




**Verification and certification report form for
CDM project activities
(Version 03.0)**

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION

Title and UNFCCC reference number of the project activity	Landfill Gas Recovery and Flaring Project in El Verde Landfill Leon UNFCCC ID: 3378
Scale of the project activity	<input checked="" type="checkbox"/> Large-scale <input type="checkbox"/> Small-scale
Version number of the verification and certification report	1.0
Completion date of the verification and certification report	22/04/2020
Monitoring period number and duration of this monitoring period	6 th MP (1 st MP of the 2 nd CP) 27/10/2017 – 31/12/2018 (including both days)
Version number of the monitoring report to which this report applies	7.0
Crediting period of the project activity corresponding to this monitoring period	27/10/2017 – 26/10/2024 (including both days)
Project participants	Promotora Ambiental S.A.B. de C.V. First Climate AG
Host Party	Mexico
Applied methodologies and standardized baselines	ACM0001: Flaring or use of landfill gas, version 18
Mandatory sectoral scopes	13: Technical Area: 13.1
Conditional sectoral scope(s), if applicable	1: Technical Area: 1.2
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	182,137 t CO ₂ e
Certified amount of GHG emission reductions or GHG removals for this monitoring period	42,146 t CO ₂ e
Name and UNFCCC reference number of the DOE	TÜV NORD CERT GmbH (TÜV NORD) Ref No.: E-0022
Name, position and signature of the approver of the verification and certification report	 Stefan Winter Final Approver

SECTION A. Executive summary

Promotora Ambiental S.A.B de C.V. (hereafter referred as "PASA") has commissioned the TÜV NORD JI/CDM Certification Program to carry out this periodic verification of the project:

"Landfill Gas Recovery and Flaring Project in the El Verde Landfill, Leon"

with regard to the relevant requirements for CDM project activities.

This verification covers the period as indicated on the title page.

The project reduces GHG emissions due to the capture and destruction of landfill gas (LFG) generated in the El Verde landfill in the city of Leon. The project consists in the installation of a pipes network and a high efficiency flare to destroy the methane.

In future, it is planned that landfill gas will mainly be utilized for electricity generation and any excess gas will be flared..

Details of the project location are given in table A-1 below:

Table A-1: Project Location

No.	Project Location
Host Country	Mexico
Region:	State of Guanajuato
Project location address:	Carretera León, Lagos de Morenos km 18.5, León City, Guanajuato State
Latitude:	21° 10' 14" N
Longitude:	101° 46' 30" W

Basic technical details of the project are summarized in table A-2.

Table - A-2: Technical data of the project activity

Parameter	Unit	Value
Flare Manufacturer by John Zink		
Quantity		1
Flare Operating Temperature	°C	648 °C to 982 °C (1093 °C shutdown)
Flare Inlet Pressure	"	5" H2O (maximum)
Biogas composition	%CH4	50
Destruction Efficiency	%	98
Retention Time	sec	0.7 at 1800 °F (minimum)
Blower		
Quantity		2
Capacity	SCFM	1600
Power	HP	75

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document.
- the monitoring plan is in accordance with the applied approved CDM methodology,
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of this periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner.

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	EI	Oliver	Quireza	TN México	x	x	x	x

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.	Observer reviewer	EI	Lubanga	David	-
2.	Technical reviewer	IR	Winter	Stefan	TÜV NORD CERT
3.	Approver	IR	Rami	Kunal	TÜV NORD CERT

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

In order to ensure a complete, transparent and timely execution of the verification task the team leader has planned the complete sequence of events necessary to arrive at a substantiated final verification opinion.

Various tools have been established in order to ensure an effective verification planning.

