Joint Validation and 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	76404-2021-CS-34
Verification number	Verification 1 (3rd 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 Initia-tives to the Sustainable Development Goals. V.1.3 CERCARBONO´s Tool to Demonstrate Additionality of Climate Change Mitigation Initi-atives, 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 Utilization 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)
Validated accreditation period		From 22/09/2023 to 21/09/2033
Period of verification		From 22/09/2023 to 31/01/2024 (Verification No. 1 - 3rd accreditation period)
Validation	Total GHG emission reductions generated in the crediting period	15,407,548 tCO_2e
	Net GHG emission reductions generated in the credited period	15,346,824 tCO_2e
Verification	Total GHG emission reductions generated in the verified period	326,740 tCO_2e
	Net GHG emission reductions generated in the verified period	326,738 tCO_2e
Date of preparation of the validation and verification report		04/04/2025 (final version)
Document prepared by		Colombian Institute of Technical Standards and Certification - ICONTEC
Contact information		Carrera 37 N° 52-95 Bogotá – Colombia. Telephone: +57 601+ 5806419 mcorredor@icontec.org

	www.icontec.org
Approved by	 Martha Corredor Validation and verification manager
Work performed by	 William Evelio Rodríguez Delgado Lead Auditor and Technical Expert  Ana Isabel Aubad López Technical and Auditor Reviewer

Contents

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 accreditation period from 22/09/2023 to 21/09/2033 (both dates included), and monitoring period from 22/09/2023 to 31/01/2024 (both dates included).

The validation objectives are the following:

- Assess the probability that the implementation of the planned GHG project will produce the GHG removals/reductions declared by the project manager, considering the following:
  - Compliance with applicable validation criteria, including the principles and requirements of relevant GHG standards or programs within the scope of validation.
  - The establishment, justification and documentation of the GHG mitigation project.
  - The relevance of the planned controls of the GHG project

The verification objectives are the following:

- Compliance with applicable verification criteria, including the principles and requirements of relevant GHG standards or programs within the scope of verification.
- The information and documentation of the GHG project planning, including procedures and criteria for the project, the baseline, quality control and assurance, risk management and the documents of this verification.
- The emissions, removals, emission reductions, and removal increases reported in the GHG baseline and project.
- Any significant change in GHG emissions, removals, emission reductions and increases in removals since the last reporting period, or since project validation.
- Compliance with the principles and actual controls of the project and the monitoring, verification and reporting system necessary to comply with its documented procedures and current legislation in accordance with the audit criteria.

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 sec-tors 1 (energy) and 13 (waste).

ICONTEC also has an international accreditation such as that of the United Nations (UNFCCC) and within the framework of the International Accreditation Forum (IAF) in the ISO 14065 standard.

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 Scope and spatial and temporal scope and limits

The scope of this validation and verification process includes an independent and objective evaluation to determine that the CCMP meets the following main 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 Utilisation 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 22/09/2023 to 31/01/2024.

ICONTEC confirms that the validated accreditation period of the project is its third accreditation period, and is between 09/22/2023 to 09/21/2033, 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 validation and 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 95% (reasonable assurance) for the declaration issued for validation and 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 adjusted PDD, MR N°1, 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 Validation and verification process

2.1 Validation and 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 adjusted PDD for the third accreditation period of the CCMP, the spreadsheet that contains the estimate of the reduction of GHG emissions of the accreditation period, the MR for the first monitoring period of this accreditation period, and the spreadsheet that contains the estimate of the reduction of GHG emissions for the first monitoring period to be evaluated. ICONTEC 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. and/or of the requirements	Ensure that the audit plan considers reviewing the status of the project against changes

	relation to those used in previous years.		of the certification program.	that could affect the 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 de-signed 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 deter-mine 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.

<table>
<tr><td>Título de la iniciativa del proyecto de mitigación de GEI</td><td colspan="4">Doña Juana Landfill Gas to Energy Project (BIOGAS)</td></tr>
<tr><td>Nombre completo y cargo del responsable del proyecto</td><td colspan="4">Fernando Párraga

Vicepresidente de ingeniería y Proyectos</td></tr>
<tr><td>Correo electrónico</td><td colspan="2">fparraga@biogas.com.co</td><td>Celular</td><td>(+57) 3017226574</td></tr>
<tr><td>Dirección, incluyendo el País</td><td colspan="4">Planta de Biogás Doña Juana en Avenida Boyacá Km 5 Vía al llano, relleno sanitario Doña Juana, Bogotá - Colombia.</td></tr>
<tr><td>Datos y cargo de la persona de contacto</td><td colspan="4">Nicolas Piñeros Amaya</td></tr>
<tr><td rowspan="2">Tipo de auditoria</td><td>Validación</td><td>X</td><td>Verificación</td><td>X</td></tr>
<tr><td>Totalmente remota</td><td>NA</td><td>Parcialmente remota</td><td>X</td></tr>
<tr><td colspan="5">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 personas 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.</td></tr>
<tr><td>Criterio de la auditoria</td><td colspan="4">- ISO 14064-2:2019
- Protocolo de Cercarbono para la certificación voluntaria de carbono, versión a revisar
- Herramienta de Cercarbono para la demostración de la adicionalidad de iniciativas de mitigación del cambio climático, versión 2.0.1.
- Lineamientos de Cercarbono para reportar aportes de iniciativas de mitigación del cambio climático a los Objetivos de Desarrollo Sostenible, versión 1.3.
- Metodología M/MRS-DE_ER01 Para proyectos de destrucción y aprovechamiento del biogás de rellenos sanitarios
- Herramientas MDL aplicables de acuerdo a la metodología

La validación del proyecto de mitigación de GEI se realizará con apoyo de medios tecnológicos parcialmente remota.</td></tr>
<tr><td>Objetivos de la auditoria</td><td colspan="4">Para validación:</td></tr>
</table>

	Evaluar la probabilidad de que la implementación del proyecto de GEI planificado produzca las remociones / reducciones de GEI declaradas por el responsable del proyecto, considerando lo siguiente: - La conformidad con los criterios de validación aplicables, incluyendo los principios y requisitos de las normas o programas de GEI pertinentes dentro del alcance de la validación. - El establecimiento, justificación y documentación del proyecto de mitigación de GEI. - La pertinencia de los controles planificados del proyecto de GEI. **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 auditoria	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 crediticio a validar: 22/09/2023 - 21/09/2033 Reducción esperada en el período crediticio a validar: 14.830.236 tCO2e en 10 años del período crediticio Periodo de monitoreo a verificar: 01.07.2023-31.01.2024 Reducción esperada en el período crediticio a verificar: 541.781 tCO2e en 10 años del período crediticio		
Nivel de Aseguramiento	95%	**Materialidad - Importancia Relativa**	+/- 1%

<table>
<tr><td>Plan de Muestreo / Plan de recopilación de evidencia</td><td colspan="3">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:
<table>
<tr><th>Items</th><th>Muestreo</th><th>Nivel de Aseguramiento</th></tr>
<tr><td>Metodologías y herramientas utilizadas para el cálculo de las remociones</td><td>100%</td><td>100%</td></tr>
<tr><td>Fórmulas para el cálculo de las remociones</td><td>100%</td><td>100%</td></tr>
</table></td></tr>
<tr><td>Nombre del auditor líder</td><td>William Rodríguez (WR)</td><td>Correo electrónico</td><td>wrodriguez@icontec.net</td></tr>
<tr><td>Experto técnico/Auditor</td><td>NA</td><td>Experto técnico/Auditor</td><td>NA</td></tr>
<tr><td>Reunión de apertura</td><td>11/04/2024</td><td>Hora</td><td>8:00 h</td></tr>
<tr><td>Reunión de cierre</td><td>12/04/2024</td><td>Hora</td><td>16:30 h</td></tr>
<tr><td>Fecha en la que se diligencio el plan de auditoria</td><td colspan="3">10/04/2024</td></tr>
<tr><td colspan="4">Observaciones: (General Observations)</td></tr>
<tr><td colspan="4">• 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 o remota, 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 con las actividades de Validación/Verificación se encuentra descrito en el documento F-GV- 086 NOTIFICACIÓN DE SERVICIOS DE VALIDACIÓN Y VERIFICACIÓN.</td></tr>
</table>

FECHA	HORA	REQUISITO POR AUDITAR	AUDITOR	NOMBRE y CARGO DEL AUDITADO
11-04-2024	08:00 h a 08:30 h	Reunión de Apertura.	WR	Nicolas Piñeros – Gerente de Operaciones. Juan Nicolas Cruz – Ingeniero de procesos
	08:30 h a 10:30 h	Breve presentación y Descripción del proyecto de mitigación de GEI. Recorrido por las intalaciones del proyecto de mitigación de GEI	WR	Nicolas Piñeros – Gerente de Operaciones. Diana Cristancho – Jefe Campo de gas

