

Verification Report for CCMP in Sectors Other Than Land Use

CCMP name	Doña Juana Landfill Gas to Energy Project
Client	BIOGÁS COLOMBIA S.A.S. E.S.P.
CCMP ID	51
Report ID	88525 - 2021-CS-34
Verification number	Verification 2 (3 rd accreditation period)
Audit criteria (main)	- ISO 14064-2:2019 - Cercarbono's Protocol for Voluntary Carbon Certification, version 4.4. - Terms and definitions of Voluntary certification carbon of CERCARBONO, version 3.1. - CERCARBONO's Procedures-of-Cercarbonos-Certification-Programme-V2.2 - CERCARBONO's Safeguarding Principles and Procedures of Cercarbono's Certification Programme V1.1 - CERCARBONO's Tool to Report Contributions from Climate Change Mitigation Initiatives to the Sustainable Development Goals. V.1.3 - CERCARBONO's Tool to Demonstrate Additionality of Climate Change Mitigation Initiatives, version 2.0.1

	- CERCARBONO's Guidelines for Mapping Presentation and Analysis V1.0
Methodology	CERCARBONO M/MLF-DE_RE01 For Projects for the Destruction and Utilisation of Biogas from Landfill Sites, Ver 2.1
Duration of the CCMP	From 22/09/2009 to 03/11/2041
Area, facility, or process verified	LFG's capture, flaring and/or utilization infrastructure installed at the Doña Juana landfill in the city Bogotá DC (Colombia)
Period of verification	From 01/02/2024 to 31/12/2024
Total GHG emission reductions generated in the verified period	648,052 tCO ₂ e
Net GHG emission reductions generated in the verified period	648,012 tCO ₂ e
Date of preparation of the verification report	18/07/2025 (initial version) 25/07/2025 (final version)
Document prepared by	Colombian Institute of Technical Standards and Certification - ICONTEC
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Acronyms and abbreviations

CCMP	Climate Change Mitigation Programme or Project
CAR	Corrective action request
CL	Clarification request
CO_{2e}	Equivalent carbon dioxide
GHG	Greenhouse Gases
ES	Emission Source
FAR	Forward action request
GHG	Greenhouse Gases
ICONTEC	Colombian Institute for Technical Standards and Certification*
MR	Monitoring report
LFG	Landfill Gas
MINAMBIENTE	Ministry of Environment and Sustainable Development of Colombia
NDCs	Nationally Determined Contribution
PDD	Project Description Document
PP	CCMP holder or Project Participant
ONAC	National Accreditation Body *
SDGs	Sustainable Development Goals
SIN	National Interconnected System*
tCO_{2e}	Tons of carbon dioxide equivalent
SWDS	Solid Waste Disposal Site
SDGs	Sustainable Development Goals
VVB	Validation and Verification Body

*(Acronym in Spanish)

1 Introduction

1.1 Objective

ICONTEC has been commissioned by “Biogás Colombia SAS ESP” to perform an independent verification of its registered project under CERCARBONO GHG program, called: “Doña Juana Landfill Gas to Energy Project”, EcoRegistry Code No. 51, for the monitoring period from 01/02/2024 to 31/12/2024 (both dates included).

The objectives are the following:

- Verify compliance in the implementation of the mitigation project activities, in accordance with the Cercarbono’s Protocol for Voluntary Carbon Certification, version 4.4 /CC1/.
- Verify compliance in the implementation of the mitigation project activities, including those associated with the methodology selected for the project.
- Evaluate and verify compliance with the principles of the monitoring, verification and reporting system necessary to comply with current legislation.
- Verify that the monitoring system and procedures, as well as the recording and storage of the data generated, comply with the requirements described in the monitoring plan and the approved methodology, including applicable tools and other related methodological documents.
- Provide confidence to different stakeholders in the quality of the project and its ability to achieve certified GHG reductions.

1.2 VVB legal status

ICONTEC is accredited by ONAC (recent Signatory member of the MLA of the Inter-American Accreditation Cooperation - IAAC), covering the sectors related to this project such as sectors 1 (energy) and 13 (waste); and the framework of the International Accreditation Forum (IAF) in the ISO 14065 standard also.

1.3 Impartiality of the VVB

ICONTEC has a quality management system that allows it to guarantee impartiality using standardized procedures (such as "impartiality procedure") that are used from the technical-economic proposal to the owner of the CCMP until the execution and closure of the validation/verification services.

All the members of the audit team involved in this verification service sign a document stating that there are no conflicts of interest to carry out the verification exercise.

1.4 Responsibilities addressed by the VVB

As part of ICONTEC management system, since the beginning of the technical-commercial relationship process is assessed by the head of the CCMP and including the risks derived

from the verification activity. Additionally, ICONTEC has a comprehensive policy to cover the responsibilities derived from the verification activities in the geographical areas in which it operates.

1.5 Spatial and temporal scope and limits

The scope of this verification includes an independent and objective evaluation to determine that the CCMP meets the following evaluation criteria:

- ISO 14064-2:2019 /ISO1/.
- Protocol for voluntary certification of carbon emission from CERCARBONO (CVCC), version 4.4 /CC1/.
- Terms and definitions of Voluntary certification carbon of CERCARBONO, version 3.1 /CC2/.
- CERCARBONO's Procedures of Cercarbono's Certification Programme V2.2 /CC3/.
- CERCARBONO's Safeguarding Principles and Procedures of Cercarbono's Certification Programme V1.1 /CC5/
- CERCARBONO's Tool to Report Contributions from Climate Change Mitigation Initiatives to the Sustainable Development Goals. V.1.3 /CC6/
- CERCARBONO's Tool to Demonstrate Additionality of Climate Change Mitigation Initiatives, version 2.0.1 /CC7/
- CERCARBONO's Guidelines for Mapping Presentation and Analysis V1.0 /CC8/
- CERCARBONO M/MLF-DE_RE01 For Projects for the Destruction and Utilisation of Biogas from Landfill Sites, Ver 2.1 /CC4/.

On the other hand, ICONTEC confirms the following information as stated in the next table, based on the revision in the google maps app and the onsite visit:

- Limits:
 - North: 4° 32' 03.23" N / 74° 07' 46.08" W
 - South: 4° 29' 17.68" N / 74° 08' 15.92" W
 - East: 4° 30' 41.19" N / 74° 07' 37.39" W
 - West: 4° 30' 21.84" N / 74° 08' 50.47" W
 - Northwest: 4° 31' 31.33" N / 74° 07' 48.48" W
 - Northeast: 4° 31' 29.52" N / 74° 07' 34.71" W
 - Southwest: 4° 29' 27.39" N / 74° 08' 56.02" W
 - Southeast: 4° 29' 23.99" N / 74° 07' 40.97" W

According to the CERCARBONO M/MLF-DE_RE01 For Projects for the Destruction and Utilisation of Biogas from Landfill Sites, Ver 2.1 /CC4/, the project boundary includes the site where LFG is captured, flared and utilized. The project design includes the installation and operation of set of LFG collecting wells, interconnected through LFG pipeline network. This infrastructure represents the project's LFG collection network through which collected LFG is directed to the project's LFG destruction and utilization facilities, which is destroyed by means of high temperature flare(s) and utilized by biogas generators. Due to the above, the

audit team confirms that the project complies with paragraph 5.1 and 5.2 of the CERCARBONO M/MLF-DE_RE01 For Projects for the Destruction and Utilization of Biogas from Landfill Sites, Ver 2.1 /CC4/ and with the description included in the registered PDD /1/.

ICONTEC verified that the amount and quality of collected LFG which is sent to the high temperature enclosed flare (for controlled and efficient combustion) and biogas generators, have been continuously measured, recorded and reported along the considered monitoring period.

This verification of the CCMP has been done by ICONTEC for the following currently monitoring period that covers from 01/02/2024 to 31/12/2024.

ICONTEC confirms that the validated accreditation period of the project is its third accreditation period, and is between 22/09/2023 to 21/09/2033, with the possibility of being renewed after completing this time.

1.6 Term of commitment

BIOGÁS COLOMBIA SAS ESP contracted ICONTEC to carry out the verification of the CCMP “Doña Juana Landfill Gas to Energy Project”, following the requirements established by the Protocol for the voluntary certification of carbon emission from CERCARBONO (CVCC) version 4.4 /CC1/.

ICONTEC performs its audits following its code of ethics and internal procedures to carry out verification assessments in accordance with the criteria set forth in ISO 14064-2:2019 /ISO1/. Furthermore, ICONTEC identify risks (inherent, control and detection) and mitigation measures in the generation of CARBONCER certified carbon credits.

This evaluation is not conceived to provide any type of consultancy to the project holders. However, the identified findings may provide relevant information to improve the PDD or the MR.

1.7 Level of assurance and materiality

The assurance level is 97% (reasonable assurance) for the declaration issued for verification, contractually agreed between BIOGÁS COLOMBIA SAS ESP and ICONTEC.

The sources of information used throughout this evaluation by the audit team have been considered reliable, which are, among others: the registered PDD, MR N°2 (3rd accreditation period), the carried-out interviews, the review of documentation, and secondary sources of information.

This has made it possible to obtain a reasonable level of assurance in accordance with the provisions of the CERCARBONO Protocol. It has been guaranteed that the material discrepancy obtained is less than 1%.

2 Verification process

2.1 Verification plan

The verification process structured by ICONTEC for this evaluation service consisted of the following stages:

- **Documental review:**

At this stage, the audit team studies the MR that the CCMP holder sent to ICONTEC together with the spreadsheet that contains the estimate of the reduction of GHG emissions for the monitoring period to be evaluated and registered PDD /1/ of the PMCC; and proceeds to carry out a risk analysis with the information received, covering the aspects in version 4.4 of the Protocol for the voluntary carbon certification of CERCARBONO /CC1/ and the guidelines of the standard ISO 14064-3. The result of the risk analysis is summarized in the following table:

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
Control Risk:				
1.	Mistakes in the quantification of emissions.	Low	Monitoring data related to bio-gas flow, temperature and pressure is captured online.	To cross-check the information and data stated in ERs calculation spreadsheets with the data downloaded from the central monitoring system during the assessment of ERs calculations.
		Medium	Some data is taken manually by the personnel in charge of the operation, and this has risks of errors, omissions or discrepancies.	Cross-check 100% of the data taken manually by the personnel in charge of the operation.
		Low	The monitoring data related to emission factors are downloaded from traceable and official sources such as the UPME for the case of energy and from the IPCC for the GWP.	Verify that the factors are used correctly in accordance with the guidelines of the methodological tools associated with the applied methodology.
2.	Lack of full data coverage.	Low	Lack of knowledge of the requirements of the methodology related to the applicability of the same.	In the Verification, it must be ensured that the data for the period to be claimed have been considered within the defined limits of the project.
3.	Incoherence: lack of documentation of the methodological changes in the calculation of GHG emissions in	Low	Lack of knowledge of the requirements of the quantification methodology.	Ensure that the audit plan considers reviewing the status of the project against changes that could affect the

	relation to those used in previous years.		and/or of the requirements of the certification program.	quantification of GHG removals or reductions.
Inherent Risk:				
4.	Reliance on a technology platform designed for data capture, which may result in omissions and errors in the transfer of raw data to the emission reduction or removal Excel spreadsheet.	Medium	Data transfer quality control failures due to unclear QA/QC procedure.	Verify the quality management procedures and instructions designed for this purpose. The project proponent must demonstrate how the data transfer is carried out and how it cross-checks it. During the ICONTEC visit, interviews are carried out with the personnel responsible for data recording and verification by complying with their procedures.
5.	Facts discovered after verification.	Low	Project changes that may affect the GHG Verification statement.	An inspection to the project facilities will be carried out to confirm the status of implementation.
Detection risk:				
6.	Delays in the calibration of measurement or monitoring equipment related to the quantification of GHG reductions.	High	Omissions of the project proponent to the calibration frequencies of the equipment established in the monitoring plans. Failures in the maintenance controls of the monitoring equipment.	The calibration status of 100% of the monitoring equipment used in the monitoring period will be verified. In the audit plan was included the reviewing of all calibration certificates (100%).
7.	Absence of data due to failures in the operation of the measurement equipment.	Medium	The monitoring plan defines quality controls and corrective maintenance in case of failure of the measurement equipment.	The audit plan includes the time to verify if the measurement equipment is installed according to the monitoring plan and to interview the responsible personnel to determine their level of knowledge regarding quality controls and corrective maintenance.

With this carried-out analysis, the lead auditor outlined the activities that were performed in the interviews, they were consistent with the criteria, scope, objectives, assurance levels, and materiality threshold agreed upon in the commitment.

- **Audit plan elaboration:**

The audit team elaborated the plan and shared it with the project owner. The following audit plan is in Spanish because it was the official language during the interview process.

