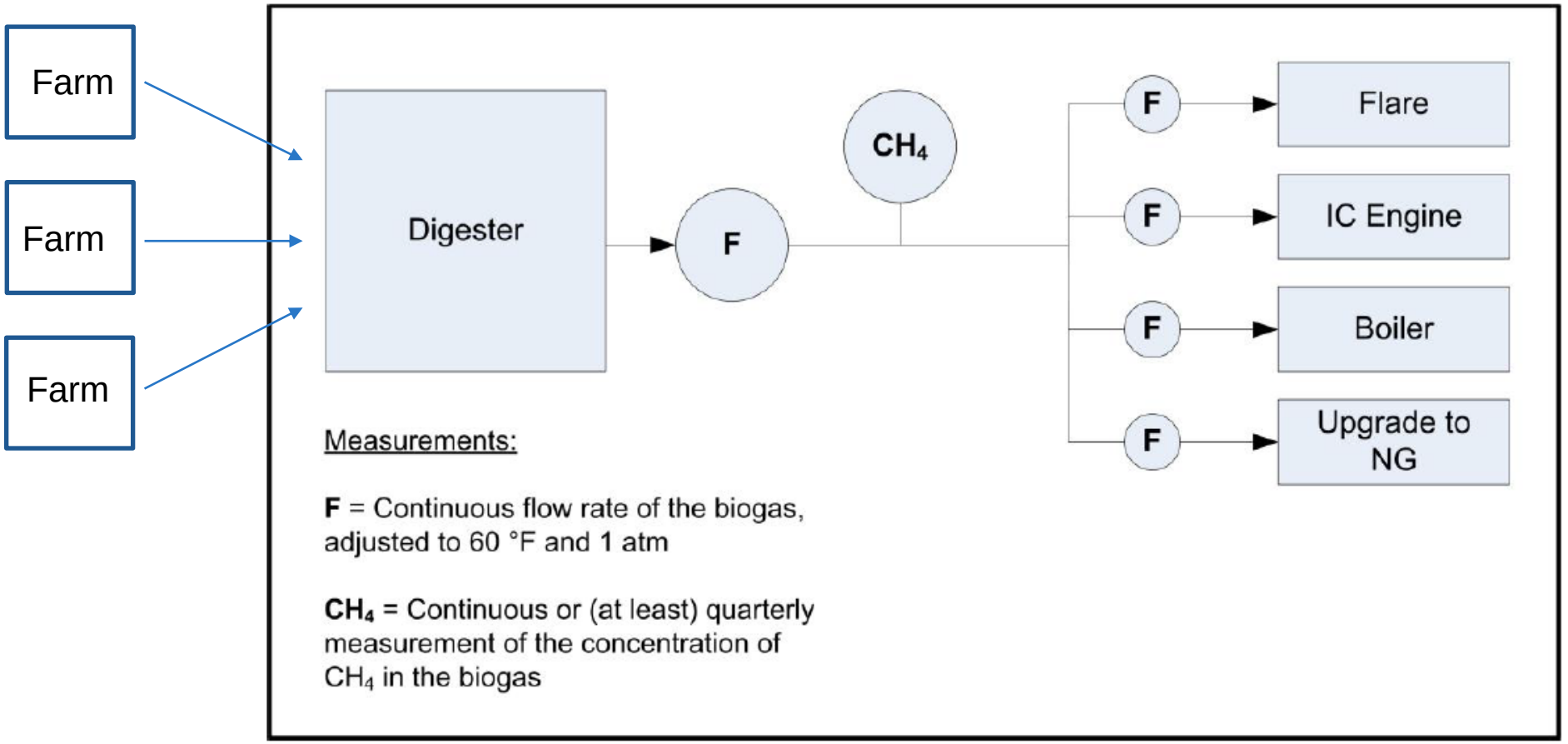
Project Monitoring



Note: The number of flow meters must be sufficient to track the total flow as well as the flow to each combustion device. The above example includes one more flow meter than would be necessary to achieve this objective.