				Juan David Ajiaco – Jefe de mantenimiento
	10:30 h a 12:30 h	Aplicabilidad de Procedimiento y Protocolo del Programa. Propiedad, titularidad o derecho de uso de área. Límites del PMCC La representación legal del proyecto de mitigación de GEI. Marco regulatorio aplicable al proyecto de mitigación de GEI Evaluación a la contribución de los ODS. Reconocimiento y consulta a partes interesadas del proyecto de mitigación de GEI. Procedimiento de Comunicaciones con partes interesadas	WR	Nicolas Piñeros – Gerente de Operaciones.
	12:30 h a 14:00 h	Almuerzo		
	14:00 h a 17:00 h	Selección del escenario de línea base Aplicabilidad de la metodología Sistema de información y control de datos Evaluación del cálculo de la reducción de emisiones de GEI (emisiones de línea base, emisiones de proyecto y fugas) para el periodo de acreditación.(Cont.) Incertidumbre asociada a los cálculos Evaluación del plan del monitoreo vs. Metodología aplicada.	WR	Nicolas Piñeros – Gerente de Operaciones. Juan Nicolas Cruz – Ingeniero de procesos
12-04-2024	08:00 h a 11:00 h	Verificación del cumplimiento del plan de monitoreo vs. PDD. Reproducibilidad y chequeo de los valores usados. Gestión de los datos.	WR	Nicolas Piñeros – Gerente de Operaciones. Juan Nicolas Cruz – Ingeniero de procesos Juan David Ajiaco – Jefe de mantenimiento

		Cálculo de las emisiones de línea base, emisiones de proyecto y fugas. Consumo de biogás y Generación/Consumo de energía.		
	11:00 h a 12:30 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 David Quintana – Operador de planta. Alvaro Pérez – Técnico de planta.
	12:30 h a 14:00 h	Almuerzo		
	14:00 h a 16:30 h	Identificación de hallazgos por parte del equipo auditor (Sesión privada) Nota: no se descarta que, a fin de aclarar algunos temas, el personal de Biogás Colombia S.A.S ESP sea requerido.	WR	
	16:30 h a 17:00 h	Reunión de cierre	WR	Nicolas Piñeros – Gerente de Operaciones. Juan Nicolas Cruz – Ingeniero de procesos

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

Between 11/04/2024 and 12/04/2024, 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.

It is important to indicate that during the development of the documentary review it was identified that the monitoring report was covering in the same document the closing of a credit period (01/07/2023 to 21/09/2023) and the beginning of a new credit period (22/09/2023 to 31/01/2024); Therefore, during the in-person audit, this situation was raised with Biogás Colombia SAS ESP, which presented an e-mail from Cercarbono indicating that this situation could take place, which is why the query was raised directly to Cercarbono from ICONTEC about the possibility of carrying out this process, receiving a response via e-mail indicating that "they

should be handled as separate verification events (both in the monitoring report and in the verification report)"; Therefore, a subsequent adjustment of the monitoring report was requested, separating the periods according to Cercarbono's response to ICONTEC.

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 Assessment criteria

The validation and 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:

- Modified PDD, dated on 17/05/2024 for initial version and dated on 20/11/2024 for final version after validation/verification observations /1/.

- Revised data Project activity " ER Sheet-Doña Juana Landfill Gas v3.0-19042024.xlsm" / Ex-ante estimations of emission reductions to be achieved by the project activity during its crediting period, dated on 19/04/2024 /2/
- Monitoring report, version 1 presented by PP during the desk review phase and version 2 final version presented by PP after the clarification request /3/. Annexes and supports of the MR.
- Spreadsheets use for the monitoring report /4/.
- Monthly spreadsheets Doña Juana Landfill Gas to Energy Project /6/.

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 validation and 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 modified PDD; and the qualitative information includes internal management controls, calculation procedures, and socio-environmental impacts of the CCMP.

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 validation and verification is described in the subsequent table:

For the validation:

Parameters	Data coverage
The methodologies and tools and employed for calculating reductions.	100%
The specific formulas utilized in the reduction calculation process.	100%
The parameters used for the calculation and their correspondence with the project and methodologies	100%

For the verification:

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	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

Temperature, Temperature of the flare exhaust gas)	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 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 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 13 of this report.

2.4 CCMP site or area visits

The audit team conducted interviews and inspections at CCMP site (Doña Juana Landfill Gas to Energy Project) at 11/04/2024 and 12/04/2024, 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 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
	JUAN NICOLAS CRUZ	Processes Engineer	
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. Calculation of baseline emissions, project emissions and leaks. Biogas consumption and energy generation/consumption.
	JUAN NICOLAS CRUZ	Processes Engineer	

2.5 Requests required by the VVB

Once the documentary review was done and the onsite inspections and interviews were carried out, the audit team detected five (5) corrective action request (CAR), five (5) clarification request (CR) and one (1) forward action request (FAR), 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 12.1 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 (CL) 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 validation and 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:

a. Compliance with applicable validation criteria, including the principles and requirements of relevant GHG standards or programs within the scope of validation.
b. Verified that the proposed monitoring plan follows the provisions of the applied methodology.
c. Checked for each parameter to be monitored, the flow of information, including the evaluation of data generation, its aggregation, registration, calculation, and reporting.
d. That all the parameters established in the monitoring plan have been monitored and updated (when applicable), including baseline emissions, project emissions, and leakage.
e. 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.
f. 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.

g. That the monitoring results are recorded according to the methodology described in the monitoring plan.
h. 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	• Documental review. • Onsite inspection and interviews. • Issuance of Audit findings. • Drafting of the validation and verification report.
Ana Isabel Aubad	Lead technical reviewer and y technical expert reviewer in the Energy Sector	Technical review of the audit process.
Martha Corredor	Approver	Approval of the validation and verification audit process for: delivery to the person in charge of the CCMP and upload to the EcoRegistry platform.

3 Validation and verification results

3.1 CCMP components

3.1.1 CCMP holder information

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

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

Name of institution (if applicable)	EKI Energy Services Limited
Roles or responsibilities	Project Consultant
Identification	CIN - L74200MP2011PLC025904
Location	Plot No 48, Scheme 78, Part 2, Vijay Nagar, Indore-452010, Madhya Pradesh, India
Telephone number(s)	+91 99994 15645
E-mail address	krishan.kapil@enkingint.org

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 Bolivar, 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 22/09/2023 to 31/01/2024. 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.

As of the date of ICONTEC's on-site visit conducted on 11/04/2024 and 12/04/2024, the project is in operation.

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.

The dates and justification of the chronological plan are consistent and feasible.

3.1.5 Location and limits of the CCMP

Country: Colombia

City: Bogotá DC

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 re-quired 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 /23/ 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 /22/.

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 /22/.

3.1.8 Characteristics and previous conditions to the start of the CCMP

The situation at the Doña Juana Landfill prior the occurred implementation and start of operations of the CCMP is the same as the baseline scenario: The methane-rich LFG that has historically been generated at the Landfill as a result of anaerobic decomposition of municipal solid waste (MSW) disposed in this solid waste disposal site (SWDS), was emitted directly to the atmosphere prior to the start of the CCMP. LFG emitted to the atmosphere was not burned in any existing or non-existing passive LFG combustion drains/vents prior to the project.

3.1.9 Technologies, products, and services of the CCMP

The project to use biogas from the Doña Juana landfill is one of the first projects of this type in Colombia and the first project in the country to generate electricity to connect to the national electrical grid through the use of biogas from the landfill.

In addition to improving the general management of the landfill, the project contributes to the efforts aimed at facilitating the design and improving the operational experience obtained in the Doña Juana landfill, a project that may strengthen its use for its possible massification throughout the region or country.

The generation of renewable energy from landfill gas for the needs of the site and to export energy to the National electrical grid allow the transfer of technology and knowledge on a small scale.

The disposal of waste in Doña Juana has been carried out in various and large areas licensed for this purpose, the various areas of old operation and the recent ones such as: Biosolids, Zone II area 3, Zone VII, Zone VIII, Optimization Zone Phase I and Optimization Zone Phase II, are part of the disposal areas that have technically developed adequate systems and with high engineering development from the previous design to the operation for the disposal of urban solid waste, avoiding the filtration of leachate to soil and groundwater, designs, development and adequate operation to enhance the waste, guaranteeing stability through mechanical compaction of the waste with compaction measurement, construction by terraces with limited heights, construction of filters and wells and finally covering the waste with impermeable clay layers preventing water leaks, gas leaks and improving vector control.

Biogas capture and conduction systems have been and will continue to be implemented based on theoretical developments and projects installed around the world, the wells built by the landfill operator have been and will continue to be intervened for the assembly of well heads and biogas conduction lines with condensate and leachate traps made of High-Density Polyethylene (HDPE).

The suction system is made up of rotating equipment that, using negative pressure, transports the biogas from the wells in the landfill to the biogas destruction and use plant. In the plant it is controlled with precision instrumentation and automatic control systems for the entire process.

The combustion of Biogas for the destruction or use of methane have been and will continue to be carried out in high efficiency equipment. On one hand in enclosed flares with automatic emissions control and regulation of combustion. And on the other hand, in internal combustion engines for power generation, reciprocating equipment from recognized brands in the sector.

The project will have in the start of this crediting period as a CCMP in the CERCARBONO program with the following infrastructure:

- Biogas extraction, capture and conduction system from the landfill, system installed in HDPE and vertical wells, horizontal wells, filters drillings, filters, trenches, etc., with the

necessary quantities to capture the gas from the landfill, according to progress in the operation areas and final disposal.
- Pumping platform with capacity to extract 20,000 Nm3/h of Biogas through high-efficiency blower-type rotary equipment.
- 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 25,000 kW.
- Doña Juana I Biogas power generation plant of 1.7MW using 2 engines reciprocating, plant connected to the local distribution system.