Título de la iniciativa del proyecto de mitigación de GEI	Doña Juana Landfill Gas to Energy Project		
Nombre completo y cargo del responsable del proyecto	Nicolas Piñeros Amaya Gerente de Operaciones		
Correo electrónico	n.pineros@biogas.com.co	Celular	(+57) 318 3620730
Dirección, incluyendo el País.	Planta de Biogás Doña Juana en Avenida Boyacá Km 5 Vía al Llano, relleno sanitario Doña Juana, Bogotá - Colombia.		
Datos y cargo de la persona de contacto	Nicolas Piñeros Amaya Gerente de Operaciones Biogás Colombia S.A.S ESP Correo: n.pineros@biogas.com.co Teléfono: + (601) 5522520 Cel: 318 3620730		
Tipo de auditoria	Validación		Verificación ✓
	Totalmente remota		Parcialmente remota ✓
Con un cordial saludo, me dirijo a usted para remitir la propuesta del plan de la auditoria que se realizará al proyecto de mitigación de GEI presentado por su organización. Así mismo, para la reunión de apertura y reunión de cierre de la auditoria le agradezco invitar a las personas relevantes de las áreas que serán auditadas. Para el balance diario de información del equipo auditor le agradezco disponer de agenda y un espacio físico o remoto para realizar la reunión, así como también el acceso a la documentación básica de la iniciativa de mitigación de GEI. En cuanto a las condiciones de seguridad y salud ocupacional aplicables a su organización, por favor informarlas antes de realizar la visita en sitio para que el equipo auditor pueda solicitar a ICONTEC los elementos de protección personal que sean necesarios. La información que se conozca por la ejecución de esta auditoria será tratada confidencialmente, por parte del equipo auditor e Icontec. El idioma de la auditoria y su informe será en español. Las condiciones de este servicio se encuentran indicadas en el R-PS-012 REGLAMENTO PARA SERVICIOS DE VALIDACIÓN Y VERIFICACIÓN.			
Criterio de la auditoria	- Protocolo para la certificación voluntaria de carbono de CERCARBONO, versión 4.4. - Procedimientos del programa de certificación de Cercarbono Versión 2.2		

	- Herramienta de Cercarbono para la demostración de la adicionalidad de iniciativas de mitigación del cambio climático, versión 2.0.1. - Términos y definiciones del programa de certificación voluntaria de Cercarbono, versión 3.1. - Guía para la presentación y análisis de cartografía Versión 1.0 de Cercarbono. - Lineamientos de Cercarbono para reportar aportes de iniciativas de mitigación del cambio climático a los Objetivos de Desarrollo Sostenible Versión 1.3. - Principios y procedimientos de salvaguardas del programa de certificación de CERCARBONO Versión 2.0 - Metodología M/MLF-DE_RE01 (versión 2.1) Para proyectos de destrucción y aprovechamiento del biogás de rellenos sanitarios - Herramientas MDL aplicables de acuerdo a la metodología - NTC-ISO 14064-2:2020. - NTC-ISO 14064-3:2020.
Objetivos de la auditoría	Para verificación: Verificar el cumplimiento en la implementación de las actividades del proyecto de mitigación, incluyendo las asociadas a la metodología seleccionada para el proyecto, considerando lo siguiente: • La conformidad con los criterios de verificación aplicables, incluyendo los principios y requisitos de las normas o programas de GEI pertinentes dentro del alcance de la verificación. • La información y documentación de la planificación del proyecto de GEI, incluyendo procedimientos y criterios para el proyecto, la línea base, el control y el aseguramiento de la calidad, la gestión del riesgo y los documentos de esta verificación. • Las emisiones, remociones, reducciones de emisiones e incrementos de remociones que se informan en la línea base y el proyecto de GEI. • Cualquier cambio significativo en las emisiones, remociones, reducciones de emisiones y aumentos de remociones de GEI desde el último periodo de informe, o desde la validación del proyecto, • El cumplimiento de los principios y los controles reales del proyecto y del sistema de monitoreo, verificación y reporte necesarios para cumplir con sus procedimientos documentados y la legislación vigente de acuerdo con los criterios de auditoría.
Alcance de la auditoría	El diseño del proyecto abarca la recolección y destrucción de gas de vertedero (LFG) a través de su combustión en antorchas cerradas de alta temperatura. El proyecto también abarca la utilización de LFG como combustible para la generación de electricidad en grupos electrógenos de motor (alimentado exclusivamente por LFG). El proyecto registrado en CERCARBONO tiene las siguientes características: ID #51, Sector 13, Tipo de proyecto: GHG-PRR Type 1, larga escala

	Periodo de monitoreo a verificar: 01.02.2024-31.12.2024		
	Reducción esperada en el periodo de monitoreo a verificar: 525.004 tCO2e (dato del MR versión original)		
Nivel de Aseguramiento	97%	Materialidad - Importancia Relativa	1%
Plan de Muestreo / Plan de recopilación de evidencia	En cuanto a la información y documentación de la planificación del proyecto de mitigación de GEI, incluyendo procedimientos y criterios para el proyecto, la línea base, el control y el aseguramiento de la calidad, la gestión del riesgo y los documentos de esta verificación, se relacionan en la siguiente tabla:		
	Parámetros	Muestreo (%)	Nivel de Aseguramiento (100%)
	Metodologías y herramientas utilizadas para el cálculo de las remociones	100	100
	Fórmulas para el cálculo de las remociones	100	100
Nombre del auditor líder	William Rodríguez (WR)	Correo electrónico	wrodriguez@icontec.net
Auditor	-	Experto técnico	-
Reunión de apertura	09-06-2025	Hora	08:00 h
Reunión de cierre	10-06-2025	Hora	16:30 h
Fecha en la que se diligencio el plan de auditoria	05-06-2025		

PLAN DE ACTIVIDADES EN SITIO

FECHA	HORA	REQUISITO POR AUDITAR	AUDITOR	NOMBRE y CARGO DEL AUDITADO
09-06-2025	08:00 h a 08:30 h	Reunión de Apertura.	WR	Nicolas Piñeros – Gerente de operaciones. Juan Nicolas Cruz – Ingeniero de procesos. Juan David Ajiaco – Jefe de mantenimiento Sebastian Tangarife – Ing de mantenimiento.

				Diana Cristancho – Jefe de campo de gas
	08:30 h a 10:30 h	Breve presentación y descripción de avances o cambios en el proyecto de mitigación de GEI. Recorrido por las instalaciones del proyecto de mitigación de GEI	WR	Nicolas Piñeros – Gerente de operaciones. Juan Nicolas Cruz – Ingeniero de procesos. Diana Cristancho – Jefe de campo de gas
	10:30 h a 11:00 h	Cambios en la Propiedad, titularidad o derecho de uso de área. Cambios en los límites del PMCC Cambios en la representación legal del proyecto de mitigación de GEI. Cambios en marco regulatorio aplicable al proyecto de mitigación de GEI.	WR	Nicolas Piñeros – Gerente de operaciones.
	11:00 h a 12:30 h	Verificación del cumplimiento del plan de monitoreo vs. PDD. Evaluación del plan del monitoreo vs. Metodología aplicada. Reproducibilidad y chequeo de los valores usados. Consumo de biogás y Generación/Consumo de energía. Evaluación del cálculo de la reducción de emisiones de GEI (emisiones de línea base, emisiones de proyecto y fugas para el periodo de monitoreo)	WR	Nicolas Piñeros – Gerente de operaciones. Juan Nicolas Cruz – Ingeniero de procesos.
	12:30 h a 14:00 h	Almuerzo		

	14:00 h a 17:00 h	Evaluación del calculo de la reducción de emisiones de GEI (emisiones de línea base, emisiones de proyecto y fugas para el periodo de monitoreo) – Continuación. Incertidumbre asociada a los cálculos Gestión de los datos. Sistema de información y control de datos	WR	Nicolas Piñeros – Gerente de operaciones. Juan Nicolas Cruz – Ingeniero de procesos.
10-06-2025	08:00 h a 11:00 h	Mantenimiento y actividades de calibración. Plan de calibración. Certificados de calibración de los equipos de medición. Control de aseguramiento y calidad de los equipos de medición.	WR	Juan Nicolas Cruz – Ingeniero de procesos. Juan David Ajiaco – Jefe de mantenimiento Sebastian Tangarife – Ing de mantenimiento.
	11:00 h a 12:30 h	Consultas o comunicaciones de partes interesadas del proyecto de mitigación de GEI. Aplicación del procedimiento de comunicaciones con partes interesadas	WR	Nicolas Piñeros – Gerente de operaciones. Juan Nicolas Cruz – Ingeniero de procesos.
	12:30 h a 14:00 h	Almuerzo		
	14:00 h a 16:00 h	Evaluación de la contribución de los ODS. Salvaguardas.	WR	Nicolas Piñeros – Gerente de operaciones. Juan Nicolas Cruz – Ingeniero de procesos.
	16:00 h a 16:30 h	Identificación de hallazgos por parte del equipo auditor (Sesión privada) <i>Nota: no se descarta que, a fin de aclarar algunos temas, el personal de Biogás Colombia S.A.S ESP sea requerido.</i>	WR	

	16:30 h a 17:00 h	Reunión de cierre	WR	Nicolas Piñeros – Gerente de operaciones. Juan Nicolas Cruz – Ingeniero de procesos. Juan David Ajiaco – Jefe de mantenimiento Sebastian Tangarife – Ing de mantenimiento. Diana Cristancho – Jefe de campo de gas
Observaciones: - Durante las entrevistas el equipo auditor revisará por muestreo, la documentación referenciada dentro de la descripción del proyecto y/o en el reporte de monitoreo. - Este plan de actividades es flexible y puede ser modificado de común acuerdo con el titular del proyecto. - Todo el personal del titular del proyecto relacionado con la iniciativa de mitigación de GEI debe estar disponible si es solicitado por el equipo de auditoria con el propósito de evaluar cualquier requisito - Durante cualquier fase de este proceso de evaluación (revisión documental, previa a la visita en sitio, visita en sitio, redacción del informe de auditoría o revisión técnica) se pueden declarar hallazgos, los cuales deben ser resueltos antes de enviar la documentación relevante (descripción del proyecto, reporte de monitoreo, hojas de cálculo, informes de auditoría, entre otros) al programa de GEI. - El cronograma de las actividades de Validación/ verificación se encuentran descritas en el documento F-GV-086 NOTIFICACION DE SERVICIOS VALIDACION Y VERIFICACION				

- **Inspection (on site and remote) and interviews:**

Between 09/06/2025 and 10/06/2025, the interviews were carried out according to the plan outlined by the auditor team, and the onsite inspection, where the auditor team had the opportunity to tour the “Doña Juana Landfill Gas to Energy Project” facilities and carry out interviews with Biogás Colombia SAS ’s personnel in charge of the LFG plant operations and maintenance activities.

More information in sections 2.3 and 2.4 of this report.

- Issuance of audit findings:

After the audit process, the audit team delivered to the CCMP holder the findings raised and consolidated in the document review and interview stages.

More information in section 13.1 of the report.

- Drafting of the verification report:

Once all the findings raised by the audit team are closed, the verification report is drawn up in accordance with the criteria of version 4.4 of the Protocol for voluntary carbon certification of CERCARBONO.

- Technical review of the audit process (independent reviewer):

The technical review team gives providing the final opinion on the verification and reviewing whether the verification process complies with the requirements of CERCARBONO, and the internal procedures of ICONTEC.

- Issuance of the verification report (final version):

Once the technical review team has issued its final opinion on the verification process, ICONTEC's Technical Validation and Verification Unit (VVU) signs the audit report, as well as the verification statement.

2.2 Evaluation criteria

The verification requirements of the CCMP were considered to evaluate:

- The method for determining the scope and limits of the engagement.
- The GHGs to be accounted for.
- Quantification methods.
- The disclosure requirements.
- The monitoring plan for relevant parameters for the reduction of GHG emissions.
- The sampling plan and its justification.
- Material error thresholds.
- The revision of the definition of CCMP property, with the corresponding supports.
- The check or review of ICONTEC's conflicts of interest.

The desk review of the project documentation provided by the PP, is based upon both quantitative and qualitative information on emission reductions. The main documents reviewed during the desk review stage are:

- Approved and registered latest PDD, dated on 17/05/2024 /1/. Annexes and supports of the validated PDD
- Previous validation and verification report, dated on 04/04/2025 (last version), issued by ICONTEC /2/.
- Monitoring report, dated on 20/06/2025 /3/. Annexes and supports of the MR.
- Spreadsheets use for the monitoring report /4/.
- Monthly spreadsheets Doña Juana Landfill Gas to Energy Project /5/.

In addition to the monitoring documentation, ICONTEC reviewed:

- Protocol for voluntary certification of carbon emission from CERCARBONO (CVCC), version 4.4 /CC1/.
- Terms and definitions of Voluntary certification carbon of CERCARBONO, version 3.1 /CC2/.
- CERCARBONO's Procedures-of-Cercarbonos-Certification-Programme-V2.2 /CC3/

- CERCARBONO's Safeguarding Principles and Procedures of Cercarbono's Certification Programme V1.1 /CC5/
- CERCARBONO's Tool to Report Contributions from Climate Change Mitigation Initiatives to the Sustainable Development Goals. V.1.3 /CC6/
- CERCARBONO's Tool to Demonstrate Additionality of Climate Change Mitigation Initiatives, version 2.0.1 /CC7/
- CERCARBONO's Guidelines for Mapping Presentation and Analysis V1.0 /CC8/
- CERCARBONO M/MLF-DE_RE01 For Projects for the Destruction and Utilisation of Biogas from Landfill Sites, Ver 2.1 /CC4/
- Approved large-scale consolidated methodology ACM0001: Flaring or use of landfill gas, Version 19.0, dated on 14/06/2019 /UN1/.
- Methodological tool TOOL04: Emissions from solid waste disposal sites, Version 08.0, dated on 04/05/2017 /UN2/.
- Methodological tool TOOL05: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation, Version 03.0, dated on 22/09/2017 /UN3/.
- Methodological tool TOOL06: Project emissions from flaring, Version 04.0, dated on 28/03/2019 /UN4/.
- Methodological tool TOOL08: Tool to determine the mass flow of a greenhouse gas in a gaseous stream, Version 03.0, dated on 27/11/2015 /UN5/.
- Methodological tool TOOL10: Tool to determine the remaining lifetime of equipment, Version 01.0, dated on 16/10/2009
- ISO 14064-2:2019 Specification with guidance, at the project level, for the quantification, monitoring and reporting of emission reductions or removal enhancements of greenhouse gases /ISO1/.
- ISO 14064-3:2019 Specification with guidance, for the validation and verification of statements on greenhouse gases /ISO2/.
- Resolution 1147, of August 1, 2018, issued by the Colombian Ministry of Environment and Sustainable Development /R1/

2.3 Evidence Collection Plan

The verification of the documentation related to the CCMP that was provided by the CCMP holder (PP) is based on quantitative and qualitative information on the application of the reference requirements listed in section 2.2 of this report. The quantitative information includes the figures described in the MR as well as the registered PDD; and the qualitative information includes internal management controls, calculation procedures, and socio-environmental impacts of the CCMP, etc.

