
 <p style="text-align: center;"><b>Verification and certification report form for CDM project activities (Version 04.0)</b></p>			
Complete this form in accordance with the instructions attached at the end of this form.			
<b>BASIC INFORMATION</b>			
<b>Title and UNFCCC reference number of the project activity</b>	CTR Rosario Landfill Gas Project UNFCCC Ref. Number 8242		
<b>Scale of the project activity</b>	<input checked="" type="checkbox"/> Large-scale <input type="checkbox"/> Small-scale		
<b>Version number of the verification and certification report</b>	1.1		
<b>Completion date of the verification and certification report</b>	30/11/2021		
<b>Monitoring period number and duration of this monitoring period</b>	2 <sup>nd</sup> monitoring period 01/09/2019 to 02/03/2020 (including both days)		
<b>Version number of the monitoring report to which this report applies</b>	5		
<b>Crediting period of the project activity corresponding to this monitoring period</b>	Renewable – 7 years Form 01/01/2014 to 31/12/2020		
<b>Project participants</b>	Vital Engenharia Ambiental S.A.		
<b>Host Party</b>	Brazil		
<b>Applied methodologies and standardized baselines</b>	ACM0001: Flaring or use of landfill gas, version 19.0		
<b>Mandatory sectoral scopes</b>	Sectoral Scope: 13 - Waste handling and disposal		
<b>Conditional sectoral scopes, if applicable</b>	Sectoral Scope: 1 - Energy industries (renewable - / non-renewable sources)		
<b>Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD</b>	49,146 tCO <sub>2e</sub>		
<b>Certified amount of GHG emission reductions or GHG removals for this monitoring period</b>	Amount before 1 January 2013	Amount from 1 January 2013 until 31 December 2020	Amount from 1 January 2021
	0	13,290 tCO <sub>2e</sub>	0
<b>Name and UNFCCC reference number of the DOE</b>	Name: KBS Certification Services Pvt. Ltd. UNFCCC reference number: E-0051		
<b>Name, position and signature of the approver of the verification and certification report</b>	 Kaushal Goyal Managing Director		

	KBS Certification Services Pvt. Ltd.
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## SECTION A. Executive summary

KBS Certification Services Pvt. Ltd. has been commissioned by Vital Engenharia Ambiental S.A. to perform an independent verification of its registered CDM project, "CTR Rosario Landfill Gas Project", UNFCCC ref. no. 8242 for the reported GHG emission reductions for the given monitoring period 01/09/2019 to 02/03/2020 (both dates included). The CDM must undergo independent third-party verification and certification of emission reductions as the basis for issuance of Certified Emission Reductions (CERs).

The CDM projects must undergo independent third-party verification and certification of emission reductions as the basis for issuance of Certified Emission Reductions (CERs).

The objectives of this verification exercise are, by review of objective, to establish that:

- The project activity has been implemented and operated in accordance with the registered PDD or any approved revised PDD;
- The actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan;
- The GHG emission reduction data and calculation have been assessed to correctly support the emission reductions being claimed and that the reported GHG emission reduction data is free from material misstatement;
- To verify that reported GHG emission data is sufficient supported by evidence.

### **Scope:**

The scope of the verification is the independent and objective review and ex post determination of the monitored reductions in GHG emission by the project activity. The verification is based on review of monitoring report, supporting information and

- (a) The registered PDD, including the monitoring plan and the corresponding validation opinion(s);
- (b) Previous verification reports, deviation requests, Post registration changes;
- (c) Monitoring report for the monitoring period under verification including CER calculations sheets and all supporting documents;
- (d) The applied monitoring methodology;
- (e) The applied standardized baseline (if applicable);
- (f) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;
- (g) All information and references relevant to the project activity's resulting in emission reductions
- (h) The project is assessed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

KBS has, based on the recommendations in the latest version of CDM Validation and Verification Standard for project activity, employed a rule-based approach in the verification, focusing on the identification of significant reporting risks and the reliability of project monitoring.

### **Description of project:**

The "CTR Rosario Landfill Gas Project" was implemented with the objective to capture, flare and generate electricity with the landfill gas generated at the Central de Tratamento de Resíduos Rosario (hereinafter referred to as CTR Rosario) landfill, at Rosario Municipality (in the state of Maranhão), in order to avoid emissions of methane to the atmosphere produced by the anaerobic decomposition of the dumped waste from Rosario Municipality and to avoid emissions of CO<sub>2</sub> by the electricity supplied to the local grid.

The project consists of LFG capture and flaring, reducing uncontrolled release to atmosphere and generation of electricity from LFG. Part of the electricity will be used for self-consumption and the other part will be exported to the grid.

The flare system was commissioned on 23/07/2019 and the group generators were commissioned on 26/08/2019 (group generator 1) and 17/01/2020 (group generator 2). The group generators 1 and 2 started commercial operation on 26/08/2019 and 31/03/2020, respectively. During the period between the start of the 1st Crediting Period until open flare commissioning date, the plant has not operational, once the Project Participant could not find the sufficient commercial conditions to implement the plant.

### **Methodology:**

KBS follows a rule-based verification approach, wherein, as a first step, the contract review is undertaken as per latest version of CDM Accreditation Standard. Subsequently, after the contract is signed, the monitoring report of the project activity is made publicly available at UNFCCC website as per CDM procedures. A desk review of the project documentation is undertaken, which is followed by a remote site visit by the members of verification team in accordance with the latest version of CDM AS. The verification protocol is filled by the verification team that is based on standard auditing practices and version 03.0 of CDM VVS for project activity, to capture the assessment of applicable CDM requirements viz., version 03.0 of CDM Project

**CDM-VCR-FORM**

Standard for project activity, registered PDD, applied methodology, applied standardized baseline and/or tools and recent decisions. The verification protocol provides transparent means to record the observations and compliances by the verification team members and the nonconformities, if any. The verification protocol is an internal document, and is available on request. Following are the major milestones for the verification under consideration.

Publication of MR	19/03/2021
Remote site verification	15/04/2021
Draft Verification Report	22/04/2021
Final Verification Report	30/11/2021

KBS Certification Services Pvt. Ltd. Confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements.

Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 13,290 tCO<sub>2</sub>e (round down) emission reductions during period 01/09/2019 to 02/03/2020 (Including both the days).

**SECTION B. Verification team, technical reviewer and approver****B.1. Verification team member**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader/Technical Expert (TA 13.1)	EI	Leiroz	Andrea	Central Office	✓	Remote audit	✓	✓

**B.2. Technical reviewer and approver of the verification and certification report**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Sharma	Anjana	Central Office
2.	Manager Technical & Certification	IR	Chaudhari	Tushar	Central Office
3.	Authorizer	IR	Goyal	Kaushal	Central Office

**SECTION C. Application of materiality****C.1. Consideration of materiality in planning the verification**

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	
1.	Error in the transfer of data to CERs spreadsheet.	High	Data is automatically measured and errors can be perceived during the information transfer to the CERs spreadsheet. Errors	Check all the input for monitored parameters. Check raw data to confirm the correct data transference.

			in the data transference have direct impact in the CERs calculation.	
2.	Calculation of parameters.	Low	Human errors can be perceived during entering formulas and data in the CERs spreadsheet.	Check all input for monitored parameters. Cross checked raw data. All formula were checked against to the methodology and respective methodology tools.

## C.2. Consideration of materiality in conducting the verification

The prescribed thresholds for materiality, as per §308 of “CDM validation and verification standard for programmes of activities” Version 03.0 /07/.

Prescribed range of Ers/annum	500,000+	300,000+ to 500,000	300,000	SSC PAs	MSC PAs
Prescribed Threshold	0.5%	1.0%	2.0%	5.0%	10.0%

The identified/selected materiality threshold for the project activity under current monitoring period is 2.0% as project activity is large scale project activity less than 300,00 ERs/annum.

	MR Version (Draft) /1.1/	MR Version (Final) /1.2/
Emission reductions/monitoring period	13,721 tCO <sub>2</sub>	13,290 tCO <sub>2</sub>
Identified Threshold	2.0%	2.0%

The emission reductions for this monitoring period have been decreased due to raised CAR 05 and CAR 13 which have been successfully closed. Refer Appendix 4 of this report for more details.

Verification team has checked the 100% values of reported data. The complete dataset for the project activity was checked and it can be confirmed that the values are consistent with their sources. The assessment team confirms that the reported emission reductions are free from material errors, omissions or misstatements.

## SECTION D. Means of verification

### D.1. Desk/document review

A desk review is undertaken, involving but not limited to,

- A review of the data and information presented to verify their completeness;
- A review of the registered PDD;
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

The list of documents reviewed is included in the section ‘Appendix 3’ of this report.

### D.2. On-site inspection

Duration of on-site inspection: DD/MM/YYYY to DD/MM/YYYY				
No.	Activity performed on-site	Site location	Date	Team member
1.				

As result of the COVID-19 pandemic, taking into account the rules of relevant national and local authorities (local to the DOE offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the DOE and other relevant travel restrictions and guidance (for example, a requirement to self-isolate upon return from specific countries), a DOE may postpone site visits for onsite inspections required by the “Validation and Verification Standard for project activities” version 03.0 /10/.

For this project, PP has made commitment/timeline as per the Environmental Credits Purchase and Sales Agreement Proposal /37/. Hence, the DOE has skipped the on-site visit /38/. However, as per the CDM EB, the DOE may use other standard auditing techniques for validation or verification as referred to in sections 9.1.3 of the VVS-PA /10/.

Verification team has used the following alternative means for its assessment and to justify that they are sufficient for the purpose of verification. Along with desk review, audit team has conducted remote audit interview as follows:

- A complete desk review of the registered PDD /6/, submitted MR (initial and final versions) /1/ /2/, as well as applicable country legal requirement and supportive evidences have been checked by the Verification Team.
- Verification team has performed a remote site inspection via videoconference (Skype) with PP in order to check implementation, project boundary, current situation, evaluation of data management, QA/QC system, monitoring and metering equipment, monitoring procedures, calibration etc. Interview questions were filled as per Verification team interview checklist and also videos were captured.
- Cross-checks between information provided by interviews, under the scope of all information and references provided in MR and supporting documents.
- Cross-checked evaluation, for information received from interviews, under the scope of all information and references provided in MR and supporting documents.

Details of interviewees, topics covered and additional information presented in the below section “C.3 – Interviews”.

Verification team has also checked the site visit requirements mentioned in the VVS for PA version 03.0 /10/. The justification for not conducting the on-site visit as per VVS PA version 03.0 /10/ have been mentioned below:

VVS PA version 03.0 requirements	Verification team justification
<p>Para 338 (b)</p> <p>(b) On-site inspection taking into account paragraphs 339–341 below, involving:</p> <p>(i) An assessment of the implementation and operation of the registered CDM project activity as per the registered PDD or any approved revised PDD;</p> <p>(ii) A review of information flows for generating, aggregating and reporting the monitoring parameters;</p> <p>(iii) Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the registered monitoring plan;</p> <p>(iv) Cross checks between information provided in the monitoring report and data from other sources such as plant logbooks, inventories, purchase records or similar data sources;</p> <p>(v) A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PDD, the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents;</p> <p>(vi) A review of calculations and assumptions made in determining the GHG data and GHG emission reductions or net anthropogenic GHG removals;</p> <p>(vii) An identification of quality control and quality assurance procedures in place to</p>	<p>Verification team has done the follow-up actions by:</p> <ol style="list-style-type: none"> <li>1. Teleconference with PP. Skype was used with video camera function. A video was recorded in the plant so that the verification team was able to check that the project is installed as described in the PDD.</li> <li>2. The supervisory system was checked.</li> <li>3. Cross checks between information provided by interviewed personnel (i.e. by checking sources or other interviews) to ensure that no relevant information has been omitted.</li> <li>4. PP presented during the videoconference all documents related to the verification of the MR.</li> <li>5. The calculations and assumptions made in determining the CERs were reviewed and discussed with PP by videoconference.</li> </ol>

prevent, or identify and correct, any errors or omissions in the reported monitoring parameters.	
<p>Para 339</p> <p>It is mandatory for the DOE to conduct an on-site inspection at verification for the registered CDM project activity if:</p> <p>(a) It is the first verification for the DOE with regard to this project activity;</p> <p>(b) More than three years have elapsed since the last on-site inspection conducted for verification for the project activity; or</p> <p>(c) The project activity has achieved more than 300,000 tCO<sub>2</sub>eq of GHG emission reductions or net anthropogenic GHG removals since the last verification when an on-site inspection was conducted.</p>	<p>It is the first verification for KBS with regard to this project activity, however, the presential site visit was not conducted due to the COVID-19 pandemic. The site visit cannot be postponed since a delay on performing the mandatory on-site visit for the project activity 8242 will impact on a delay in CERs delivery to its Environmental Credits Purchase and Sales Agreement Proposal, for which deadline is 01/2022, infringing clauses about delivery and consequently imputing a risk of on-deal situation /37/.</p>

### D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Martins	Jefferson	Director - Titara	15/04/2021	Project implementation, management, operation and monitoring.	Andrea Leiroz
2.	Ribeiro	Caio	Operational manager - Titara			
3.	Carvalho	Andrea	Environment al Analyst - Titara			
4.	Garcia	João	Unit Director – Equipment - ENC		Project monitoring.	
5.	Louzeiro	Jadson	Operator - ENC Energy		Project operation.	
6.	Frizzo	Amanda	New Projects Analyst - ENC Energy		Project implementation, management, operation and monitoring. CERs calculation and data analysis.	
7.	Veiga	Ana Paula	Consultor - BENG			
8.	Sprovieri	João	Consultor - BENG			

### D.4. Sampling approach

No sampling approach is used during verification.