The plant will have expanded use in the following way:

- Biogas Doña Juana I of 1.7MW will be expanded to 5MW, commissioning will take place in the second half of 2024.
- Installation and commissioning of the 9.88 MW Doña Juana II Biogas plant starting in 2025 or sooner if possible – Power Generation plant with the use of biogas through the use of reciprocating engines.
- Installation and commissioning of the 9.88 MW Doña Juana III Biogas plant starting in 2025 or sooner if possible – Power Generation plant with the use of biogas through the use of reciprocating engines.
- Installation and commissioning of the 2.5 MW Doña Juana IV Biogas plant starting in 2026 – Power Generation plant with the use of biogas through the use of reciprocating engines.

The possible implementation of the sale of gas or its thermal use for future expansions will be evaluated, as well as the possibility of carrying out the treatment of leachate inside the Landfill. The technology is not included in this PDD /1/, but the possibility of its implementation is established in a long term.

All equipment has a useful life of more than 25 years as long as the maintenance activities scheduled by the manufacturers are carried out and the equipment operation criteria are met. The useful life period of the main equipment and engines has been re-evaluated by the manufacturer and the supports for said re-evaluation show that their useful life is longer than the 10-year accreditation period. /19//20/.

3.1.10 Assessment of the chronological plan

The CCMP started its operations on 22/09/2009. While the expected lifetime of project is about 32 years, the expected ending date for the CCMP is beyond year 2041. However, project lifetime may eventually even exceed 32 years if required service and maintenance are performed correctly and if the project activity is always operated under conformance with operational recommendations and requirements as set by manufacturers of related equipment/instruments.

Credit period: 10 years from 22/09/2023 to 21/09/2033. The CCMP has had 2 previous 7-year accreditation periods, the first under the CDM scheme and the second that began in CDM and was later transferred to Cercarbono. According to the communication received from Cercarbono on 04/30/2024 /21/, it is authorized for the present credit period to be 10 years, provided

that the remaining useful life of the equipment exceeds that temporary period, which is evidenced in the chapter 2.5 of the updated PDD /1/.

Frequency of monitoring and reporting: The project will have a monthly monitoring frequency. The monitoring records will have a data discrimination for each minute of operation.

Frequency of reporting and verification: periodic reports and verifications for the CCMP are expected to be performed at least biannually.

3.2 Methodological elements

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/.

Condition of applicability of the selected methodology	Verification method
Prior to CCMP implementation, there is no biogas collection system or, if any in operation, it shall be demonstrated such system was not designed for biogas destruction or use, or such system has been optimized or upgraded to enable required capture conditions	It is verified from the review of the CCMP initial validation report, available on the CDM Registry Platform.
CCMP implementation shall not impact the amount of recycled organic waste that would be processed in absence of such CCMP	It is verified that the CCMP has no interference in the production of waste in the city.
The amount of methane produced in the landfill from the mass and characteristics of the solid waste shall not deliberately being increased through the implementation of new operation strategies, as compared with identified baseline conditions	It is verified that the CCMP has no influence in the operation of the landfill or its operation strategies.
Baseline scenario for the CCMP shall enable concluding that in absence of the activity, the biogas: (i) would have been released to the atmosphere, (ii) would have been destroyed to avoid odors or for safety rea sons, (iii) generated electric or thermal energy would have been exclusively produced based on the use of fossil fuels, or (iv) biogas users would have used fossil fuels for the same purpose.	It is verified from the review of the CCMP initial validation report, available on the CDM Registry Platform.
CCMPs shall comply with the requirements of the Measuring/Monitoring, Reporting, and Verification (MRV), or similar, systems in force in the jurisdiction governing its operation, in addition to all relevant requirements and criteria of the Cercarbono's Protocol, the Procedures of Cercarbono's Certification Programme document, and the related and relevant complementary methodological tools used, in their current versions, available at www.cer-carbono.com, section: Documentation.	Compliance with the MRV requirements of Colombia and the applicable Cercarbono requirements is verified, with the documentation presented by the CCMP and the associated supports.

The applicability conditions were thoroughly explained in the PDD.

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)

The selected methodology and methodological tools are appropriate for the PMCC in accordance with the Cercarbono Protocol.

3.2.2 Additionality

Considering the section "4.3.13 Validation of projects requesting renewal of their crediting periods" of the "Procedures of Cercarbono´s Certification Program V2.2" document, applicable to this renewal of the credit period, which indicates that "Additionality shall only be revalidated in case there are legal provisions in place with potential effects on additionality assessment, i.e., by complying with such legal provisions, the project activity would form part of the baseline scenario", no revalidation of CCMP additionality is carried out by PP.

The project's additionality was determined during its first crediting period. Following the procedures for renewal of the crediting period of a registered project activity and the applied methodology, there have been no changes in regulation framework of the Host country, or Change in the project design, or Change in respective tools for assessment of additionality that required reassessing the baseline and project scenarios to demonstrate the additionality of the CCMP.

Furthermore, the project activity consists of the capture, conduction, destruction and use in the generation of electricity of the methane contained in the biogas produced in the Doña Juana landfill. There is no obligation to treat nor use landfill biogas in the country; therefore, in the absence of the project, GHG emissions would be emitted through passive venting into the atmosphere (Resolution 0330 – Ministry of Housing, City and Territory).

Thus, the project activity is fully in accordance with article 37 of MADS Resolution 1447/2018, in which those reductions in GHG emissions or removals that would not have occurred in the absence of the project activity are considered additional, and that generate a net benefit to the atmosphere with respect to its baseline.

Therefore, the CCMP is additional.

3.2.3 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.

3.2.4 Baseline scenario

The chosen baseline scenario associated with the management of biogas in the Doña Juana landfill is the following:

"*Prior to the development of the project, the biogas produced in the landfill, or a greater proportion of it, is being released into the atmosphere directly. Therefore, in the execution of the project, the following alternatives are established: a) Biogas is captured and destroyed in a controlled manner through combustion. b) Biogas is captured and used to generate electricity"*.

The CCMP develops an evaluation of the validity of the baseline in accordance with "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" (EB66, version 03.0.1), which demonstrates the validity of the proposed baseline scenario.

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, and that the baseline scenario does not significantly change from the first and second crediting period to the third.

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

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

3.2.5 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.

Based on the site visit, interviews conducted with staff, and information reviewed in the documentation submitted, ICONTEC confirms the project scenario is still valid.

3.2.6 GHG emission sources

ICONTEC confirms that the sources of GHG emissions have been correctly selected according to the methodology CERCARBONO M/MLF-DE_RE01 (version 2.1) /CC4/ and are correctly described in Section 2.6 of the revised PDD/1/, which are also summarized below:

Source of GHG	Baseline scenario			Project scenario			Leakage		
	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
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.

3.2.7 Deviations in the implementation of the CCMP from the Project Description Document

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

3.2.8 Methodological deviations

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

3.2.9 Crediting period

The crediting period of the CCMP is the third accreditation period between 22/09/2023 to 22/09/2033.

The CCMP has had two previous 7-year accreditation periods, the first in CDM and the second that began in CDM and migrated to Cercarbono before it ended. Cercarbono approved the request for a third accreditation period of 10 years in communication dated 04/30/2024 /21/.

3.2.10 Quantification of GHG emissions in the baseline scenario

According to the applied methodology CERCARBONO M/MLF-DE_RE01 (version 2.1) /CC4/ the principal equation for the baseline emissions are:

$$\boldsymbol{BLEt = LBBLEt + PGBLEt + TEBLEt + NPBLEt + BTBLEt}$$

Where:

$\boldsymbol{BLEt}$	Baseline GHG emissions during period t of baseline scenario.
$\boldsymbol{LBBLEt}$	GHG emissions from landfill-produced biogas in the baseline scenario in period t, expected to be captured for its destruction or use.
$\boldsymbol{PGBLEt}$	GHG emissions from fossil fuel-based electric power generation in the baseline scenario in period t, expected to be displaced by the project.
$\boldsymbol{TEBLEt}$	GHG emissions from fossil fuel-based thermal energy generation in the baseline scenario in period t, expected to be displaced by the project.
$\boldsymbol{NPBLEt}$	GHG emissions from natural gas consumption in the baseline scenario in period t, expected to be displaced due to the use of biogas through injection into natural gas pipelines by the project.
$\boldsymbol{BTBLEt}$	GHG emissions from fossil fuel consumption in the baseline scenario in period t, expected to be displaced due to the use of biogas through injection into dedicated biogas pipelines or through bio-gas distribution using tank trucks by the project.

In the project scenario, Variable TEBLEt, NPBLEt and BTBLEtare set to ZERO because before the project and during the project in the Doña Juana landfill due to:

- There is no thermal energy generation with fossil fuels,
- There is no consumption of natural gas, and
- There is no fossil fuel consumption in the use of biogas through injection into dedicated biogas pipelines or through biogas distribution using tank trucks by the project.