ICONTEC has devised an audit plan, as outlined in Section 2.4, as well as a sampling plan. The purpose of these plans is to ensure a comprehensive review of the information and documentation pertaining to the CCMP. This review encompasses various aspects, such as the project's procedures and criteria, the baseline and project scenarios, quality control and assurance measures, risk management strategies, and all technical elements associated

with the methodology and the CERCARBONO standard. The ICONTEC sampling process for verification is described in the subsequent table:

Parameters	Data coverage
The methodologies and tools employed for calculating reductions.	100%
The specific formulas utilized in the reduction calculation process.	100%
Row data each minute (Parameters: LFG flow, LFG pressure, Fraction of CH ₄ , LFG Temperature, Temperature of the flare exhaust gas)	The audit team implemented three strategies to achieve the cross-check of the information: 1. Reviewing total values (per month and parameter) in the calculation files in comparison to the total values (per month and parameter) in the support files or software (selecting values from all columns to identify differences in the sum or the number of data). It's true that the sum of data like pressure doesn't represent anything in terms of interpretation, but it allows us to spot differences in total values to look for errors." 2. Using a filter to check for 'out of range' or 'rare values' among the available data, to verify how many data points are in this situation relative to the total and ensure that values for these out-of-range reductions are zero emissions (usually by summing a column of each parameter as well). 3. Specifically reviewing some lines (or data) in comparison to the support for very specific cases or when what it mentioned in item 1 cannot be applied.

The information provided by the CCMP holder was contrasted (cross-checked) by ICONTEC with primary information sources and secondary information sources, to guarantee that the statements of the CCMP holder in the documentation are credible, traceable, and reliable.

In addition to the review described in the previous paragraphs, the inspections (on site and remote) and the interviews significantly contributed to the audit team in the collection of proof and evidence that gave robustness to the evaluation exercise.

All the information that was reviewed in the audit exercise has been listed in section 14 of this report.

2.4 Visits to the CCMP site or area

The audit team conducted interviews and inspections at CCMP site (Doña Juana Landfill Gas to Energy Project) at 09/06/2025 and 10/06/2025, where the audit team verified the project conditions. The purpose of these inspections was to resolve concerns that the audit team

had at the time of the first documentary review and to obtain additional information regarding the compliance of the CCMP with the requirements described in section 4.2 of this report.

The audit team reviewed during onsite visit (face to face meeting) the row data base and the daily operational log records /5/ to verify that it matched the “zero registration times” of the monthly spreadsheets /6/. When verifying the total sum in relation to the supporting data, the audit team ensures that the values match between the source of information /5/ and the calculation used for the emissions reduction report /4 /. The audit team held the following interviews:

Date	Name	Activity	Topics covered
11/04/2024	NICOLAS PIÑEROS	Operations Manager	Brief presentation and description of the GHG mitigation project. Tour of the GHG mitigation project facilities Applicability of Program Procedure and Protocol. Ownership, ownership or right to use area. PMCC limits Legal representation of the GHG mitigation project. Regulatory framework applicable to the GHG mitigation project
	JUAN NICOLAS CRUZ	Processes Engineer	Evaluation of the contribution to the SDGs. Recognition and consultation with interested parties of the GHG mitigation project. Communications procedure with interested parties Baseline Scenario Selection Applicability of the methodology Information and data control system Evaluation of the calculation of the reduction of GHG emissions (baseline emissions, project emissions and leaks) for the accreditation period. (Cont.) Uncertainty associated with calculations Evaluation of the monitoring plan vs. Applied methodology
12/04/2024	NICOLAS PIÑEROS	Operations Manager	Verification of compliance with the monitoring plan vs. PDD. Reproducibility and checking of the values used. Data management.
	JUAN NICOLAS CRUZ	Processes Engineer	

Date	Name	Activity	Topics covered
			Calculation of baseline emissions, project emissions and leaks. Biogas consumption and energy generation/consumption.

2.5 VVB requests

Once the documentary review was done and the onsite inspections and interviews were carried out, the audit team detected five (1) corrective action request (CAR), five (2) clarification request (CR) and zero (0) forward action request (FAR) applicable to this monitoring period, based on the documentation presented by the CCMP holder for this verification exercise. These requests were delivered in writing to the CCMP holder at the end of the interviews to ensure that these are understood and accepted. See section 13.1 Resolution of findings.

A corrective action request (CAR) is a finding by the audit team when there is a non-conformity with the CCMP evaluation criteria; or when there is a risk to the successful fulfilment of the objectives of the CCMP. A CAR must be formulated in the development of verification when:

- The project participants have made mistakes which directly influence the ability of the project activity to achieve real, measurable and additional emission reductions;
- The CERCARBONO requirements have not been met; or
- There is a risk that emission reductions cannot be monitored or calculated.

A clarification request (CR) is a finding detected by the audit team when the information provided by the CCMP holder is not clear or presents minor inconsistencies (for example, of an editorial nature) concerning the verification criteria to be evaluated.

A forward action request (FAR) is a finding to highlight issues related to project implementation that will require review during the next project verification activity.

The CCMP holder had the possibility to discuss the findings and provide additional relevant information before the delivery of a final verification report.

2.6 Information system, data management and control

During this verification exercise, the audit team verified the capacity of the CCMP holder to implement the proposed monitoring plan for the parameters related to GHG emissions reduction. To this point, the audit team:

- Verified that the proposed monitoring plan follows the provisions of the applied methodology.

- b. Checked for each parameter to be monitored, the flow of information, including the evaluation of data generation, its aggregation, registration, calculation, and reporting.
- c. That all the parameters established in the monitoring plan have been monitored and updated (when applicable), including baseline emissions, project emissions, and leakage.
- d. That the management and operational system are established: the responsibilities and authorities for monitoring that were found in the execution of the CCMP are by the monitoring plan described in the PDD, and this, in turn, complies with the provisions of the applied methodology.
- e. That the equipment used for monitoring is calibrated and controlled by the provisions of the monitoring plan, the applied methodology, and the applicable regulatory framework.
- f. That the monitoring results are recorded according to the methodology described in the monitoring plan.
- g. That the monitoring plan has executed the quality assurance and quality control procedures.

Section 3 of this document contains the evaluation made for each of these topics. And in section 10 more information management are described as result of the audit team evaluation of the information and data control system of the CCMP.

2.7 Audit team

Full names	Role(s) or responsibility(s)	Type(s) of activity(ies) carried out*
William Rodríguez Delgado	Lead Auditor and technical expert	• Documental review. • Onsite inspection and interviews. • Issuance of Audit findings. • Drafting of the verification report.
Ana Isabel Aubad	Lead technical reviewer	Technical review of the audit process.
Martha Corredor	Approver	Approval of the verification audit process for: delivery to the person in charge of the CCMP and upload to the EcoRegistry platform.

3 Verification results

3.1 CCMP components

3.1.1 CCMP holder information

During the interviews, the next information was reviewed by the audit team:

Full name(s)	BIOGÁS COLOMBIA S.A.S. E.S.P.
Full name(s)	Helmuth Mauricio Gallego Sanchez
Name of institution (if applicable)	BIOGÁS COLOMBIA S.A.S. E.S.P.
Roles or responsibilities	Owner
Identification	900.181.508-1
Location	Doña Juana Landfill site. Bogotá, Colombia
Telephone number(s)	+57 6015522520
E-mail address	n.pineros@biogas.com.co

3.1.2 Information from other CCMP institutional participants

Not applicable, there are no other participants in this monitoring period

3.1.3 CCMP description

The project involves landfill gas capture and use in reciprocating engines for electricity generation, and the flaring of any excess landfill gas at the Doña Juana Landfill site, which is located in the town of Ciudad Bolívar, in the city of Bogotá, Capital District of Colombia, at km 5 of Boyacá Avenue.

Before the implementation of the project activity, the landfill gas from the landfill used to be vented to the atmosphere through passive wells (The baseline scenario is the same as the scenario existing before the start of the implementation of the project activity). The combustion of the landfill gas avoids emissions which would otherwise occur from the anaerobic degradation of the waste in Doña Juana Landfill site. The project is also exporting electricity to the Colombian National Grid, hence also avoiding emissions from electricity which would be generated from fossil fuel power plants connected to this same grid.

The crediting period of the CCMP is the third accreditation period between 22/09/2023 to 22/09/2033; and the monitoring period in MR is 01/02/2024 to 31/12/2024. The useful life of the project could be until after 2050 due to possible adaptations inside the landfill. The disposal of waste in Doña Juana has been carried out in various modules that are contained in the polygon licensed for this purpose, the various areas of old operation and the recent ones such as: Zone VIII, Zone VII, Biosolids and Optimization Zone included. going Phases I, II.

The project has following infrastructure:

- Biogas extraction, capture and conduction system from the landfill, system installed in HDPE and will have chimneys, wells, drillings, filters, trenches, etc, with the necessary quantities to capture the gas from the landfill, according to progress in the areas operation and final disposal.
- Pumping platform with capacity to extract 20,000 Nm³/h of Biogas through high-efficiency blower-type rotary equipment.
- 3 Closed-type methane destruction torches (enclosed flare) with a nominal capacity each of up to 5,000 Nm³/h or an equivalent thermal power of 25,000KW.
- Doña Juana I Biogas power generation plant of 1.7MW using 2 engines reciprocating, plant connected to the local distribution system.
- Doña Juana II Biogas power generation plant of 3.6MW (Engines GE3 and GE4 were commissioned in early August 2024, with 1.813MW each one), plant connected to the local distribution system. The implementation of the complete Doña Juana II system up to 9.88 MW is pending, however, the implementation dates are in accordance with the chronological plan established in the validated PDD /1/
- Doña Juana III and IV Biogas power generation plant will be implemented in 2025 and 2026 respectively, according to the chronological plan established in the validated PDD /1/

As of the date of ICONTEC's on-site visit conducted on 09/06/2025 and 10/06/2025, the project is in operation. GE1 engine had a long downtime due to maintenance activities. Engines GE3 and GE4 were commissioned in early August 2024. These new engines start its continuous operation at the end September 2024, increasing the amount GHG emissions from electric power generation.

3.1.4 Sectoral scope and type of CCMP

The project activity belongs to waste management sector and is related as CCMP Type 1 as it reduces more than 10,000 tCO₂e on average per year /1/ /CC1/.

- *Sectoral scope:* 1 Energy industries and 13 Waste handling and disposal.
- *Scale:* Large.
- *Type of project:* CCMP Type 1. The project design encompasses the collection, use to generate electricity (engines) and destruction through combustion in high temperature enclosed flares, of landfill gas (LFG) from Doña Juana landfill.

3.1.5 Location and limits of the CCMP

Country: Colombia

City: Bogotá DC

Project located in the Doña Juana landfill site, located in the town of Usme, in the city of Bogotá, Capital District, at km 5 of Boyacá Avenue. The G.P.S. (Global Positioning System) coordinates for the boundaries of the landfill are indicated below:

Limits	Coordinates
North:	4° 32' 03.23" N / 74° 07' 46.08" W
South:	4° 29' 17.68" N / 74° 08' 15.92" W
East:	4° 30' 41.19" N / 74° 07' 37.39" W
West:	4° 30' 21.84" N / 74° 08' 50.47" W
Northwest:	4° 31' 31.33" N / 74° 07' 48.48" W
Northeast:	4° 31' 29.52" N / 74° 07' 34.71" W
Southwest:	4° 29' 27.39" N / 74° 08' 56.02" W
Southeast:	4° 29' 23.99" N / 74° 07' 40.97" W

3.1.6 Total area, facilities, or processes of the CCMP

ICONTEC confirms that “Doña Juana Landfill Gas to Energy Project” has a total area of 4.75 hectares (47,500 m²).

During the verification process, the audit team confirms the infrastructure of both LFG facilities, as described in the section 3.1.3 of the report.

3.1.7 Holdership or right of use of the area, facility, or process

Biogás Colombia S.A.S. E.S.P. has the ownership and rights of use of the entire area required by the project in accordance with the established national regulations. In 2021, the owner of the project had a change in its corporate name, going from Biogás Doña Juana S.A.S. E.S.P. to Biogás Colombia S.A.S. E.S.P., maintaining its commercial registration, NIT and its administrative and organizational structure /14/. This change was due to commercial reasons, as the different actors in the financial and industrial sector confuse the organization with the concessionaire in charge of operating the landfill site.

The ownership of the project is documented and evidenced by an administrative act issued as resolution 235 of 2007 /18/ that resulted in the concession contract C-137 signed between the district of Bogotá, represented by the UAESP and the company Biogás Colombia SAS ESP Contract concession for the extraction, treatment and use of biogas produced in the Doña Juana landfill; as well as the Letter of Approval of the project by the Environmental authority and the project initiation document /17/.

ICONTEC verified that Biogás Colombia S.A.S. E.S.P. is still the owner of the biogas plant the dedicated pipeline network and responsible for the landfill gas operation, according to the information of legal representation /14/, the verified environmental license /15/ and the concession contract /17/.

3.2 Methodological issues

3.2.1 Selected methodology

The CCMP applies the following methodology developed by CERCARBONO:

- CERCARBONO M/MLF-DE_RE01: Methodology for the implementation of projects for the capture, destruction or use of biogas produced in landfills, Ver 2.1 /CC4/.