### D.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	-	02	-
Compliance of the project implementation and operation with the registered PDD	01	01	-
Post-registration changes	-	01	-
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	-	-	-

Compliance of monitoring activities with the registered monitoring plan	02	07	-
Compliance with the calibration frequency requirements for measuring instruments	-	01	-
Assessment of data and calculation of emission reductions or net removals	01	01	-
Assessment of reported sustainable development co-benefits	-	-	-
Global stakeholder consultation	-	-	-
Others (please specify)	-	-	-
<b>Total</b>	<b>04</b>	<b>13</b>	<b>-</b>

## SECTION E. Verification findings

### E.1. Compliance of the monitoring report with the monitoring report form

<b>Means of verification</b>	Verification team checked the monitoring report with latest version of MR available in the UNFCCC website (i.e., version 9.0) and “Instructions for filling out the monitoring report form” mentioned as attachment to Monitoring report form (version 9.0) /13/.
<b>Findings</b>	CAR 01 and CAR 02 were raised and successfully closed. Refer to Appendix 4 for further details.
<b>Conclusion</b>	In accordance with §352 of CDM validation and verification standard for project activities, version 03.0 /10/, verification team confirms that final monitoring report is completed using the latest valid version of the applicable monitoring report form /13/.

### E.2. Remaining forward action requests from validation and/or previous verifications

Verification team had checked the validation report of the project activity /7/ and found that no FAR has been raised during validation.

### E.3. Compliance of the project implementation and operation with the registered project design document

<b>Means of verification</b>	<p>The “CTR Rosario Landfill Gas Project” consists in the capture, flare and generate electricity with the landfill gas generated at the Central de Tratamento de Resíduos Rosario (hereinafter referred to as CTR Rosario) landfill, at Rosario Municipality (in the state of Maranhão), in order to avoid emissions of methane to the atmosphere produced by the anaerobic decomposition of the dumped waste from Rosario Municipality and to avoid emissions of CO<sub>2</sub> by the electricity supplied to the local grid.</p> <p>The main equipment installed are;</p> <ul style="list-style-type: none"> <li>• Open flare manufactured by ENC Energy – model EM500 – serial number 180023;</li> <li>• Two blowers manufactured by Continental Industries – model 051A.06 – serial numbers 18510005 and 18510006;</li> <li>• Two flow meters manufactured by Endress+Hauser – model Prosonic Flow 200– serial numbers N4066002000 (LFG flow inlet to group generators), N4120602000 (LFG flow inlet direct to flare);</li> <li>• One gas analyser manufactured by MRU – model SWG100BIO-Ex – serial number 080902;</li> <li>• One thermo-resistance manufactured by Endress+Hauser – model TR-10 – serial number R1043823180;</li> <li>• One pressure meter manufactured by Endress+Hauser – model Cerabar PMP21 – serial number N405A80116A;</li> <li>• Two group generators manufactured by GE Jenbacher – models JGC 320 GS-L.L and JGS 320 GS-L.L – serial numbers 1362594 and 1362606.</li> </ul> <p>The flare system was commissioned on 23/07/2019 /45/ and the group generators were commissioned on 26/08/2019 (group generator 1) and 17/01/2020 (group generator 2) /44/. The group generators 1 and 2 started commercial operation on 26/08/2019 and 31/03/2020, respectively /46/.</p>
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	KBS verified the environmental licenses /39/ /43/ applicable to the CTR Rosario to operate the plant in accordance with the Environmental agency requirements. Verified during the remote audit that technology, project equipment and monitoring and metering equipment is implemented and operational in accordance with the registered PDD /6/. The project location described in the PDD was confirmed in the official Environmental License /39/ and cross checked during the remote audit through Google Maps.
<b>Findings</b>	CAR 03 and CL 01 were raised and successfully closed. Refer to Appendix 4 for further details.
<b>Conclusion</b>	The verification team confirms that: a) The project activity is implemented as per the registered PDD /6/, the project activity was fully operational on 31/03/2020. b) The actual operation of the proposed CDM project activity is in line to the registered PDD /6/; c) A temporary deviation from the project activity was requested in the current monitoring period. d) The actual emission reductions are lower than the expected emission reductions for the current monitoring period. It has reviewed the registered PDD, including the monitoring plan and the corresponding validation report, the applied monitoring methodology, relevant decisions from the CMP and the CDM EB and found that the revised MR for this monitoring period is in line with all the above mentioned documents.

#### E.4. Post-registration changes

##### E.4.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents<sup>1</sup>

For the entire monitoring period from 01/09/2019 to 02/03/2020, the supervisory system was not operational due to supervisory system software errors causing the lack of registration of the main data and project participant was not able to demonstrate the monitored data.

Failure of supervisory system software and corrective actions taken by PP have been verified from the following evidences:

- No data was register for the year 2019.
- Data downloaded from the supervisory system for the year 2020. It was observed the lack of registration of the main data;
- Data downloaded from the supervisory system for the year 2021. It was observed that the problem in the software system was solved.

Due to failure of supervisory system software, data for following parameters could not be recorded for the current monitoring period:

- $Op_{j,h}$  - Operation of the equipment that consumes the LFG;
- $V_{t,db}$  - Volumetric flow of the gaseous stream in time interval t on a dry basis;
- $V_{t,wb}$  - Volumetric flow of the gaseous stream in time interval t on a wet basis;
- $V_{i,t,db}$  - Volumetric fraction of greenhouse gas i in a time interval t on a dry basis;
- $V_{i,t,wb}$  - Volumetric fraction of greenhouse gas i in a time interval t on a wet basis;
- $T_t$  - Temperature of the gaseous stream in time interval t;
- $P_t$  - Pressure of the gaseous stream in time interval t;
- Status of biogas destruction device - Operational status of biogas destruction devices;
- $Flame_m$  - Flame detection of flare in the minute m.

However, as confirmed during the remote audit, the landfill gas suction and electricity generation systems operated normally during this period. The same is clearly demonstrated by the exported electricity meter

<sup>1</sup> Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

data, which has registered all the electricity exported to the grid and also, as confirmed by Electricity company through the electricity invoices issued.

Now, since the operation of the LFG suction and collection system has been verified by KBS validation team, we accepted the fact that supervisory system software system failed to record data during monitoring period.

Considering the above situation, which was beyond PPs control, KBS verification team assessed the temporary deviation proposed by PP for above stated monitoring parameters for the entire monitoring period. As per this temporary deviation request, emission reductions will be claimed according to a conservative estimative based on the electricity exported using landfill gas. PP has proposed to use net export to grid (after excluding electricity for self-consumption) instead of gross electricity generated by power plant. This is conservative in KBS verification team's opinion.

The methane fed to the engines will be calculated as follows:

$$F_{CH_4,EL} = \frac{EC_{BL} \times (Conversion\ rate\ MWh\ to\ TJ)}{(NCV_{CH_4}) \times El_{eff}}$$

Where:

$F_{CH_4,EL,y}$  – Amount of methane in the LFG which is used for electricity generation (tCH<sub>4</sub>);  
 $EC_{BL}$  – Net amount of electricity generated using LFG and exported to the grid during the monitoring period applying deviation (MWh);  
 Conversion rate MWh to TJ – Unit conversion rate from MWh to TJ (0.0036 TJ/MWh);  
 $NCV_{CH_4}$  – Net calorific value of methane at reference conditions (0.0504 TJ/tCH<sub>4</sub>) according to ex-ante PDD;  
 $El_{eff}$  – Efficiency of engine, assuming a 100% plant load factor as a conservative approach (39.10%).

Then, the emission reductions will be normally calculated according to the methodologies and tools defined in the registered PDD and the section E of the MR.

During the remote audit, KBS verified in the deviation spreadsheet /5/ that the calculation is correctly applied and considered conservative.

- First of all, PP calculated the amount of methane in the LFG for electricity generation ( $F_{CH_4,EL,y}$ ) (t CH<sub>4</sub>) using the above formula; and
- Then, methane volume in the LFG for electricity generation (NM<sup>3</sup>).

After that, the baseline and project emissions were calculated.

KBS verification team assessment is based on the following evidences that were verified:

- The net amount of electricity generated using LFG and exported to the grid (3,723 MWh) during the monitoring period applying deviation was measured by electricity meters and data was verified against the electricity invoices /36/.
- The value applied for the net calorific value of methane (0.0504 TJ/tCH<sub>4</sub>) at reference conditions is as per registered PDD /6/.
- The value of 39.10% of efficiency of engine was used, assuming a 100% plant load factor as a conservative approach. This value of the efficiency of the engine was according to group generator data sheet (information provided in the monthly CERs spreadsheet /4/), in order to lower the calculated methane volume in the LFG for electricity generation. Moreover, the verification team compared this value with efficiency percentages of the engine, as per its technical description. At 75% of load factor, the efficiency goes to 37.7% and at 50% load factor, the efficiency is 35.0%. Thus, it can be concluded that the applied value is conservative. Refer to the deviation spreadsheet /5/.

In addition to above, KBS also confirmed that there are two LFG flow lines installed in the plant: one line to the group generators and the other line to the flare. However, it was verified that during the current monitoring period, all the methane was combusted to generate electricity and no flaring is applied. In addition, KBS verified in the CERs spreadsheets that the calculation is correctly applied and considered conservative.

Thus, it is possible to confirm that the method proposed for the calculation of the methane volume into power plant is conservative since there is no increase of the emission reductions for the period when compared to the values estimated in the PDD.

	Yearly average based on annual estimation of registered PDD	Monitoring period (01/09/2019 to 02/03/2020)
Net amount of electricity generated using LFG and exported to the grid	9,315 MWh	3,723 MWh
Emission reductions	49,146 tCO <sub>2</sub> e	13,290 tCO <sub>2</sub> e

KBS verified that PP has correctly followed the procedure described in the paragraph 231 of CDM Project Standard for Project Activities. The temporary deviation is described in the MR version 5 of 22/11/2021.

CAR 04 was raised and successfully closed. Refer to Appendix 4 for further details.

#### **E.4.2. Corrections**

Not applicable.

#### **E.4.3. Changes to the start date of the crediting period**

Not applicable.

#### **E.4.4. Inclusion of a monitoring plan**

Not applicable.

#### **E.4.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents**

Not applicable.

#### **E.4.6. Changes to the project design**

The registered PDD version 8 dated 29/04/2020 /6/, includes the permanent changes prior approved by the Board on 29/06/2020 (PRC 8242-001) /8/.

Changes to project design that have been approved on 29/06/2020, post-registration changes reference number PRC-8242-001 /8/:

1. By voluntary update of the applied methodology version, ACM0001 version 19.0.
2. Change in the electricity generation plant installed capacity estimation from 5.7 MW to 3 MW.
3. Change in the electricity generation plant installed capacity currently installed from 4.3 MW to 2 MW.
4. Change in the flare design from enclosed flare to open flare.
5. Change in the value of technical transmission and distribution losses from 16% to 20%, as being the default value from the methodological tool "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" (Version 03.0) /18/.

No changes to the project design have been submitted to the UNFCCC during the current monitoring period.

#### **E.4.7. Changes specific to afforestation and reforestation project activities**

Not applicable.