Materiality Threshold

The verification is based on the materiality threshold identified in table C-1 below:

Table C-1: Applied Materiality Threshold

	Threshold	Related to
<input type="checkbox"/>	0.5 %	Emission reductions or removals for registered CDM project activities achieving a total emission reduction or removal equal to or more than 500,000 tonnes of carbon dioxide equivalent per year ¹ ;
<input type="checkbox"/>	1 %	Emission reductions or removals for registered CDM project activities achieving a total emission reduction or removal of between 300,000 and 500,000 tonnes of carbon dioxide equivalent per year;
<input checked="" type="checkbox"/>	2 %	Emission reductions or removals for registered large-scale CDM project activities achieving a total emission reduction or removal of 300,000 tonnes of carbon dioxide equivalent per year or less;
<input type="checkbox"/>	5 %	Emission reductions or removals for registered small-scale CDM project activities other than registered CDM project activities covered under next category below;

¹ A year refers to a period of 12 consecutive months.

	Threshold	Related to
<input type="checkbox"/>	10 %	Emission reductions or removals for the type of registered CDM project activities referred to in decision 3/CMP.6, paragraph 38 (referred to as microscale project activities).

Strategic Analysis

At the beginning of the verification the verification team leader has assessed the nature, scale and complexity of the verification tasks by carrying out a strategic analysis of all activities relevant to the project activity. The team leader has collected and reviewed the information relevant to assess that the designated verification team is sufficiently competent to carry out the verification and to ensure that it is able to conduct the necessary risk analysis.

Risk analysis and detailed audit testing planning

For the identification and assessment of potential reporting risks and to determine the necessary detailed audit testing procedures for residual risk areas the following table is used.

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.	Overlook relevant differences when cross checking original data (raw data) from manual logbooks (LP Gas and maintenance) and raw data and ER spreadsheets.	low	Even though there are procedures in place for all metering and cross checking processes the personnel could overlook important differences when performing the manual logbooks	Interview with personnel as well as demonstration of how the cross check is done. Cross check original data from manual logbooks and the raw data spread sheets of parameters
2.	Omissions and misstatements in data transfer from SCADA Landtec into digital Excel ER spreadsheet	Medium	Ineffective quality control of data transfer due to unclear QA/QC procedure	Check QM procedure/manual. PP may demonstrate how to transfer data and how this is crosschecked. Conduct interview with related personnel whether procedure is actually conducted but not adequately described.
3.	Missing data due to failure of measurement equipment	Low	The monitoring plan defines operation emergency procedures in case a meter fails. Besides information is recorded electronically in the servers. Backup meters for relevant meter equipment are available onsite for fast exchange.	Check if related meters are installed as per monitoring plan. Check if emergency procedure is known across related personnel via interviews. Check back-up meters on correct calibration.

On the basis of the risk analysis the verification has been planned. A detailed audit/verification plan has been prepared and submitted to the project participant(s) in due time before the onsite inspection.

C.2. Consideration of materiality in conducting the verification

Based on the verification planning the verification has been carried out. The concept of materiality has been considered. A breakdown of the chosen approaches is included in the following table.

<i>Parameter</i>	<i>Approach^h</i>	<i>Errors* detected</i>	<i>Corrected</i>	<i>Remaining verification risk</i>
Management of SWDS	CDC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Not material
$p_{reg,y}$	CDC	<input type="checkbox"/>	<input type="checkbox"/>	Not material
$V_{LFG,total,y,db}$	CDC	<input type="checkbox"/>	<input type="checkbox"/>	Not material
$V_{LFG,sent_flare,y,db}$	CDC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Not material
$V_{LFG,EL,y,db}$	CDC	<input type="checkbox"/>	<input type="checkbox"/>	Not material
$to2,h$	CDC	<input type="checkbox"/>	<input type="checkbox"/>	Not material
$f_{vCH4,FG,h}$	CDC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Not material
Maintenance_y	CDC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Not material
T_t	CDC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Not material
P_t	CDC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Not material
$V_{CH4,t,db}$	CDC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Not material
$EC_{BL,k,y}$	CDC	<input type="checkbox"/>	<input type="checkbox"/>	Not material
$EGEC,y$	CDC	<input type="checkbox"/>	<input type="checkbox"/>	Not material
$Op_{engine,h}$	CDC	<input type="checkbox"/>	<input type="checkbox"/>	Not material
$Op_{flare,h}$	CDC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Not material
$Flame_m$	CDC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Not material
$PEEC,y$	CDC	<input type="checkbox"/>	<input type="checkbox"/>	Not material
$FC_{i,j,y}$	CDC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Not material
TEG,m	CDC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Not material
Aggregate	0%			Materiality threshold not exceeded