The conditions of applicability were explained in detail in section 2.3.1 of the PDD /1/ and have not changed at the time of this verification.

The project initially applied the methodology: "Approved large-scale consolidated methodology ACM0001: Flaring or use of land-fill gas (version 10.0)" /UN1/, however, it migrated to the CERCARBONO methodology during its entry into the program.

Moreover, the CCMP used the following methodological tools /from UN2 to UN5/:

- Tool to calculate the emission factor for an electricity system (version 07.0)
- Project emissions from flaring (version 04.0)
- Tool to determine the mass flow of a greenhouse gas in a gaseous stream (version 03.0)
- Tool to determine the remaining lifetime of equipment (version 01.0)

3.2.2 No double counting

The audit team verified the CDM, VCS, GS and CSA GHG Clean Projects Registry and validated that this project is not registered in these GHG schemes, neither as an individual project nor within a grouped project.

3.2.3 Baseline scenario

To date, the baseline scenario is maintained under the conditions in which the project was renewed, described in section 2.4 of the PDD /1/, and the baseline justification complies with the conservative principle in quantifying carbon reductions for this project. Before the operation of the project began, the biogas was released into the atmosphere without any appropriate and efficient treatment, collection, combustion and/or control.

The audit teams confirms that there are still no legal restrictions or requirements/obligations for utilizing collected LFG for supply of LFG to consumer(s) (or any other type of LFG utilization) in Colombia.

ICONTEC can conclude that the project still complies with the Requirements of the CERCARBONO Protocol version 4.4 section 7.3.4 /CC1/, applied methodology /CC4/, and applicable Colombian regulations.

The audit team confirms that the baseline scenario is still valid.

3.2.4 Project scenario

The project activity encompasses (under its currently implemented design configuration) collection, destruction of landfill gas (LFG) generated in the landfill site (through combustion of LFG in high temperature enclosed flares), and its use in internal combustion engines for the generation of electrical energy. Project emissions from the implementation of the CCMP are those resulting from flaring of collected LFG and emissions due to the consumption by the project activity of grid sourced electricity.

ICONTEC confirms the project scenario is still valid.

3.2.5 GHG emission sources

ICONTEC confirms that the sources of GHG emissions have been correctly selected according to the methodology CERCARBONO M/MLF-DE_RE01 For Projects for the Destruction and Utilisation of Biogas from Landfill Sites, Ver 2.1 /CC4/ and are correctly described in Section 4 of the MR/3/, which are also summarized below:

Source of GHG	Baseline scenario			Project scenario			Leakage		
	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
Landfill methane generation sanitary	No	Yes	No	No	No	No	No	No	No
Destruction by combustion of methane from landfill biogas in a flare	No	No	No	No	Yes	No	No	No	No
Electricity generation on the grid with fossil fuels	Yes	No	No	No	No	No	No	No	No
Electrical consumption of systems control and auxiliaries.	No	No	No	Yes	No	No	No	No	No

The selected emission sources and GHGs are correct and are appropriately justified for the project activity. Also, no leakage emissions are considered as leakage emissions are not required to be accounted as per applied baseline and monitoring methodology /CC4/.

Other sources of GHG that could impact the emission reduction calculations have not been identified by the audit team during this verification assessment.

3.2.6 Methodological deviations

The PMCC holder is not presenting methodological deviations during this verification exercise.

3.2.7 Crediting period

The current crediting period (3rd accreditation period) started on 22/09/2023 and goes to 21/09/2033 (10 years).

3.2.8 Quantification of GHG emissions in the baseline scenario

According to the applied methodology CERCARBONO M/MLF-DE_RE01 (version 2.1) /CC4/, In the ex-post scenario Methane in landfill produced biogas, it is calculated by means of following equation:

$$MLGPt = MDFPt + MPGPt + MTEPt + MGNPt + MIDPt$$

Wherein,

MLGPt	Methane in landfill-produced biogas in project scenario, flared or used by the CCMP in period t.
MDFPt	Methane in biogas destroyed by flaring in the project in period
MPGPt	Methane in biogas used for electric power generation in period
MTEPt	Methane in biogas used for thermal energy generation in period
MGNPt	Methane in biogas used for injection in natural gas systems in the project in period
MIDPt	Methane in biogas injected in biofuel-dedicated systems or distributed by means of tank trucks in period

In the project scenario, Variable (**MTEPt**, **MGNPt** and **MIDPt**) are set to ZERO because there is no biogas used for thermal energy generation or injected in natural gas systems or injected in biofuel-dedicated systems or distributed by means of tank trucks. Hence the equation will be for the project as follows:

$$MLGPt = MDFPt + MPGPt$$

In the project scenario,

- **MDFPt** shall be measured by project managers in volumetric terms
- **MPGPt** shall be estimated by using CDM's Methodological Tool 08 (Tool to determine the mass flow of a greenhouse gas in a gaseous stream)

ICONTEC verified the relevance and accuracy of the calculations developed.

Data for recorded/calculated monthly results covering the current monitoring period from 01/02/2024 to 31/12/2024 are summarized in spreadsheet "BGC - RESUMEN DE CALCULOS RM10 V2" /4/, worksheet "Calculations", and other related calculations per every monthly period can be found in the supporting files /6/.

Total baseline emissions for the current monitoring period, verified by the audit team, were correctly calculated as:

Month		Baseline emissions (tCO ₂ e)
01/02/2024 0:00	31/12/2024 23:59	648,052
Total		648,052

The audit team verified the input parameters and formulas contained in the spreadsheet for the estimation of baseline emissions for the current monitoring period from 01/02/2024 to 31/12/2024. The audit team can confirm that all assumptions and data used for estimating GHG baseline emissions were appropriately described in the monitoring report file “BGC - RESUMEN DE CALCULOS RM10 V2” /3/, and those formulas, parameters and values are complete, accurate and can be traceable clearly and transparently.

3.2.9 Quantification of GHG emissions and reductions of GHG emissions in the project scenario

Project scenario GHG emissions (PEt) principal equation is:

$$PEt = LMDPEt + FFCPEt + ECAPEt + MLPPEt + MLTPPEt$$

Wherein,

- PEt** Project scenario GHG emissions during period t.
- LMDPEt** GHG emissions from methane contained in landfill biogas destruction in period t of project scenario.
- FFCPEt** GHG emissions from fossil fuel use in ancillary processes (biogas treatment and purification systems, ancillary electricity generation, thermal equipment start-up, tank-truck distribution of methane contained in biogas, among others), in period t of project scenario.
- ECAPEt** GHG emissions from electricity consumption in ancillary and control systems in period t in the project scenario, including biogas treatment and purification systems.
- MLPPEt** GHG emissions from methane losses in pipeline distribution networks and systems in period t of project scenario.
- MLTPPEt** GHG emissions from methane transport and losses in tank-truck distribution systems in period t of project scenario.

In the project case,

$$PEt = LMDPEt + ECAPEt$$

Project Emission from destruction of methane from landfill biogas in a flare (**LMDPE_t**) shall be determined using following equation:

$$\text{LMDPE}_t = \sum (\text{MBFP}_{m,t} \times (1 - \eta_{\text{MDPj},t}) \times \text{GWPC}_{\text{H4}})$$

Wherein,

LMDPE_t GHG emissions from methane contained in landfill biogas destruction in flares in period t of project scenario.

MBFP_{m,t} Methane in biogas flared during minute m in period t in project scenario.

η_{MDPj,t} Flare methane destruction efficiency in minute m in period t in project scenario.

GWPC_{H4} Methane Global Warming Potential.

Project scenario GHG emissions due to imported electricity consumption (**ECAPPE_t**) shall be determined using following equation:

$$\text{ECAPPE}_t = \text{IECP}_t \times \text{EFGSP}_t \times (1 + \text{TDTPT}_t)$$

Wherein,

ECAPPE_t GHG emissions from electricity consumption in ancillary and control systems in period t in the project scenario, including biogas treatment and purification systems.

IECP_t Imported electricity consumption in period t of project scenario.

EFGSP_t CO₂ emission factor for the electric grid or electricity supplier in period t in project scenario.

TDTPT_t Average technical transmission and distribution losses for electricity supply from the electric grid or an electricity supplier in period t.

ICONTEC verified the relevance and accuracy of the calculations developed.

Data for recorded/calculated monthly results covering the current monitoring period from 01/02/2024 to 31/12/2024 are summarized in spreadsheet “BGC - RESUMEN DE CALCULOS RM10 V2” /4/, worksheet “Calculations”, and other related calculations per every monthly period can be found in the supporting files /6/.

Total project emissions for the current monitoring period, verified by the audit team, were correctly calculated as:

Month		Project emissions (tCO ₂ e)
1/02/2024 0:00	31/12/2024 23:59	40
Total		40

The audit team verified the input parameters and formulas contained in the spreadsheet for the estimation of baseline emissions for the current monitoring period from 01/02/2024 to 31/12/2024. The audit team can confirm that all assumptions and data used for estimating GHG baseline emissions were appropriately described in the monitoring report file “BGC - RESUMEN DE CALCULOS RM10 V2” /3/, and that formulas, parameters and values are complete, accurate and can be traceable clearly and transparently.

3.2.10 Leakage

According to the applied methodology CERCARBONO M/MLF-DE_RE01 For Projects for the Destruction and Utilisation of Biogas from Landfill Sites, Ver 2.1 /CC4/, leakage emissions are not considered for the determination of emission reductions to be achieved by the project activity.

3.2.11 Net GHG emission reductions

According to the applied methodology CERCARBONO M/MLF-DE_RE01 For Projects for the Destruction and Utilisation of Biogas from Landfill Sites, Ver 2.1 /CC4/:

$$REt = ELBt - ETPt$$

For each landfill site, the net GHG emission reductions are summarised in the following table:

Years (From 01/02/2024 to 31/12/2024)	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage (tCO ₂ e)	GHG Emissions Reductions (tCO ₂ e)	CARBONCER
2024	648,052	40	0	648,012	648,012
Total	648,052	40	0	648,012	648,012

The audit team verified the input parameters and formulas contained in the spreadsheets used for determination emission reductions for CCMP for the current monitoring period. The audit team was able to confirm that all assumptions and data used for estimating total GHG emission reductions for the CCMP were appropriately described in the monitoring report file /3/, and that formulas, parameters and values used in its determination are complete, accurate and can be traceable clearly and transparently.

3.2.12 Re-evaluation of the baseline scenario

During the third monitoring period, the CCMP holder did not present any changes during the crediting period, hence, it is not necessary to re-assess the baseline scenario.

3.2.13 Natural disturbances and other catastrophic events

No natural disturbances (droughts, fires, floods, etc.) or catastrophic events (wars, vandalism, third party burnings, etc.) occurred during the implementation of the CCMP that altered what was proposed in the PDD /1/.

3.2.14 Safeguards

Considering the requirement of the Cercarbono Protocol v4.4 /CC1/ to carry out a safeguards analysis for the projects, and the clarification received by email from Cercarbono on 30/04/2024, on the possibility of annexing a chapter in the RM /3/ and in the validation and verification report, this paragraph is added to this report.

The RM /3/ has included the analysis of safeguards in Section 13 of the document, which after the evaluation by the VVB, is in accordance with the criteria required in Safeguarding Principles and Procedures of Cercarbono's Certification Program V1.1 /CC5/, considering that the project does not generate risks associated with the applicable principles.

4 Legal and documentary issues

4.1 Legal requirements

ICONTEC confirms that this CCMP complies with the Colombia laws, statutes, and regulatory frameworks /R1/ under which it is governed, encompassing local, regional, and national regulations, including environmental requirements and laws. It aligns with the "No Net Harm principle" as described in the PDD (Project Design Document) /1/ registered with CER-CARBONO. The audit team has reviewed the most recent environmental reports submitted by Biogás Colombia SAS ESP, as part of the commitments associated with the issuance of the environmental license.

4.2 Link with NDCs

The audit team reviewed the NDC of Colombia /16/ and was able to verify that CCMP reduction of GHG emissions is covered by Measure Number 5 of the NDC of Colombia, specifically for the use of biogas from landfills.

4.3 CCMP documentation

This evaluation includes the verification of the information and data control system that the CCMP holder used during the crediting period, in accordance with the requirements of the applicable methodology /CC4/ and on which it has based its monitoring plan whose evaluation is described in section 9 of this report.

The information and data control system aims to minimize the risks due to the erroneous statement of the GHG emission reduction estimate.

The evidence-collection activities to evaluate the CCMP in this verification stage, as well as the effectiveness of the information and data control system, have considered the following:

- a) The selection and management of GHG data and information;
- b) The processes to collect, process, consolidate, and report data and information on GHG;
- c) The systems and processes that ensure the validity and accuracy of the GHG data and information;
- d) The design and maintenance of the GHG information system;
- e) Systems, processes, and personnel that support the GHG information system, including activities to ensure data quality;
- f) The results of the maintenance and calibration of equipment and instruments;

The verification of the documentation related to the CCMP that was provided by the CCMP holder is based on quantitative and qualitative information on the application of the requirements of the references listed in section 2.2 of this report. The quantitative information includes the figures described in the MR /3/ and the qualitative information includes internal management controls, calculation procedures, and socio-environmental impacts of the CCMP.

The information provided by the CCMP holder was contrasted with primary information sources and secondary information sources, to ensure that the CCMP holder's statements in its documentation are credible, traceable, and reliable.

In addition to the review described in the previous paragraphs, the interviews significantly contributed to the audit team in the collection of proof and evidence that gave robustness to the evaluation exercise.

All the information that was reviewed in the audit exercise has been listed in section 14 of this report.