#### **E.5. Compliance of the registered monitoring plan with applied methodologies, applied standardized baselines, and other applied methodological regulatory documents**

<b>Means of verification</b>	The project applies the approved methodology ACM0001 - Flaring or use of landfill gas, version 19.0 /14/.
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	<p>The registered PDD /4/ also refers to the following tools:</p> <ul style="list-style-type: none"> <li>• TOOL02 Methodological tool: “Combined tool to identify the baseline scenario and demonstrate additionality” (version 0.7.0) /15/;</li> <li>• TOOL03 Methodological tool: “Tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion” (Version 03.0) /16/;</li> <li>• TOOL04 Methodological tool: “Emissions from solid waste disposal sites” (Version 08.0) /17/;</li> <li>• TOOL05 Methodological tool: “Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation” (Version 03.0) /18/;</li> <li>• TOOL06 Methodological tool: Project emissions from flaring (Version 03.0) /19/;</li> <li>• TOOL07 Methodological tool: Tool to calculate the emission factor for an electricity system (Version 07.0) /20/;</li> <li>• TOOL08 Methodological tool: “Tool to determine the mass flow of a greenhouse gas in a gaseous stream” (Version 03.0) /21/;</li> <li>• TOOL09 Methodological tool: “Determining the baseline efficiency of thermal or electric energy generation systems” (Version 02.0) /22/;</li> <li>• TOOL10 Methodological tool: “Tool to determine the remaining lifetime of equipment” (Version 01) /23/;</li> <li>• TOOL12 Methodological tool: “Project and leakage emissions from transportation of freight” (Version 01.1.0) /24/;</li> <li>• TOOL32 Methodology tool: “Positive lists of technologies” (Version 02.0) /25/.</li> </ul> <p>The monitoring plan of the registered PDD /6/ was reviewed against the monitoring requirements of the applied methodology and applicable tools.</p>
<b>Findings</b>	No findings have been raised.
<b>Conclusion</b>	As per para 357 and 358 of CDM VVS for project activity version 03.0 /10/, in the opinion of the verification team the monitoring plan of the registered PDD complies with the monitoring requirement of the applied approved methodology ACM0001, version 19.0 /14/ in the context of the project activity.

## E.6. Compliance of monitoring activities with the registered monitoring plan

### E.6.1. Data and parameters fixed ex ante or at renewal of crediting period

<b>Means of verification</b>	<p>The parameters were available at the validation stage, which do not need to monitor during the crediting period, as per the registered PDD version 8 of 29/04/2020 /6/.</p> <ul style="list-style-type: none"> <li>• <math>OX_{top\_layer}</math> – Fraction of methane that would be oxidized in the top layer of the SWDS in the baseline. KBS verified that the value of 0.1 applied is described in the registered PDD /6/ in accordance with the default value described in ACM0001 /14/;</li> <li>• <math>GWP_{CH_4}</math> – Global warming potential of CH<sub>4</sub>. KBS verified that the value of 25 tCO<sub>2e</sub>/tCH<sub>4</sub> is described in the registered PDD /6/ in accordance with Standard for application of the global warming potentials to clean development mechanism project activities for the second commitment period of the Kyoto protocol /27//28/.</li> </ul> <p>The following ex-ante determined parameters (that are also included in the PDD /6/) are not used for the purpose of ex-post determination of baseline emissions and project emissions achieved by the project activity during the considered monitoring period:</p> <ul style="list-style-type: none"> <li>• Waste composition;</li> <li>• Efficiency of the LFG capture system that will be installed in the project activity (<math>\eta_{PJ}</math>);</li> <li>• Default value for model correction factor to account for model uncertainties (<math>\phi_{default}</math>);</li> <li>• Oxidation factor (reflecting the amount of methane from the considered SWDS that is oxidized in the soil (or other material covering the waste)) (OX);</li> <li>• Fraction of methane in the SWDS gas (volume fraction) (F);</li> </ul>
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	<ul style="list-style-type: none"> <li>• Default value for the fraction of degradable organic carbon in MSW that decomposes in the SWDS (<math>DOC_{f,default}</math>);</li> <li>• Methane correction factor (<math>MCF_{default}</math>);</li> <li>• Fraction of degradable organic carbon in the waste type j (weight fraction) (<math>DOC_j</math>);</li> <li>• Decay rate for the waste type j (<math>k_j</math>);</li> <li>• <math>R_u</math> – Universal ideal gases constant (not used due to the application of the deviation);</li> <li>• <math>MM_i</math> – Molecular mass of greenhouse gas i. (not used due to the application of the deviation);</li> <li>• <math>MM_K</math> – Molecular mass of gas k (not used due to the application of the deviation);</li> <li>• <math>MM_{H_2O}</math> – Molecular mass of water (not used due to the application of the deviation).</li> </ul> <p>In additional, as stated in the registered PDD, the following ex-ante parameters listed are not used:</p> <ul style="list-style-type: none"> <li>• Manufacturer's flare specifications for temperature, flow rate and maintenance schedule (<math>SPEC_{flare}</math>).</li> </ul>
<b>Findings</b>	CL 02 was raised and successfully closed. Refer to Appendix 4 for further details.
<b>Conclusion</b>	KBS confirms that the parameters listed above are fixed ex-ante and used for the baseline and project emissions calculation in accordance with the applied methodology /14/ and methodology tool /16/ - /25/ and they are the same used at the validation stage /7/ in accordance with the registered PDD /6/.

### E.6.2. Data and parameters monitored

<b>Means of verification</b>	<p>The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD of 29/04/2020 /6/.</p> <p>The below tables describe for each parameter, which is to be measured according to the monitoring plan, how KBS has verified that i) the actual monitoring complies with the monitoring plan and that ii) data have been assessed to correctly support the emission reductions being claimed.</p> <p>As stated in the registered PDD, the following parameters are not used:</p> <ul style="list-style-type: none"> <li>• Quantity of LPG combusted in pilot flames of flares during year y (<math>FC_{i,j,y}</math>);</li> <li>• Weighted average CO2 emission factor of LPG in year y (<math>EF_{CO_2,LPG,y}</math>);</li> <li>• Weighted average net calorific value of fossil fuel i in year y (<math>NCV_{fuel,y}</math>);</li> <li>• Mass flow of methane in the exhaust gas of the flare on a dry basis at reference conditions in the time period t (<math>F_{CH_4,EG,t}</math>);</li> <li>• Maintenance events completed in year y (<math>Maintenance_y</math>);</li> <li>• Temperature in the exhaust gas of the flare in minute m (<math>T_{EG,m}</math>).</li> </ul> <p>The follow parameters have not been used during the current monitoring period:</p> <ul style="list-style-type: none"> <li>• <math>P_{H_2O,t,Sat}</math> - Saturation pressure of H<sub>2</sub>O at temperature <math>T_t</math> in time interval t;</li> <li>• <math>EC_{PJ2,y} = EG_{EC2,y}</math> - Quantity of electricity consumed from diesel generator by the project activity during the year y.</li> </ul>												
	<table border="1"> <thead> <tr> <th></th><th>Assessment/ Observation</th></tr> </thead> <tbody> <tr> <td>Data / Parameter: (as in monitoring plan):</td><td><math>EF_{grid,CM,y}</math> – CO<sub>2</sub> emission factor of the Brazilian grid electricity during the year y</td></tr> <tr> <td>Measured / calculated / default:</td><td>Calculated as the weighted average of the dispatch data analysis Operating Margin (OM) and Build Margin (BM) from the Brazilian DNA.</td></tr> <tr> <td>Value(s) of monitored parameter:</td><td>0.3100 tCO<sub>2</sub> / MWh (2019) 0.2759 tCO<sub>2</sub> / MWh (2020)</td></tr> <tr> <td>Measuring / Reading / Recording frequency:</td><td>Annually.</td></tr> <tr> <td>Is measuring and reporting frequency in accordance with the</td><td>Yes.</td></tr> </tbody> </table>		Assessment/ Observation	Data / Parameter: (as in monitoring plan):	$EF_{grid,CM,y}$ – CO <sub>2</sub> emission factor of the Brazilian grid electricity during the year y	Measured / calculated / default:	Calculated as the weighted average of the dispatch data analysis Operating Margin (OM) and Build Margin (BM) from the Brazilian DNA.	Value(s) of monitored parameter:	0.3100 tCO <sub>2</sub> / MWh (2019) 0.2759 tCO <sub>2</sub> / MWh (2020)	Measuring / Reading / Recording frequency:	Annually.	Is measuring and reporting frequency in accordance with the	Yes.
	Assessment/ Observation												
Data / Parameter: (as in monitoring plan):	$EF_{grid,CM,y}$ – CO <sub>2</sub> emission factor of the Brazilian grid electricity during the year y												
Measured / calculated / default:	Calculated as the weighted average of the dispatch data analysis Operating Margin (OM) and Build Margin (BM) from the Brazilian DNA.												
Value(s) of monitored parameter:	0.3100 tCO <sub>2</sub> / MWh (2019) 0.2759 tCO <sub>2</sub> / MWh (2020)												
Measuring / Reading / Recording frequency:	Annually.												
Is measuring and reporting frequency in accordance with the	Yes.												

	monitoring plan and monitoring methodology? (Yes / No)	
	Type of monitoring equipment:	N/A
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	N/A
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	N/A
	Calibration frequency /interval:	N/A
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?	N/A
	Is the calibration of measuring equipment carried out by an accredited person or institution?	N/A
	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	N/A
	Is(are) calibration(s) valid for the whole reporting period?	N/A
	If applicable, has the reported data been cross-checked with other available data?	N/A
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A
	How were the values in the monitoring report verified?	Data in the monitoring report was cross checked against the Brazilian DNA website /29/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. Data management was found to be reliable and appropriate.
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project	N/A	

	Standard?	
		Assessment/ Observation
	Data / Parameter: (as in monitoring plan):	EF <sub>grid,BM,y</sub> – Build margin emission factor of the Brazilian electricity grid
	Measured / calculated / default:	Official data for 2019 and 2020 calculated by the Brazilian DNA /29/.
	Value(s) of monitored parameter:	0.1020 tCO <sub>2</sub> / MWh (2019) 0.0979 tCO <sub>2</sub> / MWh (2020)
	Measuring / Reading / Recording frequency:	Annually.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes.
	Type of monitoring equipment:	N/A
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	N/A
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	N/A
	Calibration frequency /interval:	N/A
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?	N/A
	Is the calibration of measuring equipment carried out by an accredited person or institution?	N/A
	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	N/A
	Is(are) calibration(s) valid for the whole reporting period?	N/A
	If applicable, has the reported data been cross-checked with other available data?	N/A
Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A	

	How were the values in the monitoring report verified?	Data in the monitoring report was cross checked against the Brazilian DNA website /29/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. Data management was found to be reliable and appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	N/A

	Assessment/ Observation
Data / Parameter: (as in monitoring plan):	EF <sub>grid,OM,y</sub> – Operating margin emission factor of the Brazilian electricity grid
Measured / calculated / default:	Official data for 2019 and 2020 calculated by the Brazilian DNA /29/.
Value(s) of monitored parameter:	0.5181 tCO <sub>2</sub> / MWh (2019) 0.4539 tCO <sub>2</sub> / MWh (2020)
Measuring / Reading / Recording frequency:	Annually.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes.
Type of monitoring equipment:	N/A
Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	N/A
Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	N/A
Calibration frequency /interval:	N/A
Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?	N/A
Is the calibration of measuring equipment carried out by an	N/A



	accredited person or institution?	
	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	N/A
	Is(are) calibration(s) valid for the whole reporting period?	N/A
	If applicable, has the reported data been cross-checked with other available data?	N/A
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A
	How were the values in the monitoring report verified?	Data in the monitoring report was cross checked against the Brazilian DNA website /29/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. Data management was found to be reliable and appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	N/A

	Assessment/ Observation
Data / Parameter: (as in monitoring plan):	TDL <sub>y</sub> – average technical transmission and distribution losses in the grid in year y for the voltage level at which electricity is obtained from the grid at the project site
Measured / calculated / default:	Measured.
Value(s) of monitored parameter:	26.3% (2019) 26.3% (2020)
Measuring / Reading / Recording frequency:	Annually. In the absence of data from the relevant year, most recent figures should be used, but not older than 5 years.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. It is the most recent source available during the monitoring period 01/09/2019 to 02/03/2020. In this monitoring period, the most recent source is the National Energy Balance of 2020 (database of 2019), published by the Ministry of Mines and Energy /30/.
Type of monitoring equipment:	N/A
Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or	N/A

	as per the manufacturer's specification?	
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	N/A
	Calibration frequency /interval:	N/A
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?	N/A
	Is the calibration of measuring equipment carried out by an accredited person or institution?	N/A
	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	N/A
	Is(are) calibration(s) valid for the whole reporting period?	N/A
	If applicable, has the reported data been cross-checked with other available data?	N/A
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A
	How were the values in the monitoring report verified?	Data in the monitoring report was cross checked against the Brazilian Energy Balance 2020 /30/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. Data management was found to be reliable and appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	N/A

	Assessment/ Observation
Data / Parameter: (as in monitoring plan):	$EC_{PJ1,y} = EG_{EC1,y}$ – quantity of electricity consumed from the grid by the project activity during the year $y$
Measured / calculated / default:	Measured.
Value(s) of monitored parameter:	

			$EC_{PJ1,y} = EG_{EC1,y} \text{ (MWh)} / 36/$
		09/2019	3.32
		10/2019	0.48
		11/2019	0.27
		12/2019	0.48
		01/2020	0.60
		02/2020	3.69
		03/2020	-
	Measuring / Reading / Recording frequency:	Continuously measured and monthly recorded.	
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes.	
	Type of monitoring equipment:	Bidirectional electricity meters manufactured by Landis Gyr, model E750 8701-A, accuracy class C, range from 2.5 to 10 A /35/.  Identification numbers 3304-0070821-1 (GG1) and 3306-000226-1 (GG2).	
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the electricity meter is in accordance with national standards /47/ and as per manufacturer's specification /35/.	
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy is valid for the entire measuring range.	
	Calibration frequency /interval:	5 years /47/.	
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?	The electricity consumed from the grid is monitored by the electricity meter owned by Equatorial Energia (local electricity distribution company), which is legally responsible for maintaining the calibration up to date.  The calibration frequency is as per national standards /47/.	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes. Identification number 3304-0070821-1 (GG1) calibrated by Landis Gyr on 14/06/2018 and valid until 13/06/2023;  Identification number 3306-000226-1 (GG2) calibrated by Landis Gyr on 19/07/2019 and valid until 18/07/2024 /31/.	