Hence, for the project the equation will be as follows:

$$\boldsymbol{BLEt = LBBLEt + PGBLE}$$

The generation of biogas in the landfill is calculated with the following equation:

$$\boldsymbol{LBBLEt} = ((\boldsymbol{MLGPt} \times (\mathbf{1} - \boldsymbol{OXt})) - \boldsymbol{MFUBLt}) \times \boldsymbol{GWP_{CH4}}$$

Wherein:

$\boldsymbol{LBBLEt}$	GHG emissions from landfill-produced biogas in the baseline scenario in period t, expected to be captured for its destruction or use.;
$\boldsymbol{MLGPt}$	Methane in landfill-produced biogas in project scenario, flared or used by the CCMP in period t;
$\boldsymbol{OXt}$	Oxidated methane fraction in period t;
$\boldsymbol{MFUBLt}$	Applicable value in case methane destruction was already carried out before the development of the project, otherwise MBDCLBt= 0;
$\boldsymbol{GWP_{CH4}}$	Methane Global Warming Potential.

GHG emissions from fossil fuel-based electric power generation in the baseline scenario ($\boldsymbol{PGBLEt}$)

$$\mathbf{PGBLEt} = \Sigma\mathbf{ECBLj,t} \times \mathbf{EFIGt} \times (\mathbf{1} + \mathbf{TDTLj,t})$$

Wherein,

$\mathbf{PGBLEt}$	GHG emissions from fossil fuel-based electric power generation in the baseline scenario in period t, expected to be displaced by the project.
$\mathbf{ECBLj,t}$	Electricity that would be consumed by user j in the baseline scenario in period t, expected to be displaced by the project.
$\boldsymbol{EFIGt}$	CO2 emission factor of interconnected grid for period t.
$\mathbf{TDTLj,t}$	Average technical losses for electricity transmission and distribution to grid user j in period t.

The audit team can confirm that all assumptions and data used for estimating GHG baseline emissions were appropriately described in the crediting spreadsheet “ER Sheet-Doña Juana Landfill Gas v3.0-19042024” /2/ and the PDD /1/, and those formulas, parameters and values are complete, accurate and can be traceable clearly and transparently. Total baseline emissions for the current crediting period, verified by the audit team, were correctly calculated as:

Year	Baseline emissions (tCO_2e)
2023	1,211,417
2024	1,249,638
2025	1,326,135
2026	1,360,620
2027	1,388,409
2028	1,415,305
2029	1,442,473
2030	1,467,625
2031	1,491,964
2032	1,515,520
2033**	1,538,442
Total	**15,407,548**

In the ex-post scenario Methane in landfill-produced biogas, it is calculated by means of following equation:

$$\boldsymbol{MLGPt = MDFPt + MPGPt + MTEPt + MGNPt + MIDPt}$$

Wherein,

$\boldsymbol{MLGPt}$ Methane in landfill-produced biogas in project scenario, flared or used by the CCMP in period t.

$\boldsymbol{MDFPt}$ Methane in biogas destroyed by flaring in the project in period

$\boldsymbol{MPGPt}$ Methane in biogas used for electric power generation in period

$\boldsymbol{MTEPt}$ Methane in biogas used for thermal energy generation in period

$\boldsymbol{MGNPt}$ Methane in biogas used for injection in natural gas systems in the project in period

$\boldsymbol{MIDPt}$ Methane in biogas injected in biofuel-dedicated systems or distributed by means of tank trucks in period

In the project scenario, Variable ($\boldsymbol{MTEPt}$, $\boldsymbol{MGNPt}$ and $\boldsymbol{MIDPt}$) 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:

$$\boldsymbol{MLGPt = MDFPt + MPGPt}$$

In the project scenario,

- $\boldsymbol{MDFPt}$ shall be measured by project managers in volumetric terms
- $\boldsymbol{MPGPt}$ 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 22/09/2023 to 31/01/2024 are summarized in spreadsheet "9. BDJ - RESUMEN DE CALCULOS RM7 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_2e)
22/09/2023 0:00	31/12/2023 23:59	249,475
01/01/2024 0:00	31/01/2024 23:59	77,265
Total		**326,740**

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 22/09/2023 to 31/01/2024. The audit team can confirm that all assumptions and data used for estimating GHG baseline emissions were appropriately described in the monitoring report file "B. Monitoring-Report-Doña Juana Landfill Gas (22.09.2023 to 31.01.2024) v2.0" /3/ and the PDD /1/, and those formulas, parameters and values are complete, accurate and can be traceable clearly and transparently.

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

Project scenario GHG emissions (PEt) principal equation is:

$$\mathbf{PE}\boldsymbol{t} = \mathbf{LMDPE}\boldsymbol{t} + \mathbf{FFCPE}\boldsymbol{t} + \mathbf{ECAPE}\boldsymbol{t} + \mathbf{MLPPE}\boldsymbol{t} + \mathbf{MLTPE}\boldsymbol{t}$$

Wherein,

$\mathbf{PE}\boldsymbol{t}$ Project scenario GHG emissions during period t.

LMDPE*t* GHG emissions from methane contained in landfill biogas destruction in period t of project scenario.

FFCPE*t* 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.

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

MLPPE*t* GHG emissions from methane losses in pipeline distribution networks and systems in period t of project scenario.

MLTPE*t* GHG emissions from methane transport and losses in tank-truck distribution systems in period t of project scenario.

In the project case,

$$\mathbf{PE}t = \mathbf{LMDPE}t + \mathbf{ECAPE}t$$

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

$$\mathbf{LMDPEt} = \Sigma\ (\mathbf{MBFPm,t} \times (\mathbf{1} - \boldsymbol{\eta}\mathbf{MDPj,t}) \times \mathbf{GWPCH4}\ )$$

Wherein,

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

MBFPm,t Methane in biogas flared during minute m in period t in project scenario.

ηMDPj,t Flare methane destruction efficiency in minute m in period t in project scenario.

GWPCH4 Methane Global Warming Potential.

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

$$\mathbf{ECAPEt} = \mathbf{IECPt\ x\ EFGSPt\ x\ (1 + TDTPt)}$$

Wherein,

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

IECPt Imported electricity consumption in period t of project scenario.

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

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

The audit team can confirm that all assumptions and data used for estimating GHG project emissions were appropriately described in the crediting spreadsheet "ER Sheet-Doña Juana Landfill Gas v3.0-19042024" /2/ and the PDD /1/, and those formulas, parameters and values are complete, accurate and can be traceable clearly and transparently. Total project emissions for the current crediting period, verified by the audit team, were correctly calculated as:

Year	Project emissions (tCO_2e)
2023	13,627
2024	14,135
2025	3,334
2026	3,550
2027	3,597
2028	3,641
2029	3,687
2030	3,729
2031	3,769
2032	3,808
2033	3,847
Total	**60,724**

Appropriate criteria and procedures are in place to quantify GHG emissions of GHG emissions for the GHG emission sources selected in the project scenario, ex-ante for validation and ex-post for verification.

Data for recorded/calculated monthly results covering the current monitoring period from 22/09/2023 to 31/01/2024 are summarized in spreadsheet "9. BDJ - RESUMEN DE CALCULOS

RM7 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_2e)
22/09/2023 0:00	31/12/2023 23:59	1
01/01/2024 0:00	31/01/2024 23:59	1
Total		**2**

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 22/09/2023 to 31/01/2024. The audit team can confirm that all assumptions and data used for estimating GHG baseline emissions were appropriately described in the monitoring report file "B. Monitoring-Report-Doña Juana Landfill Gas (22.09.2023 to 31.01.2024) v2.0" /3/ and the PDD /1/, and those formulas, parameters and values are complete, accurate and can be traceable clearly and transparently.

3.2.12 Leakage

According to the applied methodology CERCARBONO M/MLF-DE_RE01 (version 1.1) /CC4/, leakage emissions are not considered for the determination of emission reductions to be achieved by the project activity.

3.2.13 Net GHG emission reductions

According to the applied methodology CERCARBONO M/MLF-DE_RE01 (version 1.1) /CC4/, GHG emissions reduction from the CCMP is obtained by subtracting project scenario GHG emissions from baseline scenario GHG emissions, according to following equation:

$$\boldsymbol{ERt = BLEt - PEt}$$

Appropriate criteria and procedures are in place to quantify GHG reductions of GHG emissions for the GHG emission sources selected in the project scenario, ex-ante for validation and ex-post for verification.

The audit team can confirm that all assumptions and data used for estimating GHG project emissions were appropriately described in the crediting spreadsheet "ER Sheet-Doña Juana Landfill Gas v3.0-19042024" /2/ and the PDD /1/, and those formulas, parameters and values

are complete, accurate and can be traceable clearly and transparently. Total project emissions for the current crediting period, verified by the audit team, were correctly calculated as:

Years	Baseline emissions (tCO_2e)	Project emissions (tCO_2e)	Leakage (tCO_2e)	GHG Emissions Reductions (tCO_2e)
2023	1,211,417	13,627	0	1,197,791
2024	1,249,638	14,135	0	1,235,503
2025	1,326,135	3,334	0	1,322,801
2026	1,360,620	3,550	0	1,357,070
2027	1,388,409	3,597	0	1,384,812
2028	1,415,305	3,641	0	1,411,663
2029	1,442,473	3,687	0	1,438,786
2030	1,467,625	3,729	0	1,463,896
2031	1,491,964	3,769	0	1,488,195
2032	1,515,520	3,808	0	1,511,712
2033	1,538,442	3,847	0	1,534,595
Total	**15,407,548**	**60,724**	**0**	**15,346,824**

Data for recorded/calculated monthly results covering the current monitoring period from 01/07/2023 to 21/09/2023 are summarized in spreadsheet “9. BDJ - RESUMEN DE CALCU-LOS RM7 V2” /4/, worksheet “Calculations”, and other related calculations per every monthly period can be found in the supporting files /6/.