5 Stakeholder consultation

The CCMP holder (PP) has complied with the stakeholder consultation document as stated in the past validation process /1/. The consultation carried out in 07/12/2007, for the first 7-year crediting period of the project activity, under the Clean Development Mechanism (CDM).

The CCMP maintains a constant communication mechanism with interested parties through the Web: <https://www.biogas.com.co>, where you can find out about the progress of the organization and the evolution of its processes.

For the presentation of Petitions, Complaints, Claims or requests in general (PQR), the channel is available on the project website: <https://www.biogas.com.co/index.php/contacto/>; or they can contact the email: administracion@biogas.com.co The CCMP also has the procedure for "CORRECTIVE, PREVENTIVE AND IMPROVING ACTIONS - PQRS" Code: PR-SIG-003/19/, which establishes procedures for interaction with interested parties

ICONTEC confirms during on site visit that there have been no changes in areas, facilities or processes in the CCMP that modify what was agreed between the CCMP and the stakeholders.

6 Uncertainty

The ICONTEC audit team confirms that the selection of information for the baseline calculations corresponds to studies or official information prepared by the designated entities for each activity, minimizing uncertainty, despite making several adjustments during the validation and verification process, the PP managed to provide the necessary justification for the changes made and the methodology and applicable tools used, likewise, rules of the CERCARBONO standard and regulations related and applicable to the Project.

The monitoring report /3/considers uncertainty in the mitigation results and evaluates it during calibrations, ensuring that instruments operate within normal parameters and follow guidelines for expressing measurement uncertainty.

For landfill operation data, official information provided by Biogas Colombia SA ESP is used and reviewed by the auditory team. The audit team interviewed the professionals in charge of performing the calculations, and ICONTEC verified the source of the data and the primary and secondary information used by the PP. Regarding the operation data in the based and project scenarios, the audit team verified during the field visit that all records are stored in raw data (Raw Data) and the records are obtained (minute by minute for most of the operation data) in Veolia's system. The stored data is transferred to a secure database and the data is then used to calculate emission reductions. The audit team also interviewed the person in charge of uploading and analysis of the daily data. A real-time data download was also performed during the on-site visit in order to verify the accuracy of this procedure.

In addition, the monitoring equipment is calibrated according to the manufacturers' criteria and in accordance with the provisions of the PDD/1/, and the equipment used is of low uncertainty.

7 Contributions to the UN's Sustainable Development Goals

The PP reports in the Monitoring Report /3/ the application of the Cercarbono Tool to Report Contributions from Climate Change Mitigation Initiatives to the Sustainable Development Goals and its evidence, which is attached to the Monitoring Report for landfill /3/:

- Cercarbono's Tool to Report Contributions from Climate Change Mitigation Initiatives to the Sustainable Development Goals /11/,
- Cercarbono Attached Evidence Form for the SDG Tool /12/ and,
- SDG Report evidence /13/

The audit team confirms that the landfill covered by this project activity contribute to several Sustainable Development Goals. The following SDG indicators are listed in the tool /11/:

- 7.2.1 Total electricity produced by non-conventional renewable sources.
- 7.2.3 Total and proportion of electricity produced by non-conventional renewable sources consumed by CCMP activities.
- 8.5.1 Total number of jobs created by the CCMP
- 8.5.2 Proportion of local employees.
- 13.2.1 Amount of GHG emissions avoided or sequestered.

The audit team had the ability to evaluate the data reported in tool /11/ through traceable evidence presented by the head of PMCC/12//13/.

Likewise, during the interviews the audit team confirmed that the head of the PMCC has the capacity to monitor during the verification exercises the indicators proposed by the Cercarbono tool to report contributions of climate change mitigation initiatives to the SDGs.

8 Grouped project

This section does not apply.

9 CCMP monitoring

9.1 Responsible for CCMP monitoring

Full name(s)	Nicolas Piñeros A.
Name of institution (if applicable)	BIOGÁS COLOMBIA S.A.S. E.S.P.
Roles or responsibilities	Operations Manager
Identification	900.181.508-1
Location	Doña Juana Landfill site. Bogotá, Colombia
Telephone number(s)	+57 6015522520

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9.2 CCMP monitoring development

Below, there is a summary of how the audit team verified the compliance of each monitored parameter during the current monitoring period with the selected baseline and monitoring methodology described in the PDD/1/, the applicable related methodological tools and CERCARBONO'S protocol /CC1/ requirements.

Parameters monitored ex ante:

No.	Data/Parameter	Value	Unit	Description	Source of data	Purpose of data
1.	OX-top_layer	0.1	Dimensionless	Fraction of methane that would be oxidized in the top layer of the SWDS in the baseline	IPCC 2019	Calculation of baseline emissions
2.	GWPC H ₄	28	tCO ₂ e/tCH ₄	Global Warming Potential of CH ₄	Cercarbono's document Guidance on the Use of Global Warming Potential (GWP) Values v2.0 published on 19/03/2025	Calculation of baseline emissions
3.	ηCS	50	%	Biogas capture system efficiency	M/MLF-DE_RE01 (versión 2.1)	Calculation of baseline emissions
4.	MFUB Lt	0	tCH ₄	Methane in landfill produced biogas, flared or used in baseline scenario in period t.	M/MLF-DE_RE01 (versión 2.1)	Calculation of baseline emissions
5.	FCOD_t	0.1, 0.5, 0.7	tons of C/ ton of waste	Fraction of degradable organic carbon in the waste deposited in period t	IPCC data. 2019. Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 5 Waste. Chapter 3.0 New.	Calculation of baseline emissions
6.	MCF	1.0	N/A	Methane correction factor for aerobic decomposition in the year of deposition.	IPCC data. 2019. Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 5 Waste. Chapter 3: Solid Waste Disposal. Table 3.1 (up dated)	Calculation of baseline emissions

No.	Data/Parameter	Value	Unit	Description	Source of data	Purpose of data
					SWDS classification and methane correction factors (MCF).	
7.	FCOD _{r,t}	Wood and wood products: 43; Pulp, paper and cardboard (except sludge): 40; Food, food waste, beverages and tobacco (not sludge): 15; Textiles: 24; Pruning waste, gardens and parks: 20.	%	Fraction of degradable organic carbon that decomposes under anaerobic conditions for the group or class of residue r, in period t	IPCC data. 2019. Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories	Calculation of baseline emissions
8.	K	Different values according to residue. See pag. 61 in PDD/1/ and pag. 28 in MR/3/	N/A	Decomposition rate for waste type r	Methodological tool (b) "Emissions from solid waste disposal sites" (version 08.0) based on IPCC 2006 Guidelines for National Greenhouse Gas Inventories (adapted from Volume 5, Table 3.3	Calculation of baseline emissions
9.	Fr,t	Food: 51%; Paper: 13,67%; Wood: 1,6%; Textile: 4,54%; other inert: 28,88%.	%	Average fraction of type r residue in year t (weight fraction)	UAESP – Bogotá's Comprehensive Solid Waste Management Plan PGIRS	Calculation of baseline emissions
10.	WLB _t	2023: 2,407,469 2024: 2,433,260	ton	Mass of waste deposited in the landfill, in period t.	UAESP – Bogotá's Comprehensive Solid Waste Management Plan PGIRS	Calculation of baseline emissions
11.	MMYo	CH ₄ = 16.04 CO = 28.01 CO ₂ = 44.01 O ₂ = 32.00 H ₂ = 2.02 N ₂ = 28.02	kg/kmol	Molecular mass of the component	MDL TOOL06 – version 03.0	Calculation of baseline emissions
12.	A.Mj	CH ₄ = 12.00 O ₂ = 16.00 H ₂ = 1.01 N ₂ = 14.01	kg/mol	Atomic mass of the element	MDL TOOL06 – version 03.0	Calculation of baseline emissions

No.	Data/Parameter	Value	Unit	Description	Source of data	Purpose of data
13.	QRef	101,325	Pa	Atmospheric pressure under normal conditions	MDL TOOL06 – version 03.0	Calculation of baseline emissions
14.	Ror	8,314.472	Pa.m ³ /kmol.K	Universal ideal gases constant	MDL TOOL06 – version 03.0	Calculation of baseline emissions
15.	TRef	273.15	K	Temperature at normal conditions	MDL TOOL06 – version 03.0	Calculation of baseline emissions
16.	vO ₂ ,air	0.21	---	Volumetric fraction of air O ₂	MDL TOOL06 – version 03.0	Calculation of baseline emissions
17.	M.V.n	22,414	m ³ /kmol	Volume of one mole of an ideal gas under normal conditions	MDL TOOL06 – version 03.0	Calculation of baseline emissions
18.	ρCH ₄ ,n	0.716	kg/m ³	Density of methane gas interference conditions	MDL TOOL06 – version 03.0	Calculation of baseline emissions
19.	NA _{i,j}	Molecular formula	---	Number of atoms of the element j in component i, according to the molecular structure	MDL TOOL06 – version 03.0	Calculation of baseline emissions
20.	V.M.ref	22.4	m ³ /kmol	Volume of one mole of which-want ideal gas at reference temperature and pressure	MDL TOOL06 – version 03.0	Calculation of baseline emissions

Parameters monitored ex-post:

ICONTEC confirms that the monitoring plan comply with the requirements of the applied methodology monitoring the following parameters:

Below, only the parameters that are monitored (real data) are presented:

No	Parameter/Unit	Value	Source / equipment
1	IECp _t - Imported electricity consumption in period t of project scenario. kWh	Recorded and aggregated values per period can be found in file "BGC - RESUMEN DE CALCULOS RM10 V2" /4/	Electricity meter Manufacturer: CARLO GAVAZZI Model: WM3-96 Serial Number: BJ1240052001P Measured as part of the operation of the project activity by applying appropriate electricity meter
2	ECBL _{j,t} – Electricity that would be consumed by user j in the baseline scenario in period t, expected to be displaced by the project.	Recorded and aggregated values per period can be found in file "BGC - RESUMEN DE CALCULOS RM10 V2" /4/	Principal electricity meter to the red Manufacturer: ITRON Model: SL7000 Serial Number: 73048827

No	Parameter/Unit	Value	Source / equipment
	kWh		Secondary electricity meter to the red Manufacturer: ITRON Model: SL7000 Serial Number: 73049424 Electricity meter to the PTL Operator Manufacturer: ITRON Model: ACE6618044C Serial Number: 84587967 Electricity meter to the SBR operator Manufacturer: ELSTER Model: A1830RALN s200 Serial Number: 02918718 Measured as part of the operation of the project activity by applying appropriate electricity meter
3	$\eta_{MDPm,t}$ - Flare methane destruction efficiency in minute m in period t in project scenario.	In the baseline scenario, flare efficiency of 99% is used (specified for manufacturer equipment). In the project scenario is calculated minute-by-minute.	N/A
4	TEGm– Temperature in the exhaust gas of the enclosed flare in minute m °C	Recorded and aggregated values per monthly period (MM) can be found in files “BCG 2024 02 V2”, “BCG 2024 03 V2”, “BCG 2024 04 V2”, “BCG 2024 05 V2”, “BCG 2024 06 V2”, “BCG 2024 07 V2”, “BCG 2024 08 V2”, “BCG 2024 09 V2”, “BCG 2024 10 V2”, “BCG 2024 11 V2” and “BCG 2024 12 V2” /6/	Thermocouple BG1: Manufacturer: Omega Model: XL-N-MO-250 Serial Number: 20220602 Thermocouple BG2: Manufacturer: Omega Model: XL-N-MO-250 Serial Number: 20220604 Thermocouple BG2: Manufacturer: Omega Model: XL-N-MO-250

No	Parameter/Unit	Value	Source / equipment
			Serial Number: 20220606
5	vi, RG, m – Volumetric fraction of component i in the residual dry gas at minute m, where i = CH4, CO2, EITHER %	Recorded and aggregated values per monthly period (MM) can be found in files “BCG 2024 02 V2”, “BCG 2024 03 V2”, “BCG 2024 04 V2”, “BCG 2024 05 V2”, “BCG 2024 06 V2”, “BCG 2024 07 V2”, “BCG 2024 08 V2”, “BCG 2024 09 V2”, “BCG 2024 10 V2”, “BCG 2024 11 V2” and “BCG 2024 12 V2” /6/ Measurement data is recorded and reported with an every-minute frequency.	Continuously measured by continuous CH4, CO2 y O2 content gas. Continuous Gas Analyzer Manufacturer: ABB Model: AO 2000 Series Uras 26 Serial Number: 3.357394.8 The equipment was calibrated by the operational team using cylinders of known composition according to manufacturer specifications. ICONTEC verified the cylinders numbers used to calibrate the gas analyzers, the cylinders filling dates, and the internal monthly records.
6	VRG, tb, m – Volumetric flow of the residual gas (LFG) on a dry basis in the minute m (m³ dry gas/m) for each flare Nm³ /h	Recorded and aggregated values per monthly period (MM) can be found in files “BCG 2024 02 V2”, “BCG 2024 03 V2”, “BCG 2024 04 V2”, “BCG 2024 05 V2”, “BCG 2024 06 V2”, “BCG 2024 07 V2”, “BCG 2024 08 V2”, “BCG 2024 09 V2”, “BCG 2024 10 V2”, “BCG 2024 11 V2” and “BCG 2024 12 V2” /6/ Measurement data is recorded and reported with an every-minute frequency.	Flowmeters BG1: Venturi tube Manufacturer: PFS Model: 10" HVT-PI Serial Number: 12158-1 Differential Pressure Transmitter 0-25 mbar Manufacturer: Endress + Hauser Model: Deltabar S PMD70-70A7B1BAAA Serial Number: AB08FC0109D Differential Pressure Transmitter 0-100 mbar Manufacturer: Endress + Hauser Model: Deltabar S PMD70-70A7D1BAAA Serial Number: C603040109D Flowmeters BG2: Venturi tube Manufacturer: PFS Model: 10" HVT-PI Serial Number: 12158-2 Differential Pressure Transmitter 0-25 mbar Manufacturer: Endress + Hauser Model: Deltabar S PMD70-70A7B1BAAA Serial Number: AB08FD0109D Differential Pressure Transmitter 0-100 mbar