	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes, as checked in the calibration certificates /31/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes.
	If applicable, has the reported data been cross-checked with other available data?	Data have been cross checked against the electricity invoices /36/.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A
	How were the values in the monitoring report verified?	Data have been cross checked against the electricity invoices /36/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. Data management was found to be reliable and appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	N/A
		Assessment/ Observation
Data / Parameter: (as in monitoring plan):	Management of SWDS	
Measured / calculated / default:	Technical specifications for the management of the SWDS and national regulations.  The management of the landfill is yearly compared.	
Value(s) of monitored parameter:	N/A	
Measuring / Reading / Recording frequency:	Annually	
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes.	
Type of monitoring equipment:	N/A	
Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	N/A	
Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	N/A	

	Calibration frequency /interval:	N/A
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?	N/A
	Is the calibration of measuring equipment carried out by an accredited person or institution?	N/A
	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	N/A
	Is(are) calibration(s) valid for the whole reporting period?	N/A
	If applicable, has the reported data been cross-checked with other available data?	N/A
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A
	How were the values in the monitoring report verified?	The information was verified through interview and evidences provided by PP /42/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. Data management was found to be reliable and appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	N/A

	Assessment/ Observation												
Data / Parameter: (as in monitoring plan):	$EG_{PJ,y} = EC_{BL,k,y}$ – amount of electricity generated using LFG by the project activity in year $y$												
Measured / calculated / default:	Measured.												
Value(s) of monitored parameter:	<table border="1"> <tr> <th></th> <th><math>EG_{PJ,y} = EC_{BL,k,y}</math> (MWh)</th> </tr> <tr> <td>09/2019</td> <td>402</td> </tr> <tr> <td>10/2019</td> <td>779</td> </tr> <tr> <td>11/2019</td> <td>645</td> </tr> <tr> <td>12/2019</td> <td>672</td> </tr> <tr> <td>01/2020</td> <td>670</td> </tr> </table>		$EG_{PJ,y} = EC_{BL,k,y}$ (MWh)	09/2019	402	10/2019	779	11/2019	645	12/2019	672	01/2020	670
	$EG_{PJ,y} = EC_{BL,k,y}$ (MWh)												
09/2019	402												
10/2019	779												
11/2019	645												
12/2019	672												
01/2020	670												

		02/2020	535
		03/2020	20
	Measuring / Reading / Recording frequency:	Continuously measured and monthly recorded.	
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes.	
	Type of monitoring equipment:	Bidirectional electricity meters manufactured by Landis Gyr, model E750 8701-A, accuracy class C, range from 2.5 to 10 A /35/.  Identification numbers 3304-0070821-1 (GG1) and 3306-000226-1 (GG2).	
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the electricity meter is in accordance with national standards /47/ and as per manufacturer's specification /35/.	
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy is valid for the entire measuring range.	
	Calibration frequency /interval:	5 years /47/.	
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?	The electricity generated and supplied to the grid is monitored by the electricity meter owned by Equatorial Energia (local electricity distribution company), which is legally responsible for maintaining the calibration up to date.  The calibration frequency is as per national standards /47/.	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes. Identification number 3304-0070821-1 (GG1) calibrated by Landis Gyr on 14/06/2018 and valid until 13/06/2023;  Identification number 3306-000226-1 (GG2) calibrated by Landis Gyr on 19/07/2019 and valid until 18/07/2024 /31/.	
	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.	
	Is(are) calibration(s) valid for the whole reporting period?	Yes.	
	If applicable, has the reported data been cross-checked with other available data?	Data have been cross checked against the electricity invoices /36/.	
	Is the calibration carried out for a measuring range comparable with	N/A	

	the range for which measurements have been carried out?	
	How were the values in the monitoring report verified?	Data have been verified against the electricity data reports provided by PP /54/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. Data management was found to be reliable and appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	N/A

	Assessment/ Observation
Data / Parameter: (as in monitoring plan):	$O_{pj,h}$ – operation of the equipment that consumes the LFG
Measured / calculated / default:	<p>For each equipment unit <math>j</math> using the LFG monitor that the plant is operating in hour <math>h</math> by the monitoring any one or more of the following three parameters:</p> <p>(a) Temperature. Determine the location for temperature measurements and minimum operational temperature based on manufacturer's specifications of the burning equipment. Document and justify the location and minimum threshold in the PDD;</p> <p>(b) Flame. Flame detection system is used to ensure that the equipment is in operation;</p> <p>(c) Products generated. Monitor the generation of steam for the case of boilers and air-heaters and glass for the case of glass melting furnaces. This option is not applicable to brick kilns.</p> <p><math>O_{pj,h}=0</math> when:</p> <p>(a) One of more temperature measurements are missing or below the minimum threshold in hour <math>h</math> (instantaneous measurements are made at least every minute);</p> <p>(b) Flame is not detected continuously in hour <math>h</math> (instantaneous measurements are made at least every minute);</p> <p>(c) No products are generated in the</p>

		hour h.
		Otherwise, $O_{pi,h}=1$
	Value(s) of monitored parameter:	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Measuring / Reading / Recording frequency:	Once per minute.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Type of monitoring equipment:	Flame detection system integrated with the operation software of the landfill gas plant.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes.
	Calibration frequency /interval:	N/A
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?	N/A
	Is the calibration of measuring equipment carried out by an accredited person or institution?	N/A
	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	N/A
	Is(are) calibration(s) valid for the whole reporting period?	N/A
	If applicable, has the reported data been cross-checked with other available data?	N/A
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A



	How were the values in the monitoring report verified?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.																						
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.																						
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.																						
	<table border="1"> <thead> <tr> <th></th> <th>Assessment/ Observation</th> </tr> </thead> <tbody> <tr> <td>Data / Parameter:</td> <td><math>V_{t,db}</math> – volumetric flow of the gaseous stream in time interval <math>t</math> on a dry basis.</td> </tr> <tr> <td>Measured / calculated / default:</td> <td>Measured.</td> </tr> <tr> <td>Value(s) of monitored parameter:</td> <td>A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.</td> </tr> <tr> <td>Measuring / Reading / Recording frequency:</td> <td>Continuously measured and aggregated hourly.</td> </tr> <tr> <td>Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)</td> <td>A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.</td> </tr> <tr> <td>Type of monitoring equipment:</td> <td>Flow meters manufactured by Endress Hauser, model Prosonic Flow 200 /32/. Range: 1 – 30 m/s. Serial numbers:  <ul style="list-style-type: none"> <li># N4120602000 (flare);</li> <li># N4066002000 (GGs).</li> </ul> </td> </tr> <tr> <td>Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?</td> <td>Yes. The accuracy class of the flow meters is 3% as per its manual /32/ and in accordance with the registered monitoring plan (minimum accuracy of +/- 2% by volume) /6/.</td> </tr> <tr> <td>Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?</td> <td>Yes, the accuracy is valid for the entire measuring range.</td> </tr> <tr> <td>Calibration frequency /interval:</td> <td>Every 2 years as per manufacturer specification /51/.</td> </tr> <tr> <td>Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the</td> <td>The 2 years calibration frequency is recommended by the manufacturer /51/. The PDD /6/ addresses periodical calibration as recommended by the</td> </tr> </tbody> </table>			Assessment/ Observation	Data / Parameter:	$V_{t,db}$ – volumetric flow of the gaseous stream in time interval $t$ on a dry basis.	Measured / calculated / default:	Measured.	Value(s) of monitored parameter:	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.	Measuring / Reading / Recording frequency:	Continuously measured and aggregated hourly.	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.	Type of monitoring equipment:	Flow meters manufactured by Endress Hauser, model Prosonic Flow 200 /32/. Range: 1 – 30 m/s. Serial numbers: <ul style="list-style-type: none"> <li># N4120602000 (flare);</li> <li># N4066002000 (GGs).</li> </ul>	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes. The accuracy class of the flow meters is 3% as per its manual /32/ and in accordance with the registered monitoring plan (minimum accuracy of +/- 2% by volume) /6/.	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes, the accuracy is valid for the entire measuring range.	Calibration frequency /interval:	Every 2 years as per manufacturer specification /51/.	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the	The 2 years calibration frequency is recommended by the manufacturer /51/. The PDD /6/ addresses periodical calibration as recommended by the
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	frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?	manufacturer.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Flow meter # N4120602000 (flare) calibrated by Endress Hauser on 24/04/2018 and # N4066002000 (GGs) calibrated by Endress Hauser on 12/04/2018 /48/.
	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes, as checked in the calibration certificates /48/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes.
	If applicable, has the reported data been cross-checked with other available data?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes.
	How were the values in the monitoring report verified?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.	

	Assessment/ Observation
Data / Parameter:	$V_{t,wb}$ – volumetric flow of the gaseous stream in time interval $t$ on a wet basis.
Measured / calculated / default:	Measured.
Value(s) of monitored parameter:	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
Measuring / Reading / Recording	Continuously measured and

	frequency:	aaggregated hourly.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Type of monitoring equipment:	Flow meters manufactured by Endress Hauser, model Prosonic Flow 200 /32/. Range: 1 – 30 m/s. Serial numbers: <ul style="list-style-type: none"> <li>• # N4120602000 (flare);</li> <li>• # N4066002000 (GGs).</li> </ul>
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes. The accuracy class of the flow meters is 3% as per its manual /32/ and in accordance with the registered monitoring plan (minimum accuracy of +/- 2% by volume) /6/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes, the accuracy is valid for the entire measuring range.
	Calibration frequency /interval:	Every 2 years as per manufacturer specification /51/.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?	The 2 years calibration frequency is recommended by the manufacturer /51/. The PDD /6/ addresses periodical calibration as recommended by the manufacturer.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Flow meter # N4120602000 (flare) calibrated by Endress Hauser on 24/04/2018 and # N4066002000 (GGs) calibrated by Endress Hauser on 12/04/2018 /48/.
	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes, as checked in the calibration certificates /48/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes.
If applicable, has the reported data been cross-checked with other available data?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.	
Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes.	
How were the values in the	A deviation is requested for the period	

	monitoring report verified?	from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Assessment/ Observation	
	Data / Parameter:	$V_{i,t,db}$ – volumetric fraction of greenhouse gas $i$ on a time interval $t$ on a dry basis
	Measured / calculated / default:	Measured.
	Value(s) of monitored parameter:	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Measuring / Reading / Recording frequency:	Continuously measured.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
Type of monitoring equipment:	Gas analyser manufactured by MRU, model SWG 100BIO-Ex /34/.	
	Serial number: 080902.	
Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The PDD specifies at least an accuracy of +/- 1% by volume /6/. The actual equipment accuracy is 3% of reading /34/.	
Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes, the accuracy is valid for the entire measuring range.	
Calibration frequency /interval:	Every year as per manufacturer specification /52/.	
Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring	The yearly calibration frequency is recommended by the manufacturer /52/. The PDD /6/ addresses periodical	

	plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?	calibration as recommended by the manufacturer.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Gas analyser # 080902 calibrated by MRU on 23/05/2018 /49/.
	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes, as checked in the calibration certificate /49/.
	Is(are) calibration(s) valid for the whole reporting period?	No. A delayed calibration has been verified for the entire monitoring period (from 01/09/2020 to 02/03/2020).  However, this equipment was not used during this monitoring period.
	If applicable, has the reported data been cross-checked with other available data?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes.
	How were the values in the monitoring report verified?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.