^h) incl. omissions and misstatements

^h) Verification Approaches:

CDC: Complete data check of data including all data aggregation steps

NDC: Non-complete data check – omissions not material

SPL: Sampling approach (all data available)

ASP: Acceptance Sampling

COM: Data check at higher data aggregation levels and sampling at original data levels

The verification was basically carried out as per the verification plan. However, based on the actual situation on-site and the errors, omissions and misstatements identified during the verification minor deviations from the original plan occurred. However, due to the insignificance no major revision of the overall plan was required. Esp. there was no need for significant modification of the sampling approaches or for additional / less locations to be visited during the on-site.

SECTION D. Means of verification

D.1. Desk/document review

During the desk review all documents initially provided by the client and publicly available documents relevant for the verification were reviewed. The main documents are listed below:

- the last revision of the PDD including the monitoring plan^{/PDD/},
- the last revision of the validation report^{/VAL/},
- documentation of previous verifications^{/VER/}
- the monitoring report, including the claimed emission reductions for the project^{/MR/},
- the emission reduction calculation spreadsheet^{/XLS/}.

Other supporting documents, such as publicly available information on the UNFCCC website and background information were also reviewed.

D.2. On-site inspection

Duration of on-site inspection: 08/04/2019 to 10/04/2019				
No	Activity performed on-site	Site location	Date	Team member
1.	Kick off meeting	Landfill site	08/04/2019	Oliver Quireza
2.	Checking relevant site points	Landfill site	08/04/2019	Oliver Quireza
3.	Evidence assessment	Landfill site	09/04/2019	Oliver Quireza
4.	Preparation of the DVR	Landfill site	09/04/2019	Oliver Quireza
6.	Findings summary to the client	Landfill site	10/04/2019	Oliver Quireza
7.	Working day auditor-client to close findings	Landfill site	10/04/2019	Oliver Quireza
8.	Closing meeting	Landfill site	10/04/2019	Oliver Quireza

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Hernandez	Reynaldo	PASA	08-10/04/2019	LFG and Energy Coordinator	Oliver Quireza
2.	Lopez	Felipe de Jesus	PASA	09/04/2019	Landfill Manager	Oliver Quireza
3.	Palacio	Gerardo	PASA	08-10/04/2019	Biogas Technician	Oliver Quireza
4.	Cuadrat	Sergi	Clima Loop	08-10/04/2019	CDM Consultant	Oliver Quireza

D.4. Sampling approach**D.4.1 Sampling during monitoring**

<input checked="" type="checkbox"/>	No sampling approach has been used by the PP to determine the monitored parameters				
<input type="checkbox"/>	A sampling approach has been taken for the following monitored parameter(s):				
	Parameter	Sampling approach ¹⁾	Sampling Type ²⁾	Population	Sample Size

¹⁾ Sampling Approaches:

SiRS: Simple Random Sampling
 StRS: Stratified Random Sampling
 SS: Systematic Sampling
 CS: Cluster Sampling
 MSS: Multi-stage Sampling
 AS: Acceptance Sampling

²⁾ Sampling Types:

PS: Parameter Sampling

D.4.2 Sampling approaches during verification

<input checked="" type="checkbox"/>	No sampling approach has been used by the VT to verify the monitored parameters				
<input type="checkbox"/>	A sampling approach has been applied by the VT for the following monitored parameter(s):				
	Parameter	Sampling approach ¹⁾	Sampling Type ²⁾	Population	Sample Size

1) Sampling Approaches:

SiRS: Simple Random Sampling
 StRS: Stratified Random Sampling
 SS: Systematic Sampling
 CS: Cluster Sampling
 MSS: Multi-stage Sampling

2) Sampling Types:

AS: Acceptance Sampling
 PS: Parameter Sampling
 COM: Full data check at higher data aggregation levels and sampling at original data levels