No	Parameter/Unit	Value	Source / equipment
			Manufacturer: Endress + Hauser Model: Deltabar S PMD70-70A7D1BAAA Serial Number: C603030109D Flowmeters BG3: Venturi tube Manufacturer: PFS Model: 10" HVT-PI Serial Number: 13386 Differential Pressure Transmitter 0-25 mbar Manufacturer: Endress + Hauser Model: Deltabar S PMD70-70A7B1BAAA Serial Number: D605060109D Differential Pressure Transmitter 0-100 mbar Manufacturer: Endress + Hauser Model: Deltabar S PMD70-70A7D1BAAA Serial Number: D605070109D Measured as part of the operation of the project activity by applying appropriate monitoring instrument.
7	Vtb,m – Volumetric flow of the LFG stream in time interval t on a dry basis in the hour h (m ³ dry gas/h) for each power generator Nm ³ /h	Recorded and aggregated values per monthly period (MM) can be found in files "BCG 2024 02 V2", "BCG 2024 03 V2", "BCG 2024 04 V2", "BCG 2024 05 V2", "BCG 2024 06 V2", "BCG 2024 07 V2", "BCG 2024 08 V2", "BCG 2024 09 V2", "BCG 2024 10 V2", "BCG 2024 11 V2" and "BCG 2024 12 V2" /6/ Measurement data is recorded and reported with an every-minute frequency.	Flowmeters GE1: Orifice Plate Manufacturer: Endress + Hauser Model: Deltatop DO63C Serial Number: D100330111B Differential Pressure Transmitter Manufacturer: Endress + Hauser Model: Deltabar S PMD70-70A7B1BAAA Serial Number: D2058B0109D Flowmeters GE2: Orifice Plate Manufacturer: Endress + Hauser Model: Deltatop DO63C Serial Number: D100330111B Differential Pressure Transmitter Manufacturer: Endress + Hauser Model: Deltabar S PMD70-ECJ788DAAA Serial Number: D2058C0109D

No	Parameter/Unit	Value	Source / equipment
			Flowmeters GE3: Orifice Plate Manufacturer: PFS Model: 5" HVT-FVF Serial Number: 25298-01-02 Differential Pressure Transmitter Manufacturer: Endress + Hauser Model: Deltabar S PMD75B-2EP71/101 Serial Number: VC02200119A Flowmeters GE4: Orifice Plate Manufacturer: PFS Model: 5" HVT-FVF Serial Number: 25298-01-01 Differential Pressure Transmitter Manufacturer: Endress + Hauser Model: Deltabar S PMD75B-2EP71/101 Serial Number: VC021F0119A Measured as part of the operation of the project activity by applying appropriate monitoring instrument.
8	Tf, TEG., THG.– Temperature of the biogas at a point close to each flowmeter °C	Recorded and aggregated values per monthly period (MM) can be found in files "BCG 2024 02 V2", "BCG 2024 03 V2", "BCG 2024 04 V2", "BCG 2024 05 V2", "BCG 2024 06 V2", "BCG 2024 07 V2", "BCG 2024 08 V2", "BCG 2024 09 V2", "BCG 2024 10 V2", "BCG 2024 11 V2" and "BCG 2024 12 V2" /6/ Measurement data is recorded and reported with an every-minute frequency.	Thermocouples: Temperature - Main Collector Manufacturer: Endress + Hauser Model: iTEMP PA TMT84-B5A2A Serial Number: AB00DA042B6 Gas Temperature - Flare BG1 Manufacturer: Endress + Hauser Model: iTEMP PA TMT84-B5A2A Serial Number: AB00DF042B6

No	Parameter/Unit	Value	Source / equipment
			Gas Temperature - Flare BG2 Manufacturer: Endress + Hauser Model: iTEMP PA TMT84-B5A2A Serial Number: AB00DC042B6 Gas Temperature - Flare BG3 Manufacturer: Endress + Hauser Model: iTEMP PA TMT84-B5A2A Serial Number: D7004D042B6 Gas Temperature - Generator GE1 Manufacturer: Endress + Hauser Model: PT100 / TR12 Serial Number: D20115142FE Gas Temperature - Generator GE2 Manufacturer: Endress + Hauser Model: PT100 / TR12 Serial Number: D202A114152 Gas Temperature - Generator GE3 Manufacturer: Endress + Hauser Model: PT100 / TM131 Serial Number: VC05BB1448A Gas Temperature - Generator GE4 Manufacturer: Endress + Hauser Model: PT100 / TM131 Serial Number: VC05BC1448A
9	EFIGt – CO2 emission factor of the interconnected grid for period t	0.289 tCO2e/MWh (the most recent official data for the evaluating period)	UPME Resolution 1198 – 26/12/2024

No	Parameter/Unit	Value	Source / equipment
10	EFGSPt – CO2 emission factor for the electric grid or electricity supplier in period t in project scenario.	0.595 tCO2e/MWh (the most recent official data for the evaluating period)	UPME Resolution 1198 – 26/12/2024
11	TDTLj - Average technical transmission and distribution losses for electricity supply from the electric grid	7,51%	The value used is calculated by Enel Colombia S.A ESP – Distribution Grid Operator for Cundinamarca and Bogotá, and published in the Financial results report for 2023.
12	TDTPj - Average technical losses for electricity transmission and distribution to grid user j in period t.	7,51%	The value used is calculated by Enel Colombia S.A ESP – Distribution Grid Operator for Cundinamarca and Bogotá, and published in the Financial results report for 2023.
13	SPECflare– Specifications of a manufacturer's torch for temperature, flow rate and maintenance schedule	- Temperature: > 800° C – 1200° C - Flow rate: 1,000 – 5,000 Nm³/h (function limits) 20% - 100%) - Maintenance program: Annual	Torch manufacturer's document
14	Qf, PEG, PHG– Biogas pressure in a point close to each flow meter	Recorded and aggregated values per monthly period (MM) can be found in files “BCG 2024 02 V2”, “BCG 2024 03 V2”, “BCG 2024 04 V2”, “BCG 2024 05 V2”, “BCG 2024 06 V2”, “BCG 2024 07 V2”, “BCG 2024 08 V2”, “BCG 2024 09 V2”, “BCG 2024 10 V2”, “BCG 2024 11 V2” and “BCG 2024 12 V2” /6/ Measurement data is recorded and reported with an every-minute frequency.	Pressure sensors: Absolute Pressure - Main Collector Manufacturer: Endress + Hauser Model: Cerabar M PMC41-NE22H1P11A1 Serial Number: AB02E501020 Absolute Pressure - Flare BG1 Manufacturer: Endress + Hauser Model: Cerabar M PMC41-NE22H1P11A1 Serial Numbers: CA00EA01020 (11/11/2022) AB02E601020 (10/11/2023) Absolute Pressure - Flare BG2 Manufacturer: Endress + Hauser Model: Cerabar M PMC41-NE22H1P11A1 Serial Number: AB02E301020 Absolute Pressure - Flare BG3 Manufacturer: Endress + Hauser

No	Parameter/Unit	Value	Source / equipment
			Model: Cerabar M PMC41-NE22H1P11A1 Serial Number: J400EA15128 Absolute Pressure - Generator GE1 Manufacturer: Endress + Hauser Model: Cerabar M PMC51-1PD0/115 Serial Number: D2002401128 Absolute Pressure - Generator GE2 Manufacturer: Endress + Hauser Model: Cerabar M PMC51-1PD0/115 Serial Number: D2002501128 Absolute Pressure - Generator GE3 Manufacturer: Endress + Hauser Model: Cerabar M PMC51B-183N0/101 Serial Number: VC012701195 Absolute Pressure - Generator GE4 Manufacturer: Endress + Hauser Model: Cerabar M PMC51B-183N0/101 Serial Number: VC012801195
15	Maintenance events completed in year y as monitored by the project participant	Records on compliance of the flares' operational and maintenance history per period (MM) can be found in files "BCG 2024 02 V2", "BCG 2024 03 V2", "BCG 2024 04 V2", "BCG 2024 05 V2", "BCG 2024 06 V2", "BCG 2024 07 V2", "BCG 2024 08 V2", "BCG 2024 09 V2", "BCG 2024 10 V2", "BCG 2024 11 V2" and "BCG 2024 12 V2" /6/ Description of preventive and corrective maintenance activities for the LFG plant can be found in Biogás Colombia SAS	Records of Maintenance logs in charge of LFG plant operational team

No	Parameter/Unit	Value	Source / equipment
		ESP files, reviewed by auditor team.	

Calibration certificates:

Below is a summary of the calibration certificates of the measurement equipment that were verified by the audit team.

Parameter	Measurement equipment-Serial	Calibration frequency	Calibration records /9/	Calibration date (Day-Month-Year)
IECpt- Imported electricity consumption in period t of project scenario.	Serial Number: BJ1240052001P	Every 4 years	CAL 9: SM.LIME.0232.2022	25/07/2022
ECBLj,t – Electricity that would be consumed by user j in the baseline scenario in period t, expected to be displaced by the project.	Serial Number: 73048827	Every 4 years	ME-2203-29482	08/03/2022
	Serial Number: 73049424	Every 4 years	ME-2203-29516	25/03/2022
	Serial Number: 84587967	Every 4 years	CAL 1: ME-2012-27762 CAL2: 241212-24695	29/12/2020 12/12/2024
	Serial Number: 02918718	Every 4 years	ME-2208-30197	25/08/2022
TEGm– Temperature in the exhaust gas of the enclosed flare in minute m	Serial Number: 20220602 2300893001	Annual	CAL 1: DST-0093-23 CAL 2: TT-0244-24	2/05/2023 9/05/2024
	Serial Number: 20220604 2300893003	Annual	CAL 1: DST-0095-23 CAL 2: TT-0243-24	2/05/2023 9/05/2023
	Serial Number: 20220606 2300893002	Annual	CAL 1: DST-0094-23 CAL 2: TT-0242-24	2/05/2023 9/05/2024
vi,RG,m– Volumetric fraction of component i in the residual dry gas at minute m, where i = CH4, CO2, EITHER	Serial Number: 3.357394.8	Annual	CAL 15: DSFQ-027-23 CAL 15: DSFQ-009-24	09/11/2023 08/11/2024
VRG,tb,m – Volumetric flow of the residual gas (LFG) on a dry basis in the minute m (m ³ dry gas/m) for each flare	Serial Number: AB08FC0109D	Annual	CAL 15: ILM23 - CC72263 - 0 CAL 16: ILM24 – CC77280 - 0	09/11/2023 06/11/2024
	Serial Number: C603040109D	Annual	CAL 15: ILM23 - CC72267 – 0 CAL 16: ILM24 – CC77281 - 0	10/11/2023 06/11/2024
	Serial Number: AB08FD0109D	Annual	CAL 15: ILM23 - CC72258 – 0 CAL 16: ILM24 - CC77329 - 0	08/11/2023 08/11/2024
	Serial Number: C603030109D	Annual	CAL 15: ILM23 - CC72257 – 0 CAL 16: ILM24 - CC77328 - 0	09/11/2023 06/11/2024
	Serial Number: D605060109D	Annual	CAL14: ILM23 - CC72245 – 0 CAL15: ILM24 - CC77331 - 0	08/11/2023 08/11/2024
	Serial Number: D605070109D	Annual	CAL 14: ILM23 - CC72232 – 0 CAL 15: ILM24 - CC77332 - 0	08/11/2023 08/11/2024
	Serial Number: VC02200119A	Annual	FINAL INSPECTION REPORT No: 3040013128/0040	21/12/2023

	Serial Number: VC021F0119A	Annual	FINAL INSPECTION REPORT No: 3040013128/0040	21/12/2023
V _{tb,m} – Volumetric flow of the LFG stream in time interval t on a dry basis in the hour h (m ³ dry gas/h) for each power generator	Serial Number: D2058B0109D	Annual	CAL 15: ILM23 - CC72219 – 0 CAL 16: ILM24 - CC77276 - 0	07/11/2023 06/11/2024
	Serial Number: D2058C0109D	Annual	CAL 4: ILM23 - CC72230 – 0 CAL 5: ILM24 - CC77279 - 0	08/11/2023 06/11/2024
TF, T.E.G., T.H.G.– Temperature of the biogas at a point close to each flowmeter	Serial Number: AB00DA042B6	Annual	CAL 15: LT-7613-23 CAL 16: LT-7794-24	08/11/2023 06/11/2024
	Serial Number: AB00DF042B6	Annual	CAL 15: LT-7614-23 CAL 16: LT-7795-24	08/11/2023 06/11/2024
	Serial Number: AB00DC042B6	Annual	CAL 15: LT-7615-23 CAL 16: LT-7796-24	09/11/2023 06/11/2024
	Serial Number: D7004D042B6	Annual	CAL 15: LT-7611-23 CAL 16: LT-7797-24	07/11/2023 06/11/2024
	Serial Number: D20115142FE	Annual	CAL 14: LT-7612-23 CAL 15: LT-7792-24	07/11/2023 06/11/2024
	Serial Number: D202A114152	Annual	CAL 4: LT-7616-23 CAL 5: LT-7793-24	09/11/2023 06/11/2024
	Serial Number: VC05BB1448A	Annual	FACTORY CALIBRATION CERTIFICATE No: VC05BB1448A- 2024	17/01/2024
	Serial Number: VC05BC1448A	Annual	FACTORY CALIBRATION CERTIFICATE No: VC05BC1448A-2024	17/01/2024
QF, PE.G., PH.G.– Biogas pressure in a point close to each flow meter	Serial Number: AB02E501020	Annual	CAL 3: ILM23 - CC72277 – 0 CAL 4: ILM24 - CC77282 - 0	10/11/2023 06/11/2024
	Serial Number: AB02E601020	Annual	CAL 1: ILM22 - CC67278 – 0 CAL 2: ILM24 - CC77283 - 0	10/11/2023 06/11/2024
	Serial Number: AB02E301020	Annual	CAL 3: ILM23 - CC72262 – 0 CAL 4: ILM24 - CC77330 - 0	09/11/2023 08/11/2024
	Serial Number: J400EA15128	Annual	CAL 10: ILM23 - CC72246 – 0 CAL 11: ILM24 - CC77335 - 0	08/11/2023 06/11/2024
	Serial Number: D2002401128	Annual	CAL 14: ILM23 - CC72220 – 0 CAL 15: ILM24 - CC77277 - 0	07/11/2023 06/11/2024
	Serial Number: D2002501128	Annual	CAL 4: ILM23 - CC72221 – 0 CAL 5: ILM24 - CC77278 - 0	07/11/2023 06/11/2024
	Serial Number: VC012701195	Annual	FINAL INSPECTION REPORT No: 3040013128/0010	12/12/2023