	Assessment/ Observation
Data / Parameter:	$V_{i,t,wb}$ – volumetric fraction of greenhouse gas $i$ on a time interval $t$ on a wet basis
Measured / calculated / default:	Measured.
Value(s) of monitored parameter:	A deviation is requested for the period

		from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Measuring / Reading / Recording frequency:	Continuously measured.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Type of monitoring equipment:	Gas analyser manufactured by MRU, model SWG 100BIO-Ex /34/.  Serial number: 080902.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The PDD specifies at least an accuracy of +/- 1% by volume /6/. The actual equipment accuracy is 3% of reading /34/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes, the accuracy is valid for the entire measuring range.
	Calibration frequency /interval:	Every year as per manufacturer specification /52/.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?	The yearly calibration frequency is recommended by the manufacturer /52/. The PDD /6/ addresses periodical calibration as recommended by the manufacturer.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Gas analyser # 080902 calibrated by MRU on 23/05/2018 /49/.
	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes, as checked in the calibration certificate /49/.
	Is(are) calibration(s) valid for the whole reporting period?	No. A delayed calibration has been verified for the entire monitoring period (from 01/09/2020 to 02/03/2020).  However, this equipment was not used during this monitoring period.
	If applicable, has the reported data been cross-checked with other available data?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Is the calibration carried out for a	Yes.

	measuring range comparable with the range for which measurements have been carried out?	
	How were the values in the monitoring report verified?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.

	Assessment/ Observation
Data / Parameter:	$T_t$ – temperature of the gaseous stream in time interval $t$ .
Measured / calculated / default:	Measured by project participant.
Value(s) of monitored parameter:	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
Measuring / Reading / Recording frequency:	Continuously measured.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
Type of monitoring equipment:	Thermo-resistance manufactured by Endress Hauser, model TR10, sensor type PT-110, range from -50 up to 400 °C /33/. Serial numbers: # R1043823180.
Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The PDD does not specify the thermo-resistance accuracy. The accuracy is $0.3 + (0.005 * \text{measured value}) / 33/$ .
Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes, the accuracy is valid for the entire measuring range.

	Calibration frequency /interval:	Every 2 years as per manufacturer specification /51/.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?	The 2 years calibration frequency is recommended by the manufacturer /51/. The PDD /6/ addresses periodical calibration as recommended by the manufacturer.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Temperature meter # R1043823180 calibrated by Endress Hauser on 22/01/2020 /53/.
	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes, as checked in the calibration certificate /53/.
	Is(are) calibration(s) valid for the whole reporting period?	No. A delayed calibration has been verified for the entire monitoring period (from 01/09/2019 to 21/01/2020).  However, this equipment was not used during this monitoring period.
	If applicable, has the reported data been cross-checked with other available data?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes.
	How were the values in the monitoring report verified?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.	
Assessment/ Observation		



	Data / Parameter:	$P_t$ – pressure of the gaseous stream in time interval $t$ .
	Measured / calculated / default:	Measured by project participant.
	Value(s) of monitored parameter:	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Measuring / Reading / Recording frequency:	Continuously measured.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Type of monitoring equipment:	Pressure meter manufactured by Endress Hauser, model Cerabar PMP21 /41/. Range: 0 – 400 bar. Serial number # N405A80116A.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The PDD does not specify the pressure meter accuracy. The accuracy is 0.3% /41/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes, the accuracy is valid for the entire measuring range.
	Calibration frequency /interval:	Every 2 years as per manufacturer specification /50/.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?	The 2 years calibration frequency is recommended by the manufacturer /50/. The PDD /6/ addresses periodical calibration as recommended by the manufacturer.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Pressure meter # N405A80116A calibrated by Endress Hauser on 26/04/2018 /50/.
	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes, as checked in the calibration certificate /50/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes.
	If applicable, has the reported data been cross-checked with other available data?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.

	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes.
	How were the values in the monitoring report verified?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.

	Assessment/ Observation
Data / Parameter:	Status of biogas destruction device – operational status of biogas destruction devices
Measured / calculated / default: Value(s) of monitored parameter:	Measured by project participant. A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
Measuring / Reading / Recording frequency:	Continuously measured.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
Type of monitoring equipment:	UV flame detector.
Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	N/A
Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	N/A
Calibration frequency /interval:	N/A
Is the calibration interval in line	N/A

	with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?										
	Is the calibration of measuring equipment carried out by an accredited person or institution?	N/A									
	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	N/A									
	Is(are) calibration(s) valid for the whole reporting period?	N/A									
	If applicable, has the reported data been cross-checked with other available data?	N/A									
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A									
	How were the values in the monitoring report verified?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.									
	Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.									
	In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.									
	<table border="1"> <thead> <tr> <th></th> <th>Assessment/ Observation</th> </tr> </thead> <tbody> <tr> <td>Data / Parameter:</td> <td>Flame<sub>m</sub> – flame detection of flare in the minute <i>m</i>.</td> </tr> <tr> <td>Measured / calculated / default:</td> <td>Measured by project participant.</td> </tr> <tr> <td>Value(s) of monitored parameter:</td> <td>A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.</td> </tr> <tr> <td>Measuring / Reading / Recording frequency:</td> <td>Continuously measured and recorded on a minute basis.</td> </tr> </tbody> </table>			Assessment/ Observation	Data / Parameter:	Flame <sub>m</sub> – flame detection of flare in the minute <i>m</i> .	Measured / calculated / default:	Measured by project participant.	Value(s) of monitored parameter:	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.	Measuring / Reading / Recording frequency:
	Assessment/ Observation										
Data / Parameter:	Flame <sub>m</sub> – flame detection of flare in the minute <i>m</i> .										
Measured / calculated / default:	Measured by project participant.										
Value(s) of monitored parameter:	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.										
Measuring / Reading / Recording frequency:	Continuously measured and recorded on a minute basis.										

	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
	Type of monitoring equipment:	UV flame detector.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	N/A
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	N/A
	Calibration frequency /interval:	N/A
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications (if local/national standards or the manufacturer's specifications are not available, international standards may be used)?	N/A
	Is the calibration of measuring equipment carried out by an accredited person or institution?	N/A
	Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	N/A
	Is(are) calibration(s) valid for the whole reporting period?	N/A
	If applicable, has the reported data been cross-checked with other available data?	N/A
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A
	How were the values in the monitoring report verified?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.	

	<p>In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?</p> <p>A deviation is requested for the period from 01/09/2019 to 02/03/2020 when the supervisory system was not operational. For more details, refers to section E.4.1 of this report.</p>
	<p>It was verified during the remote site visit, that for this monitoring period, there were several events due to maintenance which not necessarily interrupted the operation of the project activity /40/.</p>
<b>Findings</b>	CL03, CAR 05, CAR 06, CAR 07, CAR 08, CAR 09, CAR 10 and CAR 11 were raised and successfully closed. Refer to Appendix 4 for further details.
<b>Conclusion</b>	As per para 360 to 361 of CDM VVS for project activity version 03.0 /10/. The assessment team concludes that the monitoring of the project activity is being carried out in accordance with the registered monitoring plan and meets the requirements of the applied monitoring methodology /14/. The adequacy and compliance of the registered monitoring plan in the MR can be concluded to be conforming. The flow of the information from the point of generation up to reporting has been reviewed and found to be correct and appropriate meeting the requirements of the applied methodology.

### E.6.3. Implementation of sampling plan

<b>Means of verification</b>	No sampling plan applied for the project activity. Therefore, this section is not applicable.
<b>Findings</b>	-
<b>Conclusion</b>	Not applicable.

### E.7. Compliance with the calibration frequency requirements for measuring instruments

<b>Means of verification</b>	<p>The calibration certificates were checked in order to verify the compliance and the calibration frequency of each measuring equipment.</p> <ul style="list-style-type: none"> <li>Flow meter # N4120602000 (flare) calibrated by Endress Hauser on 24/04/2018 and valid until 23/04/2020 and # N4066002000 (GGs) calibrated by Endress Hauser on 12/04/2018 and valid until 11/04/2020 /48/;</li> <li>Gas analyser # 080902 calibrated by MRU on 23/05/2018 and valid until 22/05/2019 /49/. Thus, there is a delay for the period (from 01/09/2019 to 02/03/2020. However, this instrument was not used during this monitoring period due to the deviation and paragraphs 365 to 371 of the "<i>Clean Development Mechanism Validation and Verification Standard</i>" /10/ were not used to calculate the discount to be applied in the emission reductions for this period where the meters were out of calibration;</li> <li>Temperature meter # R1042023152 calibrated by Endress Hauser on 22/01/2020 and valid until 21/01/2022 /53/. Thus, there is a delay for the period (from 01/09/2019 to 02/03/2020. However, this instrument was not used during this monitoring period due to the deviation;</li> <li>Pressure meter # N405A80116A calibrated by Endress Hauser on 26/04/2018 and valid until 25/04/2020 /50/;</li> <li>Electricity meter # 3304-0070821-1 (GG1) calibrated by Landis Gyr on 14/06/2018 and valid until 13/06/2023 /31/;</li> <li>Electricity meter # 3306-000226-1 (GG2) calibrated by Landis Gyr on 19/07/2019 and valid until 18/07/2024 /31/.</li> </ul>
<b>Findings</b>	CAR 12 was raised and successfully closed. Refer to Appendix 4 for further details.
<b>Conclusion</b>	As per para 365 to 370 of CDM VVS for project activity version 03.0 /10/, the Verification team confirms that the calibration frequency is in line with the monitoring plan mentioned in the registered PDD /6/.

## E.8. Assessment of data and calculation of emission reductions or net removals

## E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

<b>Means of verification</b>	<p><u>Baseline emissions:</u> Baseline emissions was calculated in accordance with the applied methodology ACM0001 /14/ and the registered monitoring plan /6/.</p> <p>Baseline emissions was calculated as the amount of methane that would have been destroyed/combusted during the year in project scenario (<math>BE_{CH_4,y}</math>) and the net quantity of electricity produced using LFG times <math>CO_2</math> emissions intensity of the baseline source of electricity displaced (<math>BE_{EC,y}</math>). No thermal energy is produced and no LFG is supplied to natural gas network.</p> <p>The methane from the Rosario landfill (<math>BE_{CH_4,y}</math>) baseline emissions was calculated by the formula:</p> $BE_{CH_4,y} = (1 - OX_{top\_layer}) * (F_{CH_4,PJ,y} - F_{CH_4,BL,y}) * GWP_{CH_4}$ <ul style="list-style-type: none"> <li>The fraction of methane that would be oxidized in the top layer of the SWDS in the baseline (<math>OX_{top\_layer}</math>) of 0.1 is according to the ACM0001 recommendations /14/.</li> </ul> <p>For the <i>ex-post</i> determination, the amount of methane in the LFG which is flared and/or used in the project activity in year <math>y</math> (<math>F_{CH_4,PJ,y}</math>) is determined by monitoring the quantity of methane actually flared and gas used to generate electricity. No and thermal energy is produced and no methane is sent to the pipeline for feeding to the natural gas distribution network.</p> <p>For the current monitoring period, due to the deviation applied, only LFG collected and sent for electricity generation was considered.</p> <p>The baseline emissions associated with the electricity generation in year <math>y</math> (<math>BE_{EC,y}</math>) is calculated as per the tool “Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation” version 03.0 /18/.</p> <p>Project participant choose Scenario A (Electricity consumption from the grid), Option A.1 where the combined margin emission factor of the applicable electricity system is determined using the procedures in the “Tool to calculate the emission factor for an electricity system” version 07.0 /20/.</p> <p>KBS verified that the total baseline emissions in the monitoring period is equal to 13,294 tCO<sub>2e</sub>.</p>
<b>Findings</b>	CAR 13 was raised and successfully closed. Refer to Appendix 4 for further details.
<b>Conclusion</b>	<p>As per para 372 and 373 of CDM VVS for project activity version 03.0 /10/, Verification team concludes that the calculation provided in the monitoring report /2/, and emission reduction spreadsheet /4/ are complete and reflect all the requirements of the monitoring plan /6/ and:</p> <p>a) All the monitored data pertaining to baseline calculation as required by the registered monitoring plan was available to PP, the same has been verified by the verification team.</p> <p>b) All the formula used for the baseline, was in line to the registered monitored plan /6/.</p>