Years (From 22/09/2023 to 31/01/2024)	Baseline emissions (tCO_2e)	Project emissions (tCO_2e)	Leakage (tCO_2e)	GHG Emissions Reductions (tCO_2e)	CARBONCER
2023	249,475	1	0	249,474	249,474
2024	77,265	1	0	77,264	77,264
Total	**326,740**	**2**	**0**	**326,738**	**326,738**

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 re-port file /3/ and the revised PDD /1/, and that formulas, parameters and values used in its determination are complete, accurate and can be traceable clearly and transparently.

3.2.14 Re-evaluation of the baseline scenario

Not Applicable, it is not necessary to re-evaluation of the baseline scenario.

3.2.15 Natural disturbances and other catastrophic events

ICONTEC verified during onsite visit and reviewing the project documentation, that 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 revised PDD /1/.

3.2.16 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 04/30/2024, on the possibility of annexing a chapter in the PDD /1/ in the RM /3/ and in the validation and verification report, this paragraph is added to this report.

The PDD /1/ has included a safeguards analysis in Section 13, Annex 1 of the document, which after 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.

Likewise, the RM /3/ has included the analysis of safeguards in Section 13, Annex 1 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 regula-tory frameworks /R1/ under which it is governed, encompassing local, regional, and na-tional regulations, including environmental requirements and laws. It aligns with the "No Net Harm principle" as described in the PDD (Project Design Document) /1/. 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 /24/, 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 Doña Juana'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: " Biogás Colombia Report SDGs Contributions.xlsx" /11/,
- Cercarbono Attached Evidence Form for the SDG Tool: "05.04.24_SDG_Evidence_51.pdf" /12/ and,
- SDG Report evidence: “Evidence.zip” /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

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

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.	GWPCH_4	27	$tCO_2e/tCH4$	Global Warming Potential of CH_4	IPCC Fifth Assessment Report AR6	Calculation of baseline emissions
3.	ηCS	50	%	Biogas capture system efficiency	M/MLF-DE_RE01 (versión 2.1)	Calculation of baseline emissions
4.	$MFUBL$t	0	tCH4	Methane in landfill produced biogas, flared or used in base line 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

No.	Data/ Parameter	Value	Unit	Description	Source of data	Purpose of data
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) SWDS classification and methane correction factors (MCF).	Calculation of baseline emissions
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	Diferent 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 – Bogota´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 – Bogota´s Comprehensive Solid Waste Management Plan PGIRS	Calculation of baseline emissions

No.	Data/ Parameter	Value	Unit	Description	Source of data	Purpose of data
11.	MMYo	CH4 = 16.04 CO = 28.01 CO2 = 44.01 O2 = 32.00 H2 = 2.02 N2 = 28.02	kg/kmol	Molecular mass of the component	MDL TOOL06 – version 03.0	Calculation of baseline emissions
12.	A.Mj	CH4 = 12.00 O2 = 16.00 H2 = 1.01 N2 = 14.01	kg/mol	Atomic mass of the element	MDL TOOL06 – version 03.0	Calculation of baseline emissions
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.m3/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 O2	MDL TOOL06 – version 03.0	Calculation of baseline emissions
17.	M.V.n	22,414	m^3/kmol	Volume of one mole of whichwant ideal gas under normal conditions	MDL TOOL06 – version 03.0	Calculation of baseline emissions
18.	ρCH4,n	0.716	kg/m^3	Density of methane gas interference conditions	MDL TOOL06 – version 03.0	Calculation of baseline emissions
19.	NAi,j	Molecular formula	---	Number of atoms of the elementment 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 whichwant 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	IECPt- Imported electricity consumption in period t of project scenario. kWh	Recorded and aggregated values per period can be found in file "9. BDJ - RESUMEN DE CALCULOS RM7 V2" /4/ SEP II: 53.00 kWh	**Electricity meter** Manufacturer: CARLO GAVAZZI Model: WM3-96 Serial Number: BJ1240052001P

No	Parameter/Unit	Value	Source / equipment
		OCT: 391.00 kWh NOV: 264.00 kWh DEC: 335.00 kWh Total: 1,043.00 kWh	Measured as part of the operation of the project activity by applying appropriate electricity meter
2	ECBLj,t – Electricity that would be consumed by user j in the baseline scenario in period t, expected to be displaced by the project. kWh	Recorded and aggregated values per period can be found in file "9. BDJ - RESUMEN DE CALCULOS RM7 V2" /4/ SEP I: 204,169.20 kWh OCT: 694,490.18 kWh NOV: 533,054.14 kWh DEC: 494,298.82 kWh Total: 1'926,012 kWh	**Principal electricity meter to the red** Manufacturer: ITRON Model: SL7000 Serial Number: 73048827 **Secundary 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	ηMDPm,t - Flare methane destruction efficiency in minute m in period t in project scenario.	I n 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 "4. BDJ 2023 09 22 V1", "5. BDJ 2023 10 V1", "6. BDJ 2023 11 V1", "7. BDJ 2023 12 V1" and "8. BDJ 2024 01 V1" /6/	**Thermocouple BG1:** Manufacturer: Omega Model: XL-N-MO-250 Serial Number: 20220602 **Thermocouple BG2:**

No	Parameter/Unit	Value	Source / equipment
			Manufacturer: Omega Model: XL-N-MO-250 Serial Number: 20220604 **Thermocouple BG2:** Manufacturer: Omega Model: XL-N-MO-250 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 "4. BDJ 2023 09 22 V1", "5. BDJ 2023 10 V1", "6. BDJ 2023 11 V1", "7. BDJ 2023 12 V1" and "8. BDJ 2024 01 V1" /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 (m^3 dry gas/m) for each flare Nm^3 /h	Recorded and aggregated values per monthly period (MM) can be found in files "4. BDJ 2023 09 22 V1", "5. BDJ 2023 10 V1", "6. BDJ 2023 11 V1", "7. BDJ 2023 12 V1" and "8. BDJ 2024 01 V1" /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:**

No	Parameter/Unit	Value	Source / equipment
			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** 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 “4. BDJ 2023 09 22 V1”, “5. BDJ 2023 10 V1”, “6. BDJ 2023 11 V1”, “7. BDJ 2023 12 V1” and “8. BDJ 2024 01 V1” /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

No	Parameter/Unit	Value	Source / equipment
			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 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 “4. BDJ 2023 09 22 V1”, “5. BDJ 2023 10 V1”, “6. BDJ 2023 11 V1”, “7. BDJ 2023 12 V1” and “8. BDJ 2024 01 V1” /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 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

No	Parameter/Unit	Value	Source / equipment
			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
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 320 – 08/05/2022
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 320 – 08/05/2022
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 Nm^3/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 “4. BDJ 2023 09 22 V1”, “5. BDJ 2023 10 V1”, “6. BDJ 2023 11 V1”, “7. BDJ 2023 12 V1” and “8. BDJ 2024 01 V1” /6/	**Pressure sensors:** Absolute Pressure - Main Collector Manufacturer: Endress + Hauser Model: Cerabar M PMC41-NE22H1P11A1 Serial Number: AB02E501020

No	Parameter/Unit	Value	Source / equipment
		Measurement data is recorded and reported with an every-minute frequency.	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 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
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 "4. BDJ 2023 09 22 V1", "5. BDJ 2023 10 V1", "6. BDJ 2023 11 V1", "7. BDJ 2023 12 V1" and "8. BDJ 2024 01 V1" /6/	Records of Maintenance logs in charge of LFG plant operational team

No	Parameter/Unit	Value	Source / equipment
		Description of preventive and corrective maintenance activities for the LFG plant can be found in Biogás Colombia SAS 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 elec-tricity 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	ME-2012-27762	29/12/2020
	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	Annual	CAL 1: DST-0093-23	2/05/2023
	Serial Number: 20220604	Annual	CAL 1: DST-0095-23	2/05/2023
	Serial Number: 20220606	Annual	CAL 1: DST-0094-23	2/05/2023
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 14: DELFQ-102 CAL 15: DSFQ-027-23	11/11/2022 09/11/2023
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 14: ILM22 - CC67276 - 0 CAL 15: ILM23 - CC72263 - 0	10/11/2022 09/11/2023
	Serial Number: C603040109D	Annual	CAL 14: ILM22 - CC67277 - 0 CAL 15: ILM23 - CC72267 - 0	10/11/2022 10/11/2023
	Serial Number: AB08FD0109D	Annual	CAL 14: ILM22 - CC67284 - 0 CAL 15: ILM23 - CC72258 - 0	11/11/2022 08/11/2023
	Serial Number: C603030109D	Annual	CAL 14: ILM22 - CC67291 - 0 CAL 15: ILM23 - CC72257 - 0	11/11/2022 09/11/2023
	Serial Number: D605060109D	Annual	CAL13: ILM22 - CC67296 - 0 CAL14: ILM23 - CC72245 - 0	11/11/2022 08/11/2023
	Serial Number: D605070109D	Annual	CAL 13: ILM22 - CC67297 - 0 CAL 14: ILM23 - CC72232 - 0	11/11/2022 08/11/2023
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	Serial Number: D2058B0109D	Annual	CAL 14: ILM22 - CC67302 - 0 CAL 15: ILM23 - CC72219 - 0	12/11/2022 07/11/2023
	Serial Number: D2058C0109D	Annual	CAL 3: ILM22 - CC67300 - 0 CAL 4: ILM23 - CC72230 - 0	12/11/2022 08/11/2023