Figure 6.1. Suggested Arrangement of Biogas Metering Equipment

Project Monitoring



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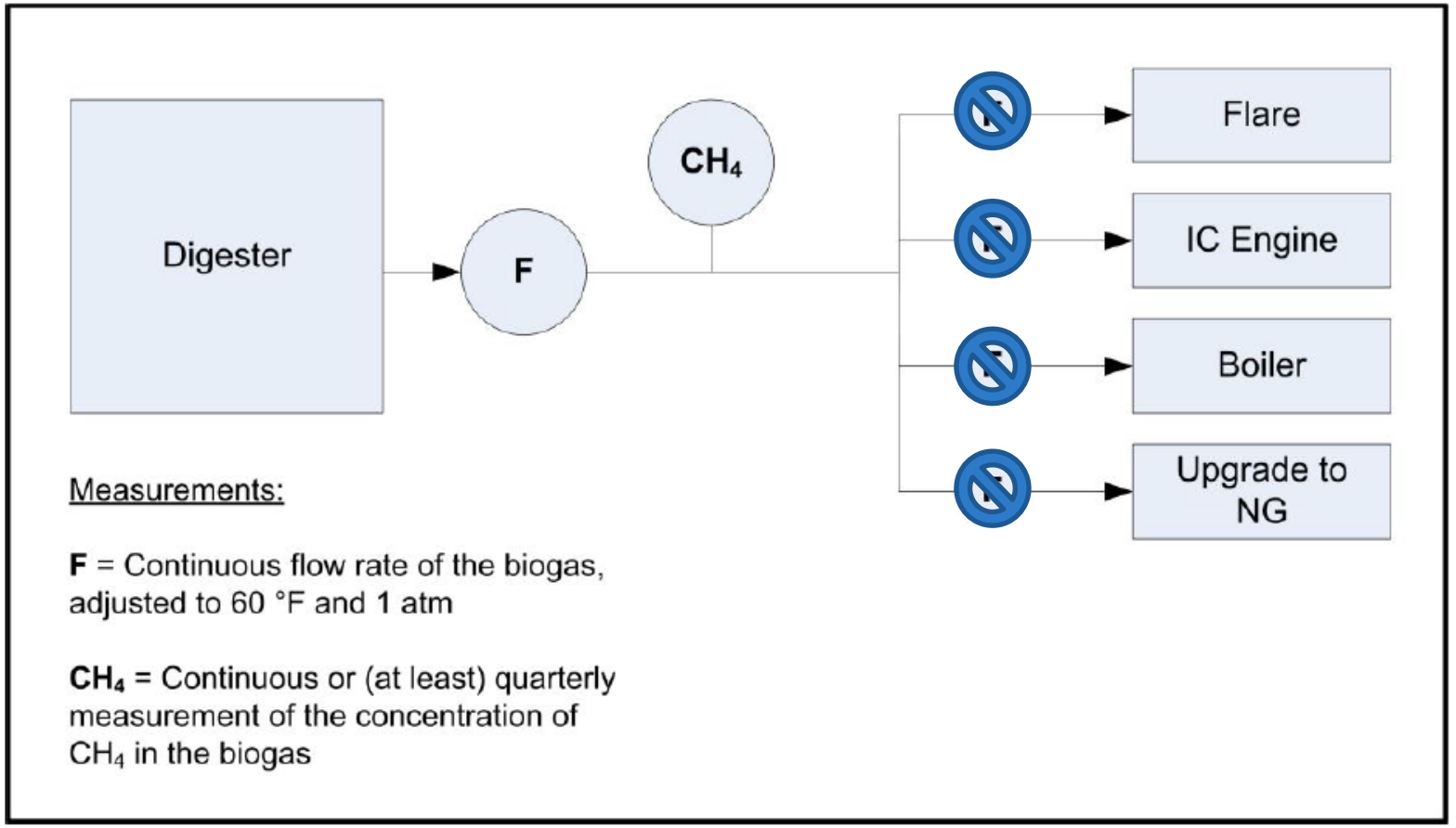