## E.8.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

<b>Means of verification</b>	<p><u>Project emissions:</u> Project emissions are estimated as the emissions from consumption of electricity due to the project activity in year <math>y</math> (<math>PE_{EC,y}</math>) and are calculated following the “Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation” version 03.0 /18/.</p> <p>The emissions from consumption of electricity due to the project activity are</p>
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	<p>calculated as the sum of emissions from electricity consumption from the grid (<math>PE_{EC1,y}</math>) and emissions from electricity consumption from an off-grid captive power plant (diesel generator) in year <math>y</math> (<math>PE_{EC2,y}</math>).</p> <p>The <b>emissions from electricity consumption</b> are estimated based on the amount of electricity consumed from the grid by the project activity <math>EC_{PJ,j,y}</math> times the emission factor of the grid and transmission and distribution losses.</p> <p>For calculating project emissions due to electricity consumed from grid, KBS verification team verified the following values:</p> <ul style="list-style-type: none"><li>➤ A value for <math>TDL_y</math> based on the most recent information provided by Brazil national Grid (BEN) (of 26.3% for 2019 and 2020) /30/ is considered as per the “Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation” version 03.0 /18/.</li><li>➤ KBS verified that the grid emission factor is in accordance with data available by the Brazilian DNA /29/. The emission factor of Brazilian grid is calculated and provided by the Brazilian DNA /29/.</li></ul> <table><tr><td></td><td>2019</td><td>2020</td></tr><tr><td>OM (tCO<sub>2</sub>/MWh)</td><td>0.5181</td><td>0.4539</td></tr><tr><td>BM (tCO<sub>2</sub>/MWh)</td><td>0.1020</td><td>0.0979</td></tr><tr><td>CM (tCO<sub>2</sub>/MWh)</td><td>0.3100</td><td>0.2759</td></tr></table> <ul style="list-style-type: none"><li>➤ During this monitoring period, project consumed 8.85 MWh as verified through the electricity invoices /6/.</li></ul> <p>The <b>emissions from electricity consumption from the combustion of fossil fuel at the diesel generator</b> are the amount of fossil fuel combusted at diesel generator times the emission factor for the diesel generator and transmission and distribution losses.</p> <p>However, during the current monitoring period, no diesel was consumed since no diesel generator was installed as verified during the remote audit. Hence, no project emissions have been calculated for this component.</p> <p>KBS verified that in the monitoring period, the total project emissions are equal to 4 tCO<sub>2e</sub>.</p>		2019	2020	OM (tCO <sub>2</sub> /MWh)	0.5181	0.4539	BM (tCO <sub>2</sub> /MWh)	0.1020	0.0979	CM (tCO <sub>2</sub> /MWh)	0.3100	0.2759
	2019	2020											
OM (tCO <sub>2</sub> /MWh)	0.5181	0.4539											
BM (tCO <sub>2</sub> /MWh)	0.1020	0.0979											
CM (tCO <sub>2</sub> /MWh)	0.3100	0.2759											
Findings	Refers to CAR 07 raised and successfully closed in section E.6.2. CL 04 was raised and successfully closed. Refer to Appendix 4 for further details.												
Conclusion	<p>As per para 372 and 373 of CDM VVS for project activity version 03.0 /10/, Verification team concludes that the calculation provided in the monitoring report /2/, and emission reduction spreadsheet /4/ are complete and reflect all the requirements of the monitoring plan /6/ and:</p> <p>a) All the monitored data pertaining to project calculation as required by the registered monitoring plan was available to PP, the same has been verified by the verification team.</p> <p>b) All the formula used for the project, was in line to the registered monitored plan /6/.</p>												

### E.8.3. Calculation of leakage GHG emissions

<b>Means of verification</b>	In accordance with the methodology /14/ and registered PDD /6/, leakage is not applicable.
<b>Findings</b>	-
<b>Conclusion</b>	Not applicable.

#### E.8.4. Summary calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

<b>Means of verification</b>	<p>According to the applied methodology ACM0001 /14/, the emission reductions have been calculated based on the following formula:  <math>ER_y = BE_y - PE_y</math>  Where,  <math>ER_y</math> – Emission reductions in year y (tCO<sub>2e</sub>/y);  <math>BE_y</math> – Baseline emissions in year y (tCO<sub>2e</sub>/y);  <math>PE_y</math> – Project emissions in year y (tCO<sub>2e</sub>/y);</p> <p>Emission reductions verified by KBS verification team are as follows:</p> <p>Emission reductions = <b>13,294 – 4 = 13, 290 t CO<sub>2e</sub></b></p> <p>The CERs calculation is based only on data available. As the monitoring period starts on 01/09/2019, the pro-rata approach is not applicable.</p> <p>It is KBS's opinion that appropriate methods and formulae for calculating emission reductions have been followed in accordance with the requirements of the monitoring methodology and tools as described above.</p>
<b>Findings</b>	Refers to CAR 07 and CAR 13 raised and successfully closed in section E.6.2 and E.8.1 respectively.
<b>Conclusion</b>	<p>As per para 372 and 373 of CDM VVS for project activity version 03.0 /10/, Verification team concludes that the calculation provided in the monitoring report /2/, and emission reduction spreadsheet /4/ are complete and reflect all the requirements of the monitoring plan /6/ and:</p> <ol style="list-style-type: none"> <li>1. All the monitored data as required by the registered monitoring plan was available to PP, the same has been verified by the verification team.</li> <li>2. All the formula used for the baseline, leakage and project emissions were in line to the registered monitored plan /6/.</li> </ol>

#### E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

<b>Means of verification</b>	<p>The MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the registered PDD /6/.</p> <table border="1"> <tr> <td>Estimated emission reduction as per registered / approved PDD:</td><td>49,146 tCO<sub>2e</sub></td></tr> <tr> <td>Actual emission reduction for the monitoring period:</td><td>13,290 tCO<sub>2e</sub></td></tr> </table> <p>In summary, verification team confirms that the actual emission reduction is lower than the estimate of the registered PDD /6/ for the current monitoring period.</p>	Estimated emission reduction as per registered / approved PDD:	49,146 tCO <sub>2e</sub>	Actual emission reduction for the monitoring period:	13,290 tCO <sub>2e</sub>
Estimated emission reduction as per registered / approved PDD:	49,146 tCO <sub>2e</sub>				
Actual emission reduction for the monitoring period:	13,290 tCO <sub>2e</sub>				
<b>Findings</b>	No findings have been raised.				
<b>Conclusion</b>	Verification team confirms that the comparison for the estimated and actual emission reduction for the 2 <sup>nd</sup> monitoring period is correctly calculated and reported.				

#### E.8.6. Remarks on difference from estimated value in registered PDD

<b>Means of verification</b>	Not applicable as the actual ERs are less than the estimated ERs.
<b>Findings</b>	Nil.
<b>Conclusion</b>	The actual ERs are less than the estimated ERs.

#### E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

<b>Means of verification</b>	The complete monitoring period falls after 01/01/2013 and therefore the total ERs during the period pertains to the 2 <sup>nd</sup> commitment period. The 13,290 tCO <sub>2e</sub> CERs verified during this monitoring period.
<b>Findings</b>	Nil.
<b>Conclusion</b>	The 13,290 tCO <sub>2e</sub> CERs verified pertains to the period after 31/12/2012.



**E.9. Assessment of reported sustainable development co-benefits**

<b>Means of verification</b>	Not reported by PP.
<b>Findings</b>	Refer above.
<b>Conclusion</b>	Refer above.

**E.10. Global stakeholder consultation**

<b>Means of verification</b>	Since this is the 2 <sup>nd</sup> verification, this step is not applicable according to para 186 and 187 of Project Cycle Procedure for project activities.
<b>Findings</b>	Nil.
<b>Conclusion</b>	Not applicable.

**SECTION F. Internal quality control**

The draft verification report prepared by team leader is reviewed by an independent technical reviewer (having competence of relevant technical area himself/herself or through an independent technical area expert) to confirm the internal procedures established by KBS are duly followed and the verification report/opinion is reached in an objective manner and complies with the applicable CDM requirements.

The independent technical reviewer may approve or reject the draft verification report. The findings may be identified even at this stage, which needs to be satisfactorily resolved, before the request for issuance is submitted to UNFCCC. The final decision is taken by the Manager Technical and Certification. The technical reviewer and Manager (Technical & Certification) can be same person.

The final decision is authorized by Managing Director, KBS once the report is approved by the Manager (Technical & Certification).

**SECTION G. Verification opinion**

The verification team confirms that the evidence is of sufficient quantity, appropriate quality and reliable. The reported values, notation, units and sources in the monitoring report for all the monitoring parameters have been cross checked with the emission reduction sheet and monitoring report. During the course of verification and remote site visit, the data submitted by PP was cross verified with the values mentioned in the emission reduction sheet and monitoring report. The procedure for data monitoring, recording, transfer and compilation was also verified and found in compliance with the monitoring plan as mentioned in the registered PDD.

It is confirmed by the assessment team that the reported emission reductions have been conservatively calculated. A list of referred documents for verification is also included in Appendix 3 of this report.

Based on the information seen and evaluated we confirm that the implementation of the project activity has resulted in 13,290 tCO<sub>2</sub>e emission reductions during monitoring period 01/09/2019 to 02/03/2020 (first and last days are included).

**SECTION H. Certification statement**

KBS Certification Services Pvt. Ltd. has been contracted by Vital Engenharia Ambiental S.A. to undertake independent verification and certification for the greenhouse gas (GHG) emission reductions reported from the "CTR Rosario Landfill Gas Project" and UNFCCC Reference Number 8242 for the monitoring period 01/09/2019 to 02/03/2020 (including both dates) in the Monitoring Report Version 1 (first version) dated 17/03/2021.

The verification is based on the approved PDD and the monitoring report for this project. Our verification approach was based on the requirements as defined under the Kyoto Protocol, as well as those defined by the CDM Executive Board.

The management of the CTR Rosario is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Final Monitoring Report, version 5 dated 22/11/2021. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the CTR Rosario. The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 5 dated 22/11/2021.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 01/09/2019 up to 02/03/2020

(including both dates) based on the reported emission reductions in the Final Monitoring Report Version 5 dated 22/11/2021 for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, KBS planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

KBS confirms the following:

**Reporting period:** 01/09/2019 up to 02/03/2020 (including both dates)

**Verified and certified emission in the above reporting period:**

Baseline emissions (BE) (tCO <sub>2</sub> e)	Project emissions (PE) (tCO <sub>2</sub> e)	Leakage emissions (LE) (tCO <sub>2</sub> e)	Certified emission reductions (CERs) (tCO <sub>2</sub> e)
13,294	4	0	13,290

## Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER(s)	Certified Emission Reduction(s)
CH <sub>4</sub>	Methane
CL	Clarification Request
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent
DNA	Designated national Authority
DOE	Designated Operational Entity
EF	Emission Factor
EPE	Energy Research Company of the Ministry of Mines and Energy - Brazil
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse Gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LFG	Landfill Gas
MR	Monitoring Report
OM	Operating Margin
ONS	National Grid Operator (from Portuguese Operador Nacional do Sistema)
PDD	Project Design Document
PE	Project Emissions
PP	Project Participant
QA/QC	Quality Assurance/Quality Control
SEMA	Secretary of State for Environmental and Natural Resources (from Portuguese Secretaria de Estado do Meio Ambiente e Recursos Naturais)
tCO <sub>2</sub> e	Tonnes of Carbon Dioxide Equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

## Appendix 2. Competence of team members and technical reviewers

Personnel Name:		Andrea Leiroz	
Qualified to work as:			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input type="checkbox"/>
Technical Reviewer	<input type="checkbox"/>	Local Expert (Brazil)	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope		Technical Area	
Energy industries (renewable/non-renewable sources)		TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar	
		TA 1.2: Energy generation from renewable energy sources	

Waste handling and disposal	TA 13.1. Solid waste and wastewater TA 13.2. Manure
Approved by (Manager C & T)	Sanjay Kandari
Approval date:	17/12/2018

<b>Personnel Name:</b>		<b>Anjana Sharma</b>	
<b>Qualified to work as:</b>			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input checked="" type="checkbox"/>
Technical Reviewer	<input checked="" type="checkbox"/>	Local Expert (India)	<input checked="" type="checkbox"/>
<b>Area(s) of Technical Expertise</b>			
<b>Sectoral Scope</b>	<b>Technical Area</b>		
SS: 01: Energy industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
	TA 1.2: Energy generation from renewable energy sources		
SS 3: Energy demand	TA 3.1. Energy Demand		
SS 5: Chemical industry	TA 5.1 Chemical industry		
SS 12: Solvents use	TA 12.1 Chemical industry		
SS 13: Waste handling and disposal	TA 13.1 Waste Handling and Disposal		
	TA 13.2 Manure		
<b>Approved by (Manager C &amp; T)</b>	Shikha Sharma		
<b>Approval date:</b>	05/08/2021		

### Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
/1/	Vital Engenharia Ambiental S.A.	Monitoring report.	Version 1 of 17/03/2021	Project participant
/2/	Vital Engenharia Ambiental S.A.	Final Monitoring Report	Version 5 of 22/11/2021	Project participant
/3/	Vital Engenharia Ambiental S.A.	ER calculation sheet corresponding to MR version 1.	Corresponding to MR version 1	Project participant
/4/	Vital Engenharia Ambiental S.A.	Final ER calculation sheet corresponding to Final MR.	Corresponding to MR version 5	Project participant
/5/	Vital Engenharia Ambiental S.A.	Deviation spreadsheet.	Version 1 Version 3	Project participant
/6/	Vital Engenharia Ambiental S.A.	Registered PDD.	Version 8 of 29/04/2020	UNFCCC website
/7/	ICONTEC	Validation report.	Version 1.0 of 09/07/2012	UNFCCC website
/8/	Earthhood Services Private Limited	Validation report on PRC	Version 1.0 of 29/04/2020	Project participant
/9/	KBS Certification	Verification report from 1 <sup>st</sup> monitoring period (01/01/2014 to 31/09/2019).	CERs not claimed.	UNFCCC website
/10/	CDM Executive Board	Clean Development Mechanism Validation and Verification Standard for project activities.	Version 03.0 of 09/09/2021	UNFCCC website
/11/	CDM Executive Board	Clean Development Mechanism Project Standard for project activities.	Version 03.0 of 09/09/2021	UNFCCC website
/12/	CDM Executive Board	Clean Development Mechanism Project Cycle Procedure for project activities.	Version 03.0 of 09/09/2021	UNFCCC website
/13/	CDM Executive Board	CDM-MR-FORM: Monitoring report form.	Version 09.0 of 08/10/2021	UNFCCC website
/14/	CDM Executive Board	Large-scale Consolidated Methodology ACM0001: Flaring or use of landfill gas.	Version 19.0 of 14/06/2019	UNFCCC website
/15/	CDM Executive Board	TOOL02: Methodological tool: Combined tool to identify the baseline scenario and demonstrate additionality.	Version 07.0 of 22/09/2017	UNFCCC website
/16/	CDM Executive Board	TOOL03: Methodological tool: Tool to calculate project or leakage CO <sub>2</sub> emissions from fossil fuel combustion.	Version 03.0 of 22/09/2017	UNFCCC website
/17/	CDM Executive Board	TOOL04: Methodological tool: Emissions from solid waste disposal sites.	Version 08.0 of 04/05/2017	UNFCCC website
/18/	CDM Executive Board	TOOL05: Methodological tool: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation.	Version 03.0 of 22/09/2017	UNFCCC website
/19/	CDM Executive Board	TOOL06: Methodological tool: Project emissions from flaring.	Version 03.0 of 28/03/2019	UNFCCC website
/20/	CDM Executive	TOOL07: Methodological tool: Tool to	Version 07.0 of	UNFCCC

	Board	calculate the emission factor for an electricity system.	31/08/2018	website
/21/	CDM Executive Board	TOOL08: Methodological tool: Tool to determine the mass flow of a greenhouse gas in a gaseous stream.	Version 03.0 of 27/11/2015	UNFCCC website
/22/	CDM Executive Board	TOOL09: Methodological tool: Determining the baseline efficiency of thermal or electric energy generation systems.	Version 02.0 of 27/11/2015	UNFCCC website
/23/	CDM Executive Board	TOOL10: Methodological tool: Tool to determine the remaining lifetime of equipment.	Version 01 of 16/10/2009	UNFCCC website
/24/	CDM Executive Board	TOOL12: Methodological tool: Project and leakage emissions from transportation of freight.	Version 01.1.0 of 23/11/2012	UNFCCC website
/25/	CDM Executive Board	TOOL32: Methodological tool: Positive lists of technologies.	Version 02.0 of 28/11/2019	UNFCCC website
/26/	CDM Executive Board	Guideline: Application of materiality in verifications.	Version 2 of 20/02/2015	UNFCCC website
/27/	CDM Executive Board	Standard for application of the global warming potentials to clean development mechanism project activities and programmes of activities for the second commitment period of the Kyoto protocol.	Version 01.0, EB69, annex 3	UNFCCC website
/28/	Intergovernmental Panel on Climate Change (IPCC)	Fourth Assessment Report: Climate Change 2007. Available at: <a href="https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-chapter2-1.pdf">https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-chapter2-1.pdf</a> .	Assessed on 14/04/2021	Web link
/29/	Interministerial Commission in Global Climate Change (DNA of Brazil)	Carbon Emission Factor for the National Grid. Available at: <a href="https://www.mctic.gov.br/mctic/openms/ciencia/SEPED/clima/textogeral/missao_despacho.html">https://www.mctic.gov.br/mctic/openms/ciencia/SEPED/clima/textogeral/missao_despacho.html</a> .	Assessed on 14/04/2021 and on 17/09/2021	Web link
/30/	Energy Research Company of the Ministry of Mines and Energy - Brazil (EPE)	National Energy Balance 2020 (database of 2019). Available at: <a href="https://www.epe.gov.br/sites-pt/publicacoes-dados-abertos/publicacoes/PublicacoesArquivos/publicacao-479/topico-521/Relatório%20S%C3%ADntese%20BEN%202020-ab%202019_Final.pdf">https://www.epe.gov.br/sites-pt/publicacoes-dados-abertos/publicacoes/PublicacoesArquivos/publicacao-479/topico-521/Relatório%20S%C3%ADntese%20BEN%202020-ab%202019_Final.pdf</a> .	05/2020	Project participant
/31/	Landis Gyr	Electricity meter calibration certificate. • Serial number 3304-0070821-1; Serial number 3306-000226-1.	14/06/2018 19/07/2019	Project participant
/32/	Endress Hauser	Data sheet of flow meter model Prosonic Flow 200: Endress-Hauser_Proline_Prosonic_Flow_200_9B2B_EN.pdf.	-	Project participant
/33/	Endress Hauser	Manufacture's specifications for temperature meter: TR10 TI00256TEN_0219.pdf.	-	Project participant
/34/	MRU	Manufacture's specifications: Manual of gas analyser SWG 100BIO-Ex: EN_BROCHURE_SWG100bioWx.pdf.	-	Project participant
/35/	Landis Gyr	Technical description of electricity meter: LandisGyr_E750(1).pdf.	-	Project participant

/36/	Equatorial Energia	Electricity invoices.	09/2019 – 03/2020	Project participant
/37/	Vital Engenharia Ambiental S.A.	Environmental Credits Purchase and Sales Agreement Proposal between ALLCOT AG (Buyer) and Vital Engenharia Ambiental S.A. (Seller).	11/07/2021	Project participant
/38/	CDM Executive Board	<p>CDM Executive Board agrees to relax mandatory site visits by DOEs for a period of three months (23 March to 23 June 2020) because of COVID-19.</p> <p>The Executive Board of the Clean Development Mechanism (CDM) agreed on 23 June 2020 to, on an exceptional basis, considering the COVID-19 pandemic, to extend the period in which CDM Designated Operational Entities (DOEs) may apply alternative measures of validation/verification to mandatory on-site inspections until 31 December 2020.</p> <p>The Executive Board of the Clean Development Mechanism (CDM), as its 108<sup>th</sup> meeting, agreed to further extend the period in which DOEs may apply alternative measures of validation/verification to mandatory on-site inspections until 30 June 2021.</p> <p>The Executive Board of the Clean Development Mechanism (CDM), as its 110<sup>th</sup> meeting, agreed to further extend the period in which DOEs may apply alternative measures of validation/verification to mandatory on-site inspections until 31 December 2021.</p> <p>The Executive Board of the Clean Development Mechanism (CDM), as its 112<sup>th</sup> meeting, agreed to further extend the period in which DOEs may apply alternative measures of validation/verification to mandatory on-site inspections until 30 June 2022.</p>	<p>23/03/2020</p> <p>23/06/2020</p> <p>14/12/2020</p> <p>27/05/2021</p>	Publicly available
/39/	Secretary of State for Environmental and Natural Resources (SEMA)	Environmental licenses: No. 1015106/2020 valid until 06/04/2022.	10/02/2020	Project participant
/40/	CTR Rosario	Log diaries with information about incidents that occurred during the monitoring period.	03/2020 – 12/2020	Project participant
/41/	Endress Hauser	Manufacture's specifications of the pressure meter: CEREBAR_PMC11-PMC21-PMP21-Datasheet.pdf.	-	Project participant
/42/	Titara Central de Gerenciamento Ambiental	Declaration provided by PP regarding to the management of SWDS.	14/04/2021	Project participant
/43/	Secretary of State	Environmental license for the energy	08/11/2019	Project

	for Environmental and Natural Resources (SEMA)	plant No. 1139110/2019 valid until 08/11/2023.		participant
/44/	GE Jenbacher	Commissioning date of the group generators. Group generator 1 – serial number #1362594; Group generator 1 – serial number #1362606.	26/08/2019 17/01/2020	
/45/	ENC Energy	Commissioning report of the flare.	23/07/2019	Project participant
/46/	Equatorial Energia	Commercial operation: electricity invoices. Group generator 1 – serial number #1362594; Group generator 1 – serial number #1362606.	Issued date of the invoice. 28/08/2019 31/03/2019	Project participant
/47/	ONS	Grid Procedures: Module 12. Procedure for energy meter class: Sub-module 12.2 v2019.08. Available at: <a href="http://www.ons.org.br/%2FProcedimentosDeRede%2FM%C3%B3dulo%2012%2FSubm%C3%B3dulo%2012.2%2FSubm%C3%B3dulo%2012.2%202019.08.pdf">http://www.ons.org.br/%2FProcedimentosDeRede%2FM%C3%B3dulo%2012%2FSubm%C3%B3dulo%2012.2%2FSubm%C3%B3dulo%2012.2%202019.08.pdf</a> . Procedure for calibration: Sub-module 12.3 v2016.12. Available at: <a href="http://www.ons.org.br/%2FProcedimentosDeRede%2FM%C3%B3dulo%2012%2FSubm%C3%B3dulo%2012.3%2FSubm%C3%B3dulo%2012.3%202016.12.pdf">http://www.ons.org.br/%2FProcedimentosDeRede%2FM%C3%B3dulo%2012%2FSubm%C3%B3dulo%2012.3%2FSubm%C3%B3dulo%2012.3%202016.12.pdf</a> .	04/09/2019  16/12/2016	Publicly available
/48/	Endress Hauser	Flow meter calibration certificate. • Serial number N4120602000 (flare); Serial number N4066002000 (GGs).	24/04/2018 12/04/2018	Project participant
/49/	MRU	Gas analyser # 080902 calibration certificate No. 3-WAGNER3/CHK/028846.	23/05/2018	Project participant
/50/	Endress Hauser	Pressure meter # N405A80116A calibration certificate.	26/04/2018	Project participant
/51/	Endress Hauser	Manufacture's specifications for calibration: Flow meter, temperature meter and pressure meter: 2 years (declaration from manufacturer - Frequencia Endress Hauser.pdf).	07/06/2021	Project participant
/52/	MRU	Manufacture's specifications for calibration: Gas analyser: 1 year (declaration from manufacturer - Frequencia MRU.pdf).	07/06/2021	Project participant
/53/	Endress Hauser	Temperature meter # R1043823180 calibration certificate.	22/01/2020	Project participant
/54/	Vital Engenharia Ambiental S.A.	Data of net electricity generated by the project activity downloaded from the electricity meters.	01/09/2019 – 31/03/2020	Project participant



## Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. Remaining FAR from validation and/or previous verifications

<b>FAR ID</b>	xx	<b>Section no.</b>		<b>Date:</b> DD/MM/YYYY
<b>Description of FAR</b>				
<b>Project participant response</b>				<b>Date:</b> DD/MM/YYYY
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> DD/MM/YYYY

Table 2. CL from this verification

<b>CL ID</b>	01	<b>Section no.</b>	E.3	<b>Date:</b> 22/04/2021
<b>Description of CL</b>				
Section C of MR - PP is requested to clarify the monitoring equipment and their location provided in section C of the MR. As verified during the remote audit, there is only one flare installed and there is no consumption of diesel for electricity generation.				
<b>Project participant response</b>				<b>Date:</b> 15/09/2021
Section C amended accordingly				
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> 17/09/2021
The verification team checked that the monitoring equipment and their location were revised in section C of the MR. This CL is closed.				

<b>CL ID</b>	02	<b>Section no.</b>	E.6.1	<b>Date:</b> 22/04/2021
<b>Description of CL</b>				
Section D.1 of MR - PP is requested to clarify in section D.1 of the Monitoring Report the parameters that have not been used during the current monitoring period.				
<b>Project participant response</b>				<b>Date:</b> 15/09/2021
Clarified under Section D.1.				
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> 17/09/2021
KBS verified the revised MR and it was clarified in section D.1 of the Monitoring Report the parameters that have not been used during the current monitoring period. This CL is closed.				

<b>CL ID</b>	03	<b>Section no.</b>	E.6.2	<b>Date:</b> 22/04/2021
<b>Description of CL</b>				
Section D.2 of MR - PP is requested to clarify in section D.2 of the Monitoring Report the parameters that have not been used during the current monitoring period.				
<b>Project participant response</b>				<b>Date:</b> 15/09/2021
Included accordingly				
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> 17/09/2021
KBS verified the revised MR and it was clarified in section D.2 of the Monitoring Report the parameters that have not been used during the current monitoring period. This CL is closed.				