TF, T.E.G., T.H.G.– Temperature of the biogas at a point close to each flow-meter	Serial Number: AB00DA042B6	Annual	CAL 14: T22-3864 CAL 15: LT-7613-23	10/11/2022 08/11/2023
	Serial Number: AB00DF042B6	Annual	CAL 14: T22-3859 CAL 15: LT-7614-23	10/11/2022 08/11/2023
	Serial Number: AB00DC042B6	Annual	CAL 14:T22-3860 CAL 15: LT-7615-23	10/11/2022 09/11/2023
	Serial Number: D7004D042B6	Annual	CAL 14: T22-3861 CAL 15: LT-7611-23	10/11/2022 07/11/2023
	Serial Number: D20115142FE	Annual	CAL 13: T22-3862 CAL 14: LT-7612-23	10/11/2022 07/11/2023
	Serial Number: D202A114152	Annual	CAL 3: T22-3863 CAL 4: LT-7616-23	10/11/2022 09/11/2023
QF, PE.G., PH.G.– Biogas pressure in a point close to each flow meter	Serial Number: AB02E501020	Annual	CAL 2: ILM22 - CC67294 - 0 CAL 3: ILM23 - CC72277 - 0	11/11/2022 10/11/2023
	Serial Numbers: CA00EA01020 (11/11/2022) AB02E601020 (10/11/2023)	Annual	CAL 2: ILM22 - CC67278 - 0 CAL 1: ILM23 - CC72268 - 0	10/11/2022 10/11/2023
	Serial Number: AB02E301020	Annual	CAL2: ILM22 - CC67290 - 0 CAL 3: ILM23 - CC72262 - 0	11/11/2022 09/11/2023
	Serial Number: J400EA15128	Annual	CAL 9: ILM22 - CC67295 - 0 CAL 10: ILM23 - CC72246 - 0	11/11/2022 08/11/2023
	Serial Number: D2002401128	Annual	CAL 13: ILM22 - CC67301 - 0 CAL 14: ILM23 - CC72220 - 0	12/11/2022 07/11/2023
	Serial Number: D2002501128	Annual	CAL 3: ILM22 - CC67299 - 0 CAL 4: ILM23 - CC72221 - 0	11/11/2022 07/11/2023

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 Validation and verification conclusion

12.1 Resolution of findings

It is important to indicate that during the development of the documentary review it was identified that the monitoring report was covering in the same document the closing of a credit period (01/07/2023 to 21/09/2023) and the beginning of a new credit period (22/09/2023 to 31/01/2024); Therefore, during the in-person audit, this situation was raised with Biogás Colombia SAS ESP, which presented an e-mail from Cercarbono indicating that this situation could take place, which is why the query was raised directly to Cercarbono from ICONTEC about the possibility of carrying out this process, receiving a response via e-mail indicating that "they should be handled as separate verification events (both in the monitoring report and in the verification report)"; Therefore, a subsequent adjustment of the monitoring report was requested, separating the periods according to Cercarbono's response to ICONTEC. However, the results of the entire audit process and its related findings are presented below.

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

The audit team detected 5 requests for corrective action (CAR), 5 clarification request (CL) and 1 future action request (FAR) 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 V2.1. Numeral 4.3.11	**Fecha:** 08-03-2024
Descripción de la CAR				
No se está empleando en la documentación del PMCC la versión más reciente (v. 4.4) del Protocolo de Cercarbono para la certificación voluntaria de carbono.				
Respuesta del desarrollador del proyecto				**Fecha:** 14-05-2024
Se realiza revisión documental y se actualiza la documentación a la versión del Protocolo de Cercarbono para la certificación voluntaria de carbono v 4.4.				
Documentación presentada por el desarrollador del proyecto				
DOÑA JUANA LANDFILL GAS TO ENERGY PROJECT PDD V4.2.pdf A. Monitoring-Report-Doña Juana Landfill Gas (01.07.2023 to 21.09.2023) v2.0 B. Monitoring-Report-Doña Juana Landfill Gas (22.09.2023 to 31.01.2024) v2.0				

Evaluación del equipo auditor	**Fecha:** 14-06-2024
El equipo auditor revisó el uso de los formatos actualizados por parte del dueño del proyecto, encontrando que se han actualizado todos los formatos asociados. Conclusión del equipo auditor: Cerrado.	

CAR No.	2	**Requisito No.**	Protocolo de Cercarbono para la certificación voluntaria de carbono. Versión 4.4. Numeral 7.7	**Fecha:** 08-03-2024
Descripción de la CAR				
No se realiza evaluación de la vida útil remanente de los equipos asociadas al PMCC				
Respuesta del desarrollador del proyecto				**Fecha:** 14-05-2024
Se complementa la sección *2.5 Project scenario* del PDD, realizando la evaluación de la vida útil remanente de los equipos para la destrucción y uso del biogás.				
Documentación presentada por el desarrollador del proyecto				
DOÑA JUANA LANDFILL GAS TO ENERGY PROJECT PDD V4.2.pdf				
Evaluación del equipo auditor				**Fecha:** 14-06-2024
Se revisa la evaluación de vida útil remanente de los equipos asociados al PMCC de acuerdo a los lineamientos de la “TOOL10: Tool to determine the remaining lifetime of equipment, Version 01.0”, proporcionando información de soporte sobre las condiciones de operación de los equipos, fechas de puesta en servicio, datos de soporte de proveedores/fichas técnicas de los equipos, y demás soportes requeridos para sustentar las afirmaciones realizadas. Conclusión del equipo auditor: Cerrado.				

CAR No.	3	**Requisito No.**	Protocolo de Cercarbono para la certificación voluntaria de carbono. Versión 4.4. Numeral 7.1	**Fecha:** 08-03-2024
Descripción de la CAR				
No se incluye información cartográfica de acuerdo a los requisitos de la “Guía para la presentación y análisis de cartografía” de Cercarbono V. 1.0				
Respuesta del desarrollador del proyecto				**Fecha:** 14-05-2024

Se complementa la sección 1.4.2.1 Limites espaciales del PDD. Se carga la cartografia del proyecto con el área demarcada en formato *shapefile* en la plataforma de EcoRegistry de acuerdo a la Guía para la presentación y análisis de cartografía" de Cercarbono V. 1.0 y el Protocolo de Cercarbono para la certificación voluntaria de carbono. Versión 4.4.
Documentación presentada por el desarrollador del proyecto
DOÑA JUANA LANDFILL GAS TO ENERGY PROJECT PDD V4.2.pdf DJ LANDFILL GAS TO ENERGY PROJECT Mapping.zip
Evaluación del equipo auditor **Fecha:** 14-06-2024
Se corrobora el cargue de información cartográfica acorde a los lineamientos de la "Guía para la presentación y análisis de cartografía" de Cercarbono V. 1.0" Conclusión del equipo auditor: Cerrado.

CAR No.	4	**Requisito No.**	Metodología M/MRS-DE_ER V 2.1. Numeral 7.3.3	**Fecha:** 08-03-2024
Descripción de la CAR				
El factor de pérdidas de la red eléctrica de las instalaciones PTD_t no está considerando el enfoque más conservador posible para el cálculo de emisiones de línea base del proyecto.				
Respuesta del desarrollador del proyecto				**Fecha:** 14-05-2024
Se actualiza la tabla de los parametros *TDTL* y *TDTP* de la sección *8.2 Monitoring of GHG emissions in the baseline scenario* del PDD. Se toma el ultimo valor calculado por Enel Colombia – Operador de Red para el sistema de distribución del circuito de donde se consume y se entrega la energía, publicado en el último informe de resultados para el año 2023. Se actualiza la hoja de cálculo *ER Sheet-Doña Juana Landfill Gas v3.0-19042024* y se ajusta el valor correspondiente a las emisiones y reducciones referentes al consumo y desplazamiento de energía en el escenario de línea base. Se actualiza la sección *5 Quantification of net GHG emissions and net GHG emission reductions* del reporte de monitoreo. Se actualiza la hoja de cálculo 9. BDJ - RESUMEN DE CALCULOS RM7 V1 y se ajusta los valores correspondientes de las emisiones y reducciones referentes al consumo y desplazamiento de energía en el escenario del proyecto.				
Documentación presentada por el desarrollador del proyecto				
DOÑA JUANA LANDFILL GAS TO ENERGY PROJECT PDD V4.2.pdf A. Monitoring-Report-Doña Juana Landfill Gas (01.07.2023 to 21.09.2023) v2.0 B. Monitoring-Report-Doña Juana Landfill Gas (22.09.2023 to 31.01.2024) v2.0				
Evaluación del equipo auditor				**Fecha:** 14-06-2024

Se verifica la actualización de los valores del factor de pérdidas de la red eléctrica de las instalaciones, corroborando que se emplea el enfoque más conservador posible para el cálculo de emisiones de línea base del proyecto. Conclusión del equipo auditor: Cerrado.