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	-	-	-
Compliance of the project implementation and operation with the registered PDD	-	2	-
Post-registration changes	-	1	-
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	-	1	-
Compliance of monitoring activities with the registered monitoring plan	-	9	-
Compliance with the calibration frequency requirements for measuring instruments	-	1	-
Assessment of data and calculation of emission reductions or net removals	-	6	-
Assessment of reported sustainable development co-benefits	-	-	-
Global stakeholder consultation	-	-	-
Others (please specify)	-	-	-
Total	-	20	-

SECTION E. Verification findings

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

Means of verification	<p>A draft monitoring report was submitted to the verification team by the project participants. The DOE has made this report publicly available prior to the start of the verification activities. No comments were received.</p> <p>By means of the UNFCCC website it has been checked whether the latest applicable MR template CDM-MR-FORM has been used.</p> <p>Further it has been checked whether the latest instructions for filling out the MR template have been followed. Every section has been checked against the respective guidance.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /MR/ • /MRT/ • /unfccc/ 		
Findings	<input checked="" type="checkbox"/>	The latest reporting template CDM-MR-FORM as listed on the UNFCCC website has been used for the Monitoring Report to be uploaded.	
	<input checked="" type="checkbox"/>	The latest instructions for filling out the MR have been followed. No adverse finding has been identified in the course of this verification.	
	<input type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:	

Conclusion	<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.

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

During the validation the validating DOE might have raised issues that could not be closed or resolved during the validation stage. For this purpose FARs might have been raised. Likewise FARs might have been raised in the course of previous verifications.

In the course of this verification the latest version of the PDD ^{/PDD/} and the previous verification report ^{/VER/}, where applicable, have been checked in order to identify any remaining forward action requests. For the current monitoring period the following applies:

(i) Open issues from validation:

<input checked="" type="checkbox"/>	There were no open issues which have been addressed in the latest version of the validation report.
<input type="checkbox"/>	All open issues from the validation have been appropriately addressed in the context of previous verifications.
<input type="checkbox"/>	All issues related to the validation have been appropriately addressed in the course of the current monitoring period (for details please refer to appendix 4)
<input type="checkbox"/>	The following issues related to the validation have not yet been appropriately addressed (for details please refer to appendix 4):
	- N/A

(ii) Open issues from previous verifications:

<input type="checkbox"/>	N/A – as this is the first monitoring period for this CDM project activity.
<input checked="" type="checkbox"/>	There were no open issues which have been addressed in the previous verification report
<input type="checkbox"/>	All issues related to the previous verification have been appropriately addressed in the course of the current monitoring period (for details please refer to appendix 4)
<input type="checkbox"/>	The following issues related to the previous verification have not yet been appropriately addressed (for details please refer to appendix 4):
	- N/A

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

Means of verification	<p>By means of an in-depth review of the PDD in its latest form – as downloaded from the UNFCCC project site - and the checks carried out during the on-site visit an assessment has been carried out whether the project has been implemented and operated in line with the latest approved version of the PDD and whether all physical features of the project are in place. The following has been checked: implemented technology, project equipment as well as monitoring and metering equipment.</p> <p>Further is has been checked if relevant technical equipment of the project activity has been exchanged or modified during the monitoring period and consistent notations of key equipment (meters etc.) in PDD, MR and calculation spreadsheet are applied.</p> <p>Interviews with operational personnel have been carried out, QMS records, maintenance records, instrument specifications were checked in this context.</p>
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	<p>Special focus has further been laid to determine whether a potential phase wise implementation has occurred within the crediting period or any delays with respect to the starting dates have occurred.</p> <p>Further it has been checked whether any observed deviations from the registered project design have been happened.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /PDD/ • /MR/ • /VVS/ • /XLS/ • /unfccc/
Findings	<input type="checkbox"/> The project has been implemented as described in the latest version of the PDD as well as in section B.1 of the monitoring report. No deviations thereof have been identified in the course of this verification.
	<input type="checkbox"/> The following deviations from the registered / approved project design and or the project description in the MR have been identified in the course of this verification (for further details please refer to section E.4):
	<input checked="" type="checkbox"/> In this context the following CARs, CLs have been raised: CAR 01 The actual status of the power generation phase is not mentioned in section B.1, as the engine and peripheral equipment are already installed. Furthermore the 60% covering of macrocell 1 mentioned in the MR is not in line with the actual status of the landfill as the Macrocell number 1 is already closed and Macrocell 2 is under operation.
	<i>In case of phased implementation:</i>
	<input checked="" type="checkbox"/> Refer to CAR 01
	<input type="checkbox"/> The phased implementation has correctly and in sufficient detail been described in the latest version of the PDD.
	<input type="checkbox"/> The description in section 3.1 of the MR differs in content or the level of detail from the latest version of the PDD. However, the description in the MR is correct and reflects the situation during the site inspection.
	<input checked="" type="checkbox"/> The project description in the PDD/MR is not deemed sufficient. The detailed implementation timeline is as follows: See CAR 01.
Conclusion	<input type="checkbox"/> No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/> The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	The revised description in section B.1 of the MR is fully in line with the actual status of the PA, according to the observations and declarations provided during the site visit by the landfill and biogas plant managers. Also the operation logbooks confirms that stage 2 of the PA is under testing phase. So it is confirmed that the project has been implemented as described in the latest version of the PDD.