<b>CL ID</b>	04	<b>Section no.</b>	E.8.2	<b>Date:</b> 22/04/2021
<b>Description of CL</b>				

Section E.2 of MR - PP is requested to clarify in section E.2 of the Monitoring Report the consumption of electricity from diesel generator.	
<b>Project participant response</b>	<b>Date:</b> 15/09/2021
Clarified under E.2. that During the monitored period there were no diesel generator installed at the plant. Hence, there are no project emissions associated with the consumption of electricity from diesel generator (PEEC2 = 0 tCO <sub>2</sub> e).	
<b>Documentation provided by project participant</b>	
<b>DOE assessment</b>	<b>Date:</b> 17/09/2021
As verified during the remote audit, there is no diesel generator installed in the plant. Thus, section E.2 of MR was clearly revised in order to describe that there is no consumption of diesel. This CL is closed.	

Table 3. CAR from this verification

<b>CAR ID</b>	01	<b>Section no.</b>	E.1	<b>Date:</b> 22/04/2021
<b>Description of CAR</b>				
MR – PP is requested to apply the latest version of MR available in the UNFCCC website (i.e., version 8.0) and “Instructions for filling out the monitoring report form” mentioned as attachment to Monitoring report form (version 8.0).				
<b>Project participant response</b>				<b>Date:</b> 15/09/2021
MR template updated accordingly				
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> 17/09/2021
The verification team confirmed that the monitoring report applied the latest version of MR available in the UNFCCC website (i.e., version 8.0). This CAR is closed.				

<b>CAR ID</b>	02	<b>Section no.</b>	E.1	<b>Date:</b> 22/04/2021
<b>Description of CAR</b>				
Section D.1 and D.2 of MR - From the review of the hosted MR, Verification team has found that PP has used futuristic language in sections D.1 and D.2 of the Monitoring report. The verification is for the monitoring period for which monitoring is already done.				
<b>Project participant response</b>				<b>Date:</b> 15/09/2021
Language amended in D.1 and D.2				
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> 17/09/2021
KBS verified the revised MR and confirmed that language used in the document is appropriate. This CAR is closed.				

<b>CAR ID</b>	03	<b>Section no.</b>	E.3	<b>Date:</b> 22/04/2021
<b>Description of CAR</b>				
Section B.1 of MR – The information provided for the flare commissioning date, model and nominal gas flow is not according to the evidences provided during the remote audit. Moreover, PP is requested to provide information regarding to the commercial operation date of the group generators.				
<b>Project participant response</b>				<b>Date:</b> 15/09/2021
Amended and included in B.1.				
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> 17/09/2021
KBS verified the revised MR and confirmed that information regarding to flare commissioning date, model and nominal gas flow were corrected in section B.1 while information regarding to commercial operation date of the group generators was described in section A.1. This CAR is closed.				

<b>CAR ID</b>	04	<b>Section no.</b>	E.4.1	<b>Date:</b> 22/04/2021
<b>Description of CAR</b>				

Section B.2.1 of MR and deviation spreadsheet - PP is requested to clarify the period where the deviation is applied in section B.2.1 of the MR. In addition, PP is requested to revise the calculation in the deviation spreadsheet since the period considered is not according to the monitoring period.

<b>Project participant response</b>	<b>Date:</b> 15/09/2021
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Amended in proper MR section

**Documentation provided by project participant**

<b>DOE assessment</b>	<b>Date:</b> 17/09/2021
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The MR was revised and it clearly described that the deviation is applied for the entire monitoring period. In addition, the deviation spreadsheet was correctly revised.  
This CAR is closed.

<b>CAR ID</b>	05	<b>Section no.</b>	E.6.2	<b>Date:</b> 22/04/2021
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**Description of CAR**

Section D.2 of MR - According to the CERs spreadsheet, 2019 official data calculated by the Brazilian DNA was applied to determine OM and BM. However, it was verified at the Brazilian DNA website that data for the year 2020 was available for the operating margin factor. In addition, PP is requested to clarify in section D.2 of the MR the year of the data applied in the calculation of the build margin factor of the Brazilian grid.

<b>Project participant response</b>	<b>Date:</b> 15/09/2021
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EF updated accordingly

**Documentation provided by project participant**

<b>DOE assessment</b>	<b>Date:</b> 17/09/2021
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The verification team checked the revised MR and CERs spreadsheet and confirmed that the most recent data available at the Brazilian DNA website was applied for the operating margin factor (2020). However, the most recent data available at the Brazilian DNA website was not applied for the build margin factor.  
This CAR is open.

<b>Project participant response</b>	<b>Date:</b> 15/10/2021
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Build margin and combined margin corrected accordingly.

**Documentation provided by project participant**

<b>DOE assessment</b>	<b>Date:</b> 21/10/2021
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The verification team checked the revised MR and CERs spreadsheet and confirmed that the most recent data available at the Brazilian DNA website was applied for the build margin factor (2020).  
The CAR is closed.

<b>CAR ID</b>	06	<b>Section no.</b>	E.6.2	<b>Date:</b> 22/04/2021
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**Description of CAR**

Section D.2 of MR – Regarding to the parameter TDL<sub>y</sub> the following issues were identified:

- Information included under “Measured/calculated/default information” is not correct and should be revised;
- Information included under “Source of data” is not correct and should be revised.

<b>Project participant response</b>	<b>Date:</b> 15/09/2021
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Corrected accordingly considering National Electricity Energy Balance 2020

**Documentation provided by project participant**

<b>DOE assessment</b>	<b>Date:</b> 17/09/2021
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KBS verified the revised MR and information included under “Measured/calculated/default information” and under “Source of data” were correctly corrected in section D.2.  
This CAR is closed.

<b>CAR ID</b>	07	<b>Section no.</b>	E.6.2	<b>Date:</b> 22/04/2021
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**Description of CAR**

Section D.2 of MR – Regarding to the parameters “Quantity of electricity consumed from the grid by the project activity during the year y” and “Amount of electricity generated using LFG by the project activity during the year y” the following issues were identified:

- The value reported for the month 03/2020 is not according to the evidence provided during the remote audit;
- Monitoring equipment information should be included;
- Information included under “QA/QC procedures” is not correct and should be revised.

<b>Project participant response</b>	<b>Date:</b> 15/09/2021
"Quantity of electricity consumed from the grid by the project activity during the year y" has been reassessed. Please see "Resumo Faturas 2nd MP_JAS.xlsx"	
<b>Documentation provided by project participant</b>	
<b>DOE assessment</b>	<b>Date:</b> 17/09/2021
The verification team checked the revised MR and CERs spreadsheet and confirmed that the correct value, as per the evidence provided during the remote audit, was applied for the parameters "Quantity of electricity consumed from the grid by the project activity during the year y" and "Amount of electricity generated using LFG by the project activity during the year y" for the month 03/2020.	
Moreover, it was also confirmed that monitoring equipment information was included and information included under "QA/QC procedures" was revised.	
This CAR is closed.	

<b>CAR ID</b>	08	<b>Section no.</b>	E.6.2	<b>Date:</b> 22/04/2021
<b>Description of CAR</b>				
Section D.2 of MR – Regarding to the parameter "Management of SWDS", it is stated in the MR that source of data is according to the declaration issued by PP on January 2020. However, during the remote audit, PP presented a declaration dated 14/04/2021.				
<b>Project participant response</b>				<b>Date:</b> 15/09/2021
Amended accordingly				
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> 17/09/2021
The date of the declaration was revised in section D.2 of MR as per evidence provided.				
This CAR is closed.				

<b>CAR ID</b>	09	<b>Section no.</b>	E.6.2	<b>Date:</b> 22/04/2021
<b>Description of CAR</b>				
Section D.2 of MR - Regarding the "Operation of the equipment that consumes the LFG", the following issues were identified:				
<ul style="list-style-type: none"> <li>Information included under "Value(s) of monitored parameter" is not correct and should be revised.</li> <li>Information included under "Monitoring equipment" is not correct and should be revised.</li> </ul>				
<b>Project participant response</b>				<b>Date:</b> 15/09/2021
Revised accordingly				
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> 17/09/2021
KBS verified that information included under "Value(s) of monitored parameter" and under "Monitoring equipment" were correctly revised in section D.2 of MR.				
This CAR is closed.				

<b>CAR ID</b>	10	<b>Section no.</b>	E.6.2	<b>Date:</b> 22/04/2021
<b>Description of CAR</b>				
Section D.2 of MR - Regarding to the parameters "Volumetric flow of the gaseous stream in time interval t on a dry basis", "Volumetric fraction of greenhouse gas i in a time interval t on a dry basis", "Temperature of the gaseous stream in time interval t", "Pressure of the gaseous stream in time interval t" and "Flame <sub>m</sub> ", the following issues were identified:				
<ul style="list-style-type: none"> <li>Information included under "Value(s) of monitored parameter" is not correct and should be revised.</li> <li>Monitoring equipment information should be included.</li> </ul>				
<b>Project participant response</b>				<b>Date:</b> 15/09/2021
Amended accordingly				
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> 17/09/2021
Regarding to the parameters "Volumetric flow of the gaseous stream in time interval t on a dry basis", "Volumetric fraction of greenhouse gas i in a time interval t on a dry basis", "Temperature of the gaseous stream in time interval t", "Pressure of the gaseous stream in time interval t" and "Flame <sub>m</sub> ", the information included under "Value(s) of monitored parameter" was revised and the monitoring equipment information was included in section D.2 of MR.				
This CAR is closed.				

<b>CAR ID</b>	11	<b>Section no.</b>	E.6.2	<b>Date:</b> 22/04/2021
<b>Description of CAR</b>				
Section D.2 of MR – According to the tool “Project emissions from flaring”, the parameter maintenance should be monitored for the case of enclosed flare. However, as verified during the remote audit, an open flare is installed.				
<b>Project participant response</b>				<b>Date:</b> 15/09/2021
Excluded from D.2. tables and included as parameter not used during MP				
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> 17/09/2021
KBS verified that the parameter maintenance was correctly removed from section D.2 of the revised MR. This CAR is closed.				

<b>CAR ID</b>	12	<b>Section no.</b>	E.7	<b>Date:</b> 22/04/2021
<b>Description of CAR</b>				
Section C of MR - No information regarding to calibration was provided in the MR. PP is requested to explain the statement included in section C of the MR.				
<b>Project participant response</b>				<b>Date:</b> 15/09/2021
Statement: “All monitoring instruments were running properly and calibrated (some period were identified with delayed calibration and the procedures defined paragraph 369 of the CDM validation and verification standard for project activities have been adopted) during this monitoring period.” has been replaced by “Monitoring instruments used under this monitoring period (deviation applied for the full monitored period) were running properly and calibrated during this monitoring period.”				
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> 17/09/2021
The statement included in the revised MR was revised and information regarding the electricity meter calibration was included. This CAR is closed.				

<b>CAR ID</b>	13	<b>Section no.</b>	E.8.1	<b>Date:</b> 22/04/2021
<b>Description of CAR</b>				
Section E.1 of MR and CERs spreadsheet - Regarding the calculation of baseline emissions, the following issues were identified:				
<ul style="list-style-type: none"> <li>It is described the efficiency of an enclosed flare. However, the project activity has an open flare installed;</li> <li>The description under Step A.1 is not as per registered PDD since option B could also be applied to determine the mass flow of a greenhouse gas;</li> <li>It is mentioned that the project activity has more than one flare;</li> <li>It is stated that option A was chosen to determine the mass flow of a greenhouse gas. However, the project activity applied a deviation for the determination of the volume of methane.</li> <li>The value of methane applied in the calculation of the baseline emissions for the month 03/2020 is not correct since a wrong value of electricity consumption was considered in the deviation calculation.</li> </ul>				
<b>Project participant response</b>				<b>Date:</b> 15/09/2021
All items revised under the MR and CERs spreadsheet (including deviation spreadsheet).				
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> 17/09/2021
KBS confirmed that section E.1 of MR and CERs spreadsheet were correctly revised.				
<ul style="list-style-type: none"> <li>Information regarding to the efficiency of the flare was correctly revised;</li> <li>The description of option B was included since this option could also be applied to determine the mass flow of a greenhouse gas;</li> <li>The number of installed flare was revised;</li> <li>The statement regarding to the determination of the mass flow of a greenhouse gas was revised since the project activity applied a deviation for the determination of the volume of methane;</li> <li>The value of methane applied in the calculation of the baseline emissions for the month 03/2020 was corrected.</li> </ul>				
This CAR is closed.				

Table 4. FAR from this verification

<b>FAR ID</b>	xx	<b>Section No.</b>		<b>Date:</b> DD/MM/YYYY
<b>Description of FAR</b>				
<b>Project participant response</b>				<b>Date:</b> DD/MM/YYYY
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> DD/MM/YYYY

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**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
04.0	6 April 2021	Revision to: <ul style="list-style-type: none"> <li>• Reflect the “Clarification: Regulatory requirements under temporary measures for post-2020 cases” (CDM-EB109-A01-CLAR).</li> </ul>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"> <li>• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN);</li> <li>• Make structural and editorial improvements.</li> </ul>
02.1	11 January 2018	Editorial revision to correct the numbering of appendices in the instructions.
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: project activities, verifying and certifying		