	Serial Number: VC012801195	Annual	FINAL INSPECTION REPORT No: 3040013128/0010	12/12/2023
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Based on the review carried out by the audit team of the measurement of the parameters used to calculate the reduction of emissions indicated in the Monitoring Plan, and the procedures and frequencies followed to comply with the calibration requirements established in the PDD /1/, the applied methodology and other methodological documents and related tools, the audit team has concluded that:

- Biogás Colombia SAS ESP is responsible for the collection, compilation and storage of raw data, following the procedures;
- In general, the registered monitoring plan has been duly implemented and followed by the project participants;
- The monitoring parameters have been monitored correctly and conservatively according to the monitoring plan, was under maintenance or not operational, emission reductions are not claimed;
- quality assurance and control procedures are in place;
- operating personnel have been properly trained;
- maintenance is up to date and all the equipment is kept in operating condition and there is control of shutdowns and maintenance;
- the equipment manuals, the national regulations, the registered monitoring plan and the calibration certificates were reviewed to verify the compliance and frequency of the calibration requirements of the measurement equipment;
- the monitoring frequency and accuracy of the measuring instruments have been properly identified;
- the monitoring system and procedures and the monitoring system structure and management have been properly described;
- calibration procedures and frequencies of related monitoring instrument(s) have been correctly described;

Therefore, the audit team has concluded that the monitoring of the project activity is in accordance with the registered monitoring plan.

10 Information management

The audit team consider the following activities to evaluate the design and effectiveness of the information and data control system:

a) The selection and management of GHG data and information. Doña Juana Landfill Gas to Energy Project use a software, which records minute-by-minute data for the following parameters: measurements of the flow of LFG, Pressure and temperature of LFG sent to flare, exhaust gas temperature of the flare, status of the flare and fraction of methane in the LFG.

Data for these measured parameters were continuously collected by a data logger and storage system. The recording of energy consumption is conducted manually, this measurement is not connected to the software.

b) The procedures for collecting, processing, consolidating and reporting GHG data and information. All information is consolidated and the raw data analyzed and used in the calculation of emissions reductions.

c) The systems and processes ensure the validity and accuracy of the GHG data and information. Biogás Colombia SAS ESP is responsible for analyzing the data and ensuring its consistency in the calculation of emission reductions.

d) The design and maintenance of the GHG information system. It is Biogás Colombia SAS ESP's responsibility to maintain the operational conditions of the software for the recording of information.

e) Systems, processes and staff that support the GHG information system, including activities to ensure data quality. Biogás Colombia SAS ESP have the staff to conduct the activities of registration, review and analysis of data, as well as consolidation of information.

f) The results of maintenance and calibration of equipment and instruments. Biogás Colombia SAS ESP is responsible for procuring the metrology laboratories that comply with the calibration requirements established in the methodology, tools, and monitoring plan of the PDD /1/.

g) The project is registered on CERCARBONO program, for this reason, formation about of this project on the EcoRegistry platform is available.

The PDD/1/ has a detailed description of the monitoring management system. In summary, the verification team considers that the monitoring plan reflects good monitoring practices appropriate to the CCMP. Likewise, the audit team confirms that the CCMP holder is implementing the monitoring plan described in the PDD.

11 Assessment of the CCMP status

During this monitoring period there are no changes in risks and material discrepancy thresholds that may have occurred during the verification, and the applied analysis procedures remain representative and appropriate.

The evidence collected is sufficient and appropriate to generate a conclusion.

12 Assessment of conformity with requirements

Not applicable, since in accordance with the instructions for completing this form (for verification reports), this section is filled when due to special circumstances cannot be compared, the verifier shall assess any non-conformity with the requirements of the verification process.

For this monitoring period the CCMP did not presented any changes from previous periods that make the periods incomparable.

13 Conclusion of verification

13.1 Resolution of findings

This verification report was prepared once the audit team declared the findings resolved.

The audit team detected 1 request for corrective action (CAR), 2 clarification request (CR) and 1 future action request (FAR) applicable to this monitoring period, which were presented to the owner of the CCMP and were resolved through communication between ICONTEC and Biogás Colombia SAS ESP.

To guarantee the transparency of the verification process, the requests required by the audit team and the response provided by the CCMP holder are described below. Communication with Biogás Colombia SAS ESP was carried out in Spanish, so the requirements and answers are maintained below in the original language:

CAR No.	1	Requisito No.	Procedimientos del programa de certificación de Cercarbono V2.2. Numeral 7.3.11	Fecha: 10-06-2025
Descripción de la CAR				
Se evidencia que el valor asociado al potencial de calentamiento global del metano empleado para el cálculo de las reducciones de emisiones de GEI del proyecto, no está alineado con los últimos requerimientos del Programa Cercarbono "Lineamientos sobre el uso de valores de Potencial de Calentamiento Global. V.2.0" del 19/03/2025				
Respuesta del desarrollador del proyecto				Fecha: 19-06-2025
En los cálculos y reporte de monitoreo presentados inicialmente se había utilizado el ultimo valor de GWP para CH4 de la versión más actualizada a la fecha, documento: <i>Sixth Assessment Report (Sixth Assessment Report AR6)</i> del IPCC, tal cual se estableció en el último PDD - <i>DOÑA JUANA LANDFILL GAS TO ENERGY PROJECT PDD V4.3</i> . Sin embargo, de acuerdo al hallazgo y requerimientos del Programa Cercarbono en el documento " <i>Lineamientos sobre el uso de valores de Potencial de Calentamiento Global. V.2.0</i> " publicado el 19/03/2025, se actualiza el valor de GWP para CH4 a 28 en todos los archivos de cálculo y documentos relacionados, emitiendo una versión 2.0 de los documentos en los cuales se realizó la corrección, así como los valores de reducciones presentados en el reporte de monitoreo. Se complementa la sección 2. <i>Desviaciones del PMCC en la implementación del PDD</i> , describiendo esta desviación.				
Documentación presentada por el desarrollador del proyecto				

- <i>RM10 - Monitoring-Report-Doña Juana Landfill Gas (01.02.2024 to 31.12.2024) v2.0</i> - <i>BGC - RESUMEN DE CALCULOS RM10 V2.xlsx</i> - <i>BGC 2024 02 V2.xlsx</i> - <i>BGC 2024 03 V2.xlsx</i> - <i>BGC 2024 04 V2.xlsx</i> - <i>BGC 2024 05 V2.xlsx</i> - <i>BGC 2024 06 V2.xlsx</i> - <i>BGC 2024 07 V2.xlsx</i> - <i>BGC 2024 08 V2.xlsx</i> - <i>BGC 2024 09 V2.xlsx</i> - <i>BGC 2024 10 V2.xlsx</i> - <i>BGC 2024 11 V2.xlsx</i> - <i>BGC 2024 12 V2.xlsx</i>	
Evaluación del equipo auditor	Fecha: 26-06-2025
Se verifica la realización del ajuste del potencial de calentamiento global del metano en los cálculos realizados y en la documentación asociada. Conclusión del equipo auditor: Cerrado.	

CR No.	1	Requisito No.	Procedimientos del programa de certificación de Cercarbono V2.2. Numeral 7	Fecha: 12-02-2025
Descripción de la CR				

Se evidencia que los siguientes aspectos no son claros o presentan información no consistente en el documento de Reporte de Monitoreo (RM), con respecto a los lineamientos y formatos del programa Cercarbono o con respecto a la información de soporte presentada:

- No está completa la información del titular del PMCC en el numeral 1.2 de acuerdo a lo requerido en la plantilla de RM de Cercarbono
- No se describe detalladamente en el numeral 1.3 del RM la información sobre la entrada en operación de los 2 nuevos motores de la Fase 1 del proyecto, sus fechas de entrada y su estatus respecto a entrega de energía a la red interconectada.
- No se describe a que hace referencia la sigla RCP descrita en el numeral 1.3 del RM
- No se indica el detalle de detalle en el numeral 1.3 del RM sobre cuántos eventos de verificación tiene el proyecto, de acuerdo a lo requerido por la plantilla asociada
- No se indica en el numeral 1.5.1 que la no existencia de cambios en los límites espaciales es con respecto a lo descrito en el numeral 1.4.2.1 del PDD
- Debe describirse en el numeral 2 del RM la desviación respecto al PDD asociada al uso de un potencial de calentamiento alineado con los “Lineamientos sobre el uso de valores de Potencial de Calentamiento Global. V.2.0” del 19/03/2025
- No se incluyen las fórmulas de cálculo de la eficiencia de la antorcha en el numeral 5 del RM.
- No se ha descrito en el numeral 6 del RM sobre la no existencia de comunicaciones de las partes interesadas a través de los canales destinados para tal fin, ni de la participación en procesos de socialización continua a las comunidades junto al operador del relleno sanitario.
- No está unificado el uso de puntos y comas como separadores decimales y de miles respectivamente en todo el documento.
- No se incluye toda la información respecto a requisitos legales aplicables en el numeral 9.1 del RM.
- Algunas de las fechas de calibración de los equipos descritas en el numeral 9 del RM, especialmente en el caso de los nuevos equipos, no coinciden con respecto a los soportes evidenciados.
- No se evidencia la clarifica acción en el numeral 9 del RM sobre la aclaración del fabricante en cuanto a que la calibración del equipo se mantiene vigente hasta su instalación.
- No se describen todos los soportes evidenciados durante la verificación que sustentan las afirmaciones realizadas en el numeral 11 respecto a las salvaguardas del PMCC
- No se cita la metodología aplicada en el numeral 12 del RM

Respuesta del desarrollador del proyecto

Fecha: 19-06-2025

De acuerdo a los comentarios recibidos, se realizan los siguientes ajustes:

- Se completa el cuadro de información del titular del PMCC de la sección 1.2 de acuerdo a la plantilla de reporte de monitoreo v3.0 de Cercarbono.
- Se completa en la sección 1.4 la descripción en cuanto al comisionamiento y entrada en operación de los dos nuevos motores (GE3 y GE4), y como impacto en cuanto a la energía entregada a la red y las reducciones por destrucción de metano.
- Se describe la sigla RCP en la página 3 de acrónimos y abreviaturas.
- Se completa la información sobre el periodo de verificación actual en la sección 1.4 de acuerdo a la plantilla.
- Se complementa la sección 1.5.1 haciendo referencia a la sección 1.4.2.1 del PDD.
- Se complementa la sección 2 de las desviaciones del MR respecto al PDD, indicando el uso del valor de GWP de acuerdo al documento de Cercarbono "Lineamientos sobre el uso de valores de Potencial de Calentamiento Global. V.2.0" del 19/03/2025
- Se completa la sección 5 del reporte de monitoreo incluyendo la descripción completa del cálculo de eficiencia en base a los datos monitoreados minuto a minuto.
- Se complementa la sección 6 del reporte de monitoreo, describiendo el acompañamiento que se realiza al operador del relleno en los recorridos sociales, actividad que se describen en las actas de recorrido adjuntas.
- Se completa la sección 9.1 de requisitos legales, añadiendo el contrato de concesión C-137 de 2007.
- Se corrigen las fechas de calibración de la sección 11. *Datos y parámetros*, ajustando las fechas de la tabla de *Medidores instalados y datos de calibración*, de acuerdo a los certificados de calibración y plan de monitoreo.
- Se complementa la sección 11 *Datos y parámetros*, especificando la periodicidad de las calibraciones de los instrumentos de acuerdo al plan de calibración, normatividad vigente que aplique y según el sistema integral de gestión y calidad de Biogás Colombia.
- Se complementa la declaración firmada de salvaguardas anexa al reporte de monitoreo que sustenta las afirmaciones de la sección 13. *Salvaguardas*. Se anexan los documentos de evidencia soporte de esta declaración.
- Se agrega la referencia de la metodología M/MRS-DE_ER01 Para proyectos de destrucción y aprovechamiento del biogás de rellenos sanitarios, en la sección 14 de acuerdo al comentario.

Documentación presentada por el desarrollador del proyecto

- *RM10 - Monitoring-Report-Doña Juana Landfill Gas (01.02.2024 to 31.12.2024) v2.0*
- *BGC - RESUMEN DE CALCULOS RM10 V2.xlsx*
- *6. Actas de recorrido control social comunidad*
- *RM10 Datos y parámetros v2*
- *1.Certificado de Existencia y Representación Legal.pdf 4. Acta de Entrega y Recibo Predio C-137 de 2007.pdf*
- *4. Contrato C-137 de 2007.pdf*
- *7.4 PR-SIG-003 Procedimiento PQR y Acciones Correctivas.pdf*
- *Acta Recepción Provisional GE3 y GE4 05082024.pdf*
- *Declaración Salvaguardas y soportes*

Evaluación del equipo auditor

Fecha: 26-06-2025

Se verifica la realización de todos los ajustes en la documentación del PMCC.