E.4. Post-registration changes

E.4.1. Temporary deviations from the registered monitoring plan, applied methodologies or applied standardized baselines

It has been checked whether Temporary deviations from the registered monitoring plan (TDfrMP) or Temporary deviations from monitoring methodology or standardized baseline (TDfMM) have been applied during this monitoring period. The result is summarized in the table below.

<input checked="" type="checkbox"/>	No Temporary deviations from the registered monitoring plan (TDfrMP) or Temporary deviations from monitoring methodology or standardized baseline (TDfMM) have been submitted to the UNFCCC prior to the current monitoring period.		
<input type="checkbox"/>	The following TDfrMP or TDfMM have been approved or are under approval by the UNFCCC		
	1	Title	
		Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved (approval No.:)
		Appr.date	
		Ref. No.	
	2	Title	
		Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved (approval No.:)
		Appr.date	
		Ref.No.	
<input type="checkbox"/>	During the verification of the current MP no need for a TDfrMP or TDfMM has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA		
<input type="checkbox"/>	An approval of the following TDfrMP or TDfMM is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply. Please refer to the related PRC report submitted along with this issuance request for further details w.r.t. the assessment of the PRC.		
	1	Issue:	
	2	Issue:	
<input checked="" type="checkbox"/>	The following TDfrMP or TDfMM for which appendix 1 of the PS is applicable have been applied:		
	1	Issue:	<p>Parameter VLFG,sent_flare,y,db (m³ dry gas/h) is measured continuously by a flow meter at normal pressure and temperature and registered electronically by the system Landtec. The meter provided the normalized flow values adjusted by P and T so no further adjust is required.</p> <p>This is in line with the approved clarification “AM_CLA_0023” (https://cdm.unfccc.int/methodologies/PAmethodologies/clarifications/81628), approved on 13/04/2006).</p> <p>Tt is monitored, in line with the registered PDD, to determine when Tt exceeds 60°C.</p> <ul style="list-style-type: none"> - in case of Tt < 60°C (Option A) The monitoring of parameter VLFG,sent_flare,y,db is in line with the registered monitoring plan and the applied methodology and tools. - in case of Tt > 60°C (Option B) As stated in the previous point, PP decided to not consider the values of parameter VLFG,sent_flare,y,wb (m³ wet gas/h) in the ER calculation. This decision is in line with the registered PDD. The calculation is conservative, which was verified in columns D and E of spreadsheet /error/ in xls file Raw_Data_EI_Verde_6MP_v5. <p>In line with §282 VVS, PP applied the most conservative values approach referred to in the “CDM project standard for project activities” for the non-conforming monitoring period.</p> <p>In detail, PP applied zero for the baseline emissions for the entire non-conforming period. PP followed therewith the relevant §231 (b) of the CDM project standard for project activities. Therefore, and in line with §284 of VVS, no approval by the Board is required.</p>
	2	Issue:	The flare efficiency ($\eta_{\text{flare,m}}$) is determined/calculated every two minutes instead of each minute as required by the monitoring plan and as per option B.2 of the tool “Project emissions