CAR No.	5	**Requisito No.**	Protocolo de Cercarbono para la certificación voluntaria de carbono. Versión 4.4. Numeral 7.10	**Fecha:** 08-03-2024
Descripción de la CR				
La organización no ha realizado un análisis de salvaguardas en la documentación del proyecto (Considerar información de comunicación de Cercarbono en correo electrónico del 30/04/2024 para la respuesta a este hallazgo)				
Respuesta del desarrollador del proyecto				**Fecha:** 14-05-2024
Las últimas versiones de las plantillas de el PDD v3.0 y para el reporte de monitoreo V3.0, disponibles a la fecha en Cercarbono no incluyen una sección específica para incluir el análisis de salvaguardas. Sin embargo, teniendo en cuenta las observaciones del OVV durante la auditoria y la comunicación de Cercarbono del 30/04/2024, en la nueva versión de los documentos se adicionan una nueva sección tanto al PDD *(10. Annexure (Safeguarding Principles and Procedures)*, como al reporte de monitoreo para el análisis y monitoreo de salvaguardas.				
Documentación presentada por el desarrollador del proyecto				
DOÑA JUANA LANDFILL GAS TO ENERGY PROJECT PDD V4.2.pdf A. Monitoring-Report-Doña Juana Landfill Gas (01.07.2023 to 21.09.2023) v2.0 B. Monitoring-Report-Doña Juana Landfill Gas (22.09.2023 to 31.01.2024) v2.0				
Evaluación del equipo auditor				**Fecha:** 14-06-2024
Se verifica la inclusión del análisis de salvaguardas en la documentación, considerando los lineamientos asociados a las mismas en la documentación del Programa Cercarbono. Conclusión del equipo auditor: Cerrado.				

CL No.	1	**Requisito No.**	Protocolo de Cercarbono para la certificación voluntaria de carbono. Versión 4.4. Numeral 7.8	**Fecha:** 08-03-2024
Descripción de la CR				

No es clara la validez del periodo de acreditación de 10 años solicitado en la renovación del periodo crediticio ante Cercarbono. La organización está reclamando un periodo de acreditación de 10 años, luego de venir de dos periodos de acreditación de 7 años cada uno.
Respuesta del desarrollador del proyecto **Fecha:** 14-05-2024
De acuerdo con la respuesta de la solicitud de aclaración (por correo electonico) realilzada por el OVV (Verifit) a Cercarbono del 23 de abril de 2021 y según el informe de validación 21-011 para el cambio voluntario de metodología y traslado de PMCC desde el MDL, el segundo periodo crediticio se tomaría desde 22.09.2016 hasta 21.09.2023. Para el tercer periodo de acreditación, según lo establecido en el Protocolo de Cercarbono para la certificación voluntaria de carbono se solicita el periodo 10 años, esto es hasta el 22.09.2033 teniendo en cuenta que no se supera la vida útil del PMCC.
Documentación presentada por el desarrollador del proyecto
21-011_Informe de Validación y Verificación_Dona Juana_final.pdf
Evaluación del equipo auditor **Fecha:** 14-06-2024
Se corrobora en la correo de respuesta de Cercarbono del 30/04/2024 que el periodo de acreditación para la renovación del periodo crediticio puede ser de 10 años. Conclusión del equipo auditor: Cerrado.

CL No.	2	**Requisito No.**	Protocolo de Cercarbono para la certificación voluntaria de carbono. Versión 4.4. Numeral 7.8	**Fecha:** 08-03-2024
Descripción de la CR				
No se evidencia en el nuevo PDD del PMCC cómo se ha venido manejado y se manejará la participación y consulta con las partes interesadas, especialmente considerando que la consulta original de las partes interesadas se realizó inicialmente para el proyecto en el marco del primer periodo de acreditación y que se debe mantener un canal de comunicación directo a través de la página Web de la organización				
Respuesta del desarrollador del proyecto				**Fecha:** 14-05-2024

Se actualiza a una nueva versión del PDD (v4.2), en la sección *4.2 Satakeholder consultation*, se enlistan los documentos soporte de la no presencia de comunidades indígenas y no requerimiento de licencia ambiental, y se detalla el proceso de consultas a las partes interesadas realizado en el año 2008 en el momento del registro del proyecto en el MDL. Teniendo en cuenta que no se ha presentadop ningún cambio en las áreas, instalaciones, actividad ni modificaciones legales o regulatorios que afecten lo acordado entre el PMCC y las partes interesadas, no se requiere llevar a cabo una nueva consulta a partes interesadas. Se adjunta el procedimiento interno PR-SIG-003- PQR y Acciones correctivas, donde se explica el manejo de las comunicaciones que puedan llegar a ser recibidas por los canales que se tienen dispuestos por la organización en la página web y el correo electrónico autorizado para las mismas. Se actualiza el reporte de monitoreo a la versión v2.0. Se complementa la sección 6.
Documentación presentada por el desarrollador del proyecto
DOÑA JUANA LANDFILL GAS TO ENERGY PROJECT PDD V4.2.pdf PR-SIG-003 PQR y Acciones Correctivas.pdf

Evaluación del equipo auditor	**Fecha:** 14-06-2024
Se verifica la inclusión de la información que clarifica la realización de los procesos de consulta con las partes interesadas y que aclara el proceso de comunicación permanente con las partes interesadas. Conclusión del equipo auditor: Cerrado.	

CL No.	3	**Requisito No.**	Protocolo de Cercarbono para la certificación voluntaria de carbono. Versión 4.4. Numeral 7	**Fecha:** 08-03-2024
Descripción de la CR				
No son claros en el PDD y en el RM la información de (según aplique): - Capacidad instalada de generación eléctrica del proyecto - Listado de equipos asociados a cada variable monitoreada, incluyendo la identificación del equipo, su serial, el número del certificado de calibración y la fecha de calibración. - Periodicidad de calibración e información de QC/QA para todas las variables monitoreadas en el proyecto que no cuentan con esta información				
Respuesta del desarrollador del proyecto				**Fecha:** 14-05-2024
Se actualiza el PDD a la versión v4.2 . Se corrige la capacidad instalada y sus fechas de entrada en operación en la sección 1.7. Se actualiza las secciones 8.2 y 8.3 completando lo referente a la periodicidad de calibración y los procedimientos de QC/QA para todas las variables del proyecto. Se actualiza el reporte de monitoreo a la versión v2.0. Se corrige la capacidad instalada y sus fechas de entrada en operación en la sección 1.4. Se complementa la sección *11 Data and parameters* incluyendo la identificación del equipo, su serial, el número del certificado de calibración y la fecha de calibración.				

Documentación presentada por el desarrollador del proyecto	
DOÑA JUANA LANDFILL GAS TO ENERGY PROJECT PDD V4.2.pdf A. Monitoring-Report-Doña Juana Landfill Gas (01.07.2023 to 21.09.2023) v2.0 B. Monitoring-Report-Doña Juana Landfill Gas (22.09.2023 to 31.01.2024) v2.0	
Evaluación del equipo auditor	**Fecha:** 14-06-2024
Se verifican todos los ajustes referidos por el desarrollador del proyecto en la documentación asociada, encontrando que la información incluida se encuentra acorde a lo requerido. Conclusión del equipo auditor: Cerrado.	

CL No.	4	**Requisito No.**	Herramienta de Cercarbono para reportar aportes de iniciativas de mitigación del cambio climático a los Objetivos de Desarrollo Sostenible. Versión 1.3.	**Fecha:** 08-03-2024
Descripción de la CR				
No está completa la información en la Herramienta de Cercarbono para reportar aportes de iniciativas de mitigación del cambio climático a los Objetivos de Desarrollo Sostenible, considerando que: - No se calcula el % de uso de energía renovable de acuerdo al indicador requerido para el ODS 7.2.3 - No se cálcula el % de personas del área de influencia de acuerdo al indicador requerido para el ODS 8.5.2 - No se incluye el valor del indicador de reducción de emisiones para el PM en la herramienta, para cumplir lo requerido en el ODS 13.2.1				
Respuesta del desarrollador del proyecto				**Fecha:** 14-05-2024
Se actualiza el reporte de monitoreo a la versión v2.0. Se ajusta la sección 8 y el anexo *Biogás Colombia Report SDGs Contributions.xlsx*, agregando el porcentaje de cálculo para el ODS 8.5.2 y sus soportes respectivos. Se agrega el número total de reducción de emisiones logrado para el periodo de monitoreo en el ODS 13.2.1 de acuerdo al RM y al soporte *9. BDJ - RESUMEN DE CALCULOS RM7 V2.xlsx*				
Documentación presentada por el desarrollador del proyecto				
A. Monitoring-Report-Doña Juana Landfill Gas (01.07.2023 to 21.09.2023) v2.0 B. Monitoring-Report-Doña Juana Landfill Gas (22.09.2023 to 31.01.2024) v2.0 *Biogás Colombia Report SDGs Contributions.xlsx* *9. BDJ - RESUMEN DE CALCULOS RM7 V2.xlsx*				
Evaluación del equipo auditor				**Fecha:** 14-06-2024

Se verifica la inclusión de la información requerida para el reporte de los aportes de la iniciativa de mitigación del cambio climático a los Objetivos de Desarrollo Sostenible de acuerdo a los lineamientos de la Herramienta de Cercarbono, encontrando que la información está acorde a los requisitos.