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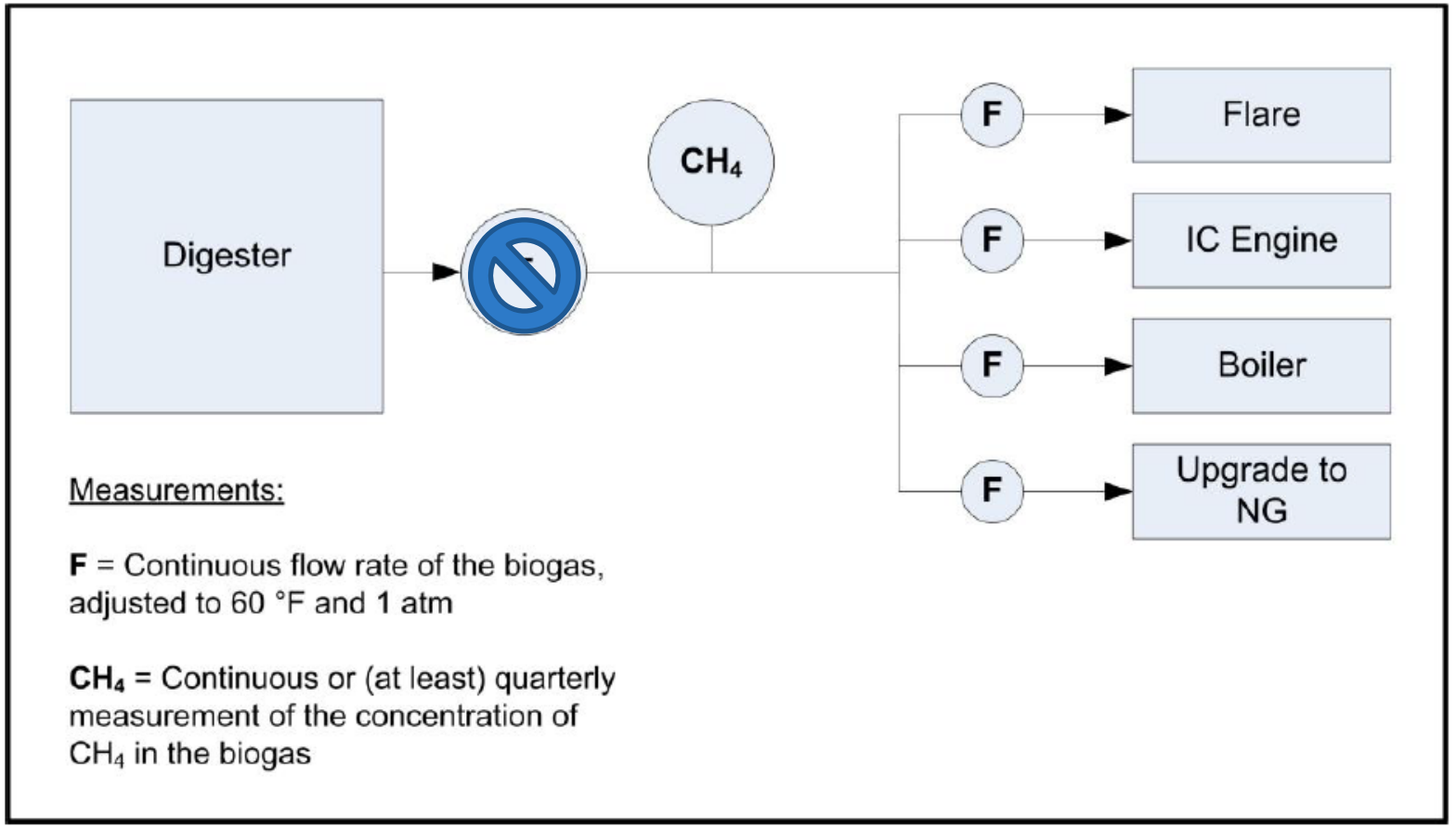

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Figure 6.1. Suggested Arrangement of Biogas Metering Equipment

Default Values

- VS and Maximum Methane Potential (B0,L) default values: updated values in IPCC 2019 Refinement to the 2006 IPCC Guidelines
  - 2006 LATAM value: 0.29 (M^3 CH_4/KG VS)
  - 2019 “Other region” value:
    - High Productivity Systems: 0.45
    - Low Productivity Systems: 0.29
    - IPCC suggests using Low PS for Tier 1 and Tier 1a.
  - Please review default values for chicken and/or beef cattle
    - Are there datasets specific to DR that should/can be used instead?
    - Beef cattle under IPCC would be defined as “other cattle.”
    - IPCC also states that cattle used for both diary and beef should use “other cattle” default value
  - Reserve updates calculation tool with the most recent available data, so project developers are able to utilize updated values when they become available. DR specific values are used in place of IPCC when available.