Conclusión del equipo auditor:
 Cerrado.

CR No.	2	Requisito No.	Procedimientos del programa de certificación de Cercarbono V2.2. Numeral 7.4	Fecha: 12-02-2025
Descripción de la CR				
No se evidencia un soporte por parte del fabricante o proveedor de los equipos respecto a la vigencia de los certificados de calibración suministrados como parte del proceso de montaje y puesta en marcha de los motores 3 y 4 de la fase 1 del PMCC.				
Respuesta del desarrollador del proyecto				Fecha: 19-06-2025

De acuerdo al comentario, se consulta con el fabricante de la instrumentación de monitoreo de suministro de flujo de gas, Endress and Hauser, sobre la vigencia del proceso de calibración con que cuentan los equipos en fabrica antes de despacho y los respectivos certificados de conformidad. Respecto a esto, el 12/06/2025 se recibe correo electrónico del fabricante donde de acuerdo a las diferentes normativas internacionales tanto en materia de estándares de calibración como relativos a los sistemas de gestión de calidad, las calibraciones y/o verificaciones que se realizan sobre la instrumentación de proceso no cuentan con un periodo de vigencia o periodicidad para ejecutarla específico.

De acuerdo al estándar ISO 9001:2015, en la cual Biogás Colombia está certificada, en su capítulo 7 de *Recursos de seguimiento y medición*, específicamente el numeral 7.1.5.2 de esta norma se establece que:

“7.1.5.2 Cuando la trazabilidad de las mediciones es un requisito, o es considerada por la organización como parte esencial para proporcionar confianza en la validez de los resultados de la medición, el equipo de medición debe:

- a) Calibrarse o verificarse, o ambas, a intervalos especificados, o antes de su utilización, contra patrones de medición trazables a patrones de medición internacionales o nacionales; cuando no existan tales patrones, debe conservarse como información documentada la base utilizada para la calibración o la verificación;
- b) identificarse para determinar su estado;
- c) protegerse contra ajustes, daño o deterioro que pudieran invalidar el estado de calibración y los posteriores resultados de la medición.

Adicionalmente, se realiza la consulta con los laboratorios acreditados por ONAC en las diferentes variables y con los cuales realizamos las diferentes calibraciones y verificaciones, sobre poder contar con un certificado o periodo de validez de la calibración, y sobre el particular se obtuvo el mismo concepto del fabricante. Es cada uno de los usuarios y organizaciones quien debe establecer los periodos de vigencia de estas calibraciones, en función de los requerimientos e importancia de la trazabilidad de los mismos en su proceso organizacional.

Teniendo en cuenta esto y los requerimientos operativos de nuestro proceso, nuestra organización ha establecido en su sistema integral de gestión de calidad y en el plan de monitoreo y calibración de equipos, que se deberán ejecutar las calibraciones/verificaciones (o reemplazo de los mismos si se requiere) de equipos de manera anual. Vigencia anual que empezará a contarse desde el momento en que se realiza el comisionamiento, reinstalación o primer uso.

Así mismo, algunas de las calibraciones/verificaciones no es posible realizarlas en campo, y los equipos nuevos son fabricados en diferentes países, por lo que las fechas de expedición de los certificados de calibración y de conformidad pueden tener varios meses de diferencia entre la fecha de instalación/comisionamiento, derivados de tiempos de transporte, nacionalización y almacenamiento de los mismos equipos. Para esto, nuestra organización de acuerdo al literal c) del numeral 7.1.5.2, realiza el almacenamiento del instrumento o equipo de tal manera que se garantice que no se afecta su estado de calibración o conformidad antes de su primer uso o reinstalación.

Documentación presentada por el desarrollador del proyecto

- RM10 - Monitoring-Report-Doña Juana Landfill Gas (01.02.2024 to 31.12.2024) v2.0
- Correo Endress and Hauser referente a calibración

Evaluación del equipo auditor

Fecha: 26-06-2025

Se revisa el correo remitido por el fabricante y los argumentos mencionados en la respuesta del encargado del proyecto, encontrándolos satisfactorios.

Conclusión del equipo auditor:
Cerrado.

13.2 Support and listing of information

The information provided by the client and the commercial and technical information that is generated by ICONTEC as part of the verification process, such as:

- Terms of engagement;
- Verification plan;
- Evidence or evidence collection plan;
- Collection of proof or evidence;
- Requests for clarification, wrong statements, and disagreements derived from the validation and the conclusions reached;
- Communication with the client regarding material misstatements;
- The conclusions reached and the opinions of the validator.

It is recorded in the Sharepoint folder of GHG mitigation projects of the ICONTEC Technical Validation and Verification Unit (VVU), which keeps the information in a reliable, secure, and traceable manner.

Note: during the audit or documentary review of the CCMP verification process, it was verified that the process documentation was available on the CERCARBONO - EcoRegistry platform.

13.3 Verification opinion

BIOGÁS COLOMBIA SAS ESP hired ICONTEC to verify the CCMP “Doña Juana Landfill Gas to Energy Project Landfill” under the CERCARBONO protocol.

It is the responsibility of ICONTEC to present an independent verification report on the compliance of the CCMP concerning the requirements of CERCARBONO's Protocol for Voluntary Carbon Certification, version 4.4. and ISO 14064-3:2019, and applicable legislation under the Colombian Carbon Market Framework and on estimated GHG emission reductions from the project activity. The GHG emission estimates and reductions were correctly calculated based on the applied methodology /CC4/, and the registered PDD /1/ and Monitoring Report /3/.

ICONTEC declares that the project CCMP “Doña Juana Landfill Gas to Energy Project Landfill” was verified considering the following parameters:

- The verification has reached a reasonable level of assurance: 97%;
- Materiality: 1%;

- Based on the processes and procedures conducted, the GHG declaration is materially correct and a fair representation of the GHG data and information and is prepared by the applicable standard;
- The monitoring plan is transparent and adequate.

In addition, ICONTEC declares that the CCMP emission reductions were calculated transparently and conservatively and by the applied methodology and monitoring plan described in the PDD and documented in the MR.

Verification period: From 01/02/2024 to 31/12/2024 (both days included)

Years (From 01/02/2024 to 31/12/2024)	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage (tCO ₂ e)	GHG Emissions Reductions (tCO ₂ e)	CARBONCER
2024	648,052	40	0	648,012	648,012
Total	648,052	40	0	648,012	648,012

13.4 Facts discovered after verification

In accordance with ICONTEC's audit procedures and the review of all the information collected, up to the issuance of the final verification report, no facts were discovered that could affect the verification opinion.

If facts or information are discovered in the future that could materially affect the verification opinion after the date this Report and the verification Statement are issued, ICONTEC will take appropriate steps to communicate the matter, as soon as possible to BIOGÁS COLOMBIA SAS ESP and CERCARBONO and any other interested party on the fact that the confidence of the original opinion could be compromised given the findings.

14 References

- Approved validated PDD, dated on 20/11/2024 for final version after validation/verification observations (File: "DOÑA JUANA LANDFILL GAS TO ENERGY PROJECT PDD V4.3.pdf") /1/
- Previous validation and verification report, dated on 04/04/2025 (last version), issued by ICONTEC /2/
- Monitoring report, version 1 presented by PP during the desk review phase (Date: 27/05/2025. File: "RM10 - Monitoring-Report-Doña Juana Landfill Gas (01.02.2024 to 31.12.2024) v1.0.pdf") and version 2 final version presented by PP after the clarification request (Date: 20/06/2025. File: "B. RM10 - Monitoring-Report-Doña Juana Landfill Gas (01.02.2024 to 31.12.2024) v2.0.pdf") /3/
- Spreadsheets use for the calculation of the ER version 1 (file: "BGC - RESUMEN DE CALCULOS RM10 V1.xlsm") and final version presented by PP after the clarification request (file: "BGC - RESUMEN DE CALCULOS RM10 V2.xlsm") /4/
- Monthly SQL Raw Data (Spreadsheet with monthly SQL Raw Data covering the current monitoring period, files: "BCG - SQL Raw Data - 2024 02", "BCG - SQL Raw Data - 2024 03", "BCG - SQL Raw Data - 2024 04", "BCG - SQL Raw Data - 2024 05", "BCG - SQL Raw Data - 2024 06", "BCG - SQL Raw Data - 2024 07", "BCG - SQL Raw Data - 2024 08", "BCG - SQL Raw Data - 2024 09", "BCG - SQL Raw Data - 2024 10", "BCG - SQL Raw Data - 2024 11" and "BCG - SQL Raw Data - 2024 12") /5/
- Monthly spreadsheets (Spreadsheet with monthly data for recorded/calculated and calculation results covering the current monitoring period, files: "BCG 2024 02 V2", "BCG 2024 03 V2", "BCG 2024 04 V2", "BCG 2024 05 V2", "BCG 2024 06 V2", "BCG 2024 07 V2", "BCG 2024 08 V2", "BCG 2024 09 V2", "BCG 2024 10 V2", "BCG 2024 11 V2" and "BCG 2024 12 V2") /6/
- Monthly energy generation (Spreadsheet with monthly energy generation results covering the current monitoring period, files: "DJUANA0229", "DJUANA0331", "DJUANA0430", "DJUANA0531", "DJUANA0630", "DJUANA0731", "DJUANA0831", "DJUANA0930", "DJUANA1031", "DJUANA1130", "DJUANA1231" and "DJUANA0131") /7/
- Operational and maintenance log records (Examples: Daily records, Plant Operation and Maintenance Manuals, Maintenance plan, etc) /8/
- Calibration certificates files /9/
 - "Calibration 2023.zip"
 - "Calibration 2024.zip"
- Machinery or equipment life sheets /10/
 - "Antorchas.zip"
 - "Motor GE1.zip"
 - "Motor GE2.zip"
 - "Motor GE3.zip"
 - "Motor GE4.zip"
- Cercarbono's Tool to Report Contributions from Climate Change Mitigation Initiatives to the Sustainable Development Goals: Biogás Colombia Report SDGs Contributions (1).xlsx" /11/

- Cercarbono Attached Evidence Form for the SDG Tool: "23.05.25_SDG_Evidence_51.pdf" /12/
- SDG Report evidence: "Evidence.zip" /13/
- Representative legal documentation /14/
- Environmental License /15/
- www.minambiente.gov.co/wp-content/uploads/2021/10/portafolio-de-medidas-sectoriales-de-mitigacion-de-cambio-climatico-contribucion-determinada-Colombia-ndc-2020.pdf /16/
- Contract concession for the extraction, treatment and use of biogas produced in the Doña Juana landfill /17/
- Administrative act is-sued as resolution 235 of 2007 /18/
- Biogas de Colombia - Procedure for corrective, preventive and improving actions - PQRS Code: PR-SIG-003 /19/
- Protocol for voluntary certification of carbon emission from CERCARBONO (CVCC), version 4.4 /CC1/
- Terms and definitions of Voluntary certification carbon of CERCARBONO, version 3.1. /CC2/
- CERCARBONO's Procedures of Cercarbonos Certification Programme V2.2 /CC3/
- CERCARBONO M/WM-RE_ED01: Methodology for the implementation of projects for the capture, destruction or use of biogas produced in landfills, V 2.1 /CC4/
- CERCARBONO's Safeguarding Principles and Procedures of Cercarbono's Certification Programme V1.1 /CC5/
- CERCARBONO's Tool to Report Contributions from Climate Change Mitigation Initiatives to the Sustainable Development Goals. V.1.3 /CC6/
- CERCARBONO's Tool to Demonstrate Additionality of Climate Change Mitigation Initiatives, version 2.0.1 /CC7/
- CERCARBONO's Guidelines for Mapping Presentation and Analysis V1.0 /CC8/
- Approved large-scale consolidated methodology ACM0001: Flaring or use of landfill gas, Version 10.0, dated on 27/02/2009 /UN1/
- Methodological tool TOOL07: Tool to calculate the emission factor for an electricity system, Version 07.0, dated on 31/08/2018 /UN2/
- Methodological tool TOOL06: Project emissions from flaring, Version 04.0, dated on 28/03/2019 /UN3/
- Methodological tool TOOL08: Tool to determine the mass flow of a greenhouse gas in a gaseous stream, Version 03.0, dated on 27/11/2015 /UN4/
- Methodological tool TOOL10: Tool to determine the remaining lifetime of equipment, Version 01.0, dated on 16/10/2009 /UN5/

- ISO 14064-2:2019 Specification with guidance, at the project level, for the quantification, monitoring and reporting of emission reductions or removal enhancements of greenhouse gases /ISO1/
- ISO 14064-3:2019 Specification with guidance, for the validation and verification of statements on greenhouse gases /ISO2/
- Main regulatory framework applicable to the CCMP: /R1/
 - Resolution 1447 of 2018 of MADS
 - Decree 926/2017 on the non-causation of the carbon tax
 - Climate Change Law 1931/2018 in Colombia

15 Document history (Verification Report)

Version	Date	Comments or editions
1.0	18.07.2025	Initial version.
2.0	25.07.2025	Adjustments were made according to the outcomes of the technical review for final approval.

16 Template history

Version	Date	Comments or editions
1.0	30.10.2019	Initial version.
2.0	01.08.2022	New template for the verification process that applies to CCMPs in sectors other than land use.
2.0.1	02.02.2023	Section 3.2.6 was deleted from the document.