Conclusión del equipo auditor:
Cerrado.

CL No.	5	**Requisito No.**	Protocolo de Cercarbono para la certificación voluntaria de carbono. Versión 4.4.	**Fecha:** 08-03-2024

Descripción de la CR

La organización está desarrollando un solo reporte de monitoreo para un periodo de tiempo que abarca espacios de tiempo en dos periodos de acreditación (Considerar información de comunicación de Cercarbono en correo electrónico del 30/04/2024 para la respuesta a este hallazgo)

Respuesta del desarrollador del proyecto **Fecha:** 14-05-2024

Inicialmente se había manejado un único reporte de monitoreo teniendo en cuenta la respuesta aprobatoria de Cercarbono del 01/03/2024 a la posibilidad de manejar un único reporte de monitoreo que cubra periodos de acreditación diferente.

Sin embargo, teniendo en cuenta las observaciones del OVV durante la auditoria y la comunicación de Cercarbono del 30/04/2024, y con el objetivo de evitar confusión en el proceso de verificación debido a que se manejan versiones de metodologías diferentes, se realiza un reporte de monitoreo para cada periodo.

Documentación presentada por el desarrollador del proyecto

A. Monitoring-Report-Doña Juana Landfill Gas (01.07.2023 to 21.09.2023) v2.0
B. Monitoring-Report-Doña Juana Landfill Gas (22.09.2023 to 31.01.2024) v2.0

Evaluación del equipo auditor **Fecha:** 14-06-2024

Se verifica el desarrollo de reportes de monitoreo diferentes para los periodos asociados a cada periodo de acreditación, en los que se atiende a los requisitos del Estandar del Programa, procedimientos de Cercarbono, metodología, PDD y demás documentación pertinente en cada caso.

Conclusión del equipo auditor:
Cerrado.

FAR No.	1	**Requisito No.**	Metodología M/MRS-DE_ER V 2.1. Numeral 14.2	**Fecha:** 08-03-2024

Descripción de la FAR

El factor de emisión del consumo de energía eléctrica $FERP_t$ se debe actualizar anualmente en los cálculos en la medida en la que se vayan publicando renovaciones del mismo por parte de la UPME.

Respuesta del desarrollador del proyecto **Fecha:** 14-05-2024

Se actualiza el PDD a la versión v4.2, se ajusta la sección 8.2 utilizando los últimos valores publicados por la UPME (calculados por xm). Se actualiza el reporte de monitoreo a la versión v2.0, se ajusta la sección 5 utilizando los últimos valores publicados por la UPME (calculados por xm).
Documentación presentada por el desarrollador del proyecto
DOÑA JUANA LANDFILL GAS TO ENERGY PROJECT PDD V4.2.pdf C. Monitoring-Report-Doña Juana Landfill Gas (01.07.2023 to 21.09.2023) v2.0 D. Monitoring-Report-Doña Juana Landfill Gas (22.09.2023 to 31.01.2024) v2.0
Evaluación del equipo auditor **Fecha:** 14-06-2024
Aunque el requerimiento había sido establecido como una FAR, considerando que los valores empelados eran más conservadores que los actualizados, se verifica el ajuste y la inclusión de los factores actualizados en la documentación actual, encontrando que los valores resultantes son más exactos y pertinentes. Conclusión del equipo auditor: Cerrado.

12.2 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.

12.3 Validation and verification opinion

BIOGÁS COLOMBIA SAS ESP hired ICONTEC to validate (3 credit period) and 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 validation/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 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 validation/verification has reached a reasonable level of assurance: 95%;
- 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.

Validation period: From 22/09/2023 to 21/09/2033 (both days included)

Years	Baseline emissions (tCO_2e)	Project emissions (tCO_2e)	Leakage (tCO_2e)	GHG Emissions Reductions (tCO_2e)	CARBONCER
2023	1,211,417	13,627	0	1,197,791	1,197,791
2024	1,249,638	14,135	0	1,235,503	1,235,503
2025	1,326,135	3,334	0	1,322,801	1,322,801
2026	1,360,620	3,550	0	1,357,070	1,357,070
2027	1,388,409	3,597	0	1,384,812	1,384,812
2028	1,415,305	3,641	0	1,411,663	1,411,663
2029	1,442,473	3,687	0	1,438,786	1,438,786
2030	1,467,625	3,729	0	1,463,896	1,463,896
2031	1,491,964	3,769	0	1,488,195	1,488,195
2032	1,515,520	3,808	0	1,511,712	1,511,712
2033	1,538,442	3,847	0	1,534,595	1,534,595
Total	**15,407,548**	**60,724**	**0**	**15,346,824**	**15,346,824**

Verification period: From 22/09/2023 to 31/01/2024 (both days included)

Year	Baseline emissions (tCO_2e)	Project emissions (tCO_2e)	Leakage (tCO_2e)	GHG Emissions Reductions (tCO_2e)	CARBONCER
2023	249,475	1	0	249,474	249,474
2024	77,265	1	0	77,264	77,264
Total	**326,740**	**2**	**0**	**326,738**	**326,738**

12.4 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.

13 References

- Modified PDD, dated on 17/05/2024 for initial version (File: “DOÑA JUANA LANDFILL GAS TO ENERGY PROJECT PDD V4.2.pdf”) and 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/
- Revised data Project activity " ER Sheet-Doña Juana Landfill Gas v3.0-19042024.xlsm" / Ex-ante estimations of emission reductions to be achieved by the project activity during its crediting period, dated on 19/04/2024 /2/
- Monitoring report, version 1 presented by PP during the desk review phase (Date: 01/04/2024. File: “BGC - RM7 (01.07.2023 to 31.01.2024) v1.0”) and version 2 final version presented by PP after the clarification request (Date: 21/11/2024. File: “B. Monitoring-Report-Doña Juana Landfill Gas (22.09.2023 to 31.01.2024) v2.0.pdf”) /3/
- Spreadsheets use for the calculation of the ER version 1 (file: “BGC - RM7 Data and parameter v1.xlsm”) and final version presented by PP after the clarification request (file: “9. BDJ - RESUMEN DE CALCULOS RM7 V2.xlsm”) /4/
- Monthly SQL Raw Data (Spreadsheet with monthly SQL Raw Data covering the current monitoring period, files: “BDJ - SQL Raw Data - 2023 09”, “BDJ - SQL Raw Data - 2023 10”, “BDJ - SQL Raw Data - 2023 11”, “BDJ - SQL Raw Data - 2023 12” and “BDJ - SQL Raw Data - 2024 01”) /5/
- Monthly spreadsheets (Spreadsheet with monthly data for recorded/calculated and calculation results covering the current monitoring period, files: “4. BDJ 2023 09 22 V1”, “5. BDJ 2023 10 V1”, “6. BDJ 2023 11 V1”, “7. BDJ 2023 12 V1” and “8. BDJ 2024 01 V1”) /6/
- Monthly energy generation (Spreadsheet with monthly energy generation results covering the current monitoring period, files: “DJUANA0931”, “DJUANA1031”, “DJUANA1131”, “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 2022.zip”
  - “Calibration 2023.zip”
- Machinery or equipment life sheets /10/
  - “Antorchas.zip”
  - “Motor GE1.zip”
  - “Motor GE2.zip”
- Cercarbono's Tool to Report Contributions from Climate Change Mitigation Initiatives to the Sustainable Development Goals: " Biogás Colombia Report SDGs Contributions.xlsx" /11/
- Cercarbono Attached Evidence Form for the SDG Tool: "05.04.24_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/
- Real time photos and videos of the monitoring equipments and LFG infrastructure in the landfill /17/
- Real time photos and videos of the monitoring equipments and LFG infrastructure in the landfill /18/
- Useful life warranty letters from CATERPILLAR, manufacturer of the MWM TCG2020V20 engines with series 1788648, 1788650, 1805376, 1805377, 1805378, 1805380, 1805383, 1805386 and 1805415 /19/
- Report current equipment status for the Moto Generador TCG 2016 C and Moto Generador TBG 620 V16 K and their associated resumes. /20/
- CERCARBONO´s Approval email for renewal of the credit period for 10 years for the CCMP. Email of 04/30/2024 /21/
- Contract concession for the extraction, treatment and use of biogas produced in the Doña Juana landfill /22/
- Administrative act is-sued as resolution 235 of 2007 /23/
- Biogas de Colombia - Procedure for corrective, preventive and improving actions - PQRS Code: PR-SIG-003 /24/

- 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

14 Document history (Verification Report)

Version	Date	Comments or editions
1.0	14.07.2024	Initial version.
2.0	26.12.2024	Adjustments were made according to the outcomes of the technical review for final approval.
3.0	03.04.2024	Final version after technical review.

15 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.