Default Values - Chickens

		VS[1]			TAM[2] (kg)	B_0[2] (m-3CH4/kg VS)
	System	**Mean**	**High PS**	**Low PS**		
Poultry	free range	13.5	13.3	15.7	NR	NR
Hens +/- 1 year	confinement	10.1	9.3	14.7	1.8	0.39
Pullet (< 1 year)	confinement	7.6	5.7	18.5	NR	NR
Broiler (meat production)	confinement	15.6	15.5	17.8	0.9	0.36

[1] VS data given in kg VS (1000kg animal mass)-1 day-1), Source: Table 10.13A – IPCC 2019 Refinement (based on FAO GLEAM databases (FAO 2017)
[2] source: Table 10A-9 IPCC 2006
NR = Not Reported

Default Values: Beef Cattle

TABLE 10A.2 (CONTINUED)
DATA FOR ESTIMATING TIER 1 ENTERIC FERMENTATION CH_4 EMISSION FACTORS FOR OTHER CATTLE IN TABLE 10.11

Subcategory	Weight, kg	Weight gain, kg day^{-1}	Feeding situation	Milk, kg day^{-1}	Work, hr day^{-1}	%Pregnant	Digestibility of feed (DE%)	CH_4 conversion factor (Y_m)	Day weighted population mix %	Emission factors, kg CH_4 head^{-1} yr^{-1}
Latin America[d]										
Mature females	400	0.0	Large areas	1.1	0.0	67%	60%	6.5%	37%	64
Mature males	450	0.0	Large areas	0.0	0.0	0%	60%	6.5%	6%	61
Young	230	0.3	Large areas	0.0	0.0	0%	60%	6.5%	58%	49

Table 10A-5. Manure management methane emission factor derivation for other cattle

Region	Other Cattle Characteristics		
	Mass[a] kg	B_o[b] m^3CH_4/kg VS	VS[c] kg/hd/day
North America	389	0.19	2.4
Western Europe	420	0.18	2.6
Eastern Europe	391	0.17	2.7
Oceania	330	0.17	3.0
Latin America	305	0.1	2.5
Africa	173	0.1	1.5
Middle East	173	0.1	1.5
Asia	319	0.1	2.3
Indian Subcontinent	110	0.1	1.4

IPCC 2006

Other comments

- Consideration of reduced electricity or fossil fuel usage:
  - How would the captured methane be used in the DR? Electricity generation? Vehicle combustion?
  - If vehicles, what is the current fossil fuel being used?
  - If electricity generation, is there data to demonstrate the current energy mix that would be displaced?
  - How significant is this consideration for the DR?

  - Consider for future update?

Other comments

- Suggestion to review the following laws:
  - Law 345-22 (August 2022) Requires the National Statistics Office (ONE, by its Spanish acronym) to produce environmental statistics according to the regionalization scheme.

Reserve updated the appendix to correct to the 10 agricultural regions.

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NEXT STEPS

Next steps

- ***For Interested Stakeholders:***
  - Still can submit Local Engagement Form
  - Email interest to sign up for updates as an observer
  - Email us feedback anytime
- ***For Reserve:***
  - Compile notes summary on discussion
  - Post recording, notes, and presentation to the webpage
  - Incorporate feedback from workgroup discussion
  - Finalize draft to share with workgroup: May 1
- ***For Workgroup:***
  - Email feedback on today's discussion or protocol draft review (by April 21st)
  - Look out for draft to review: May 1st - 12th

Key contacts

- ***Climate Action Reserve:***

  Protocol development lead:

  Rachel Mooney, Analytical Associate

  Email: rmooney@climateactionreserve.org

  Amy Kessler, Director of Latin America

  Email: Akessler@climateactionreserve.org

  Claudia Jurado, Analytical Associate LATAM

  Email: cjurado@climateactionreserve.org

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THANK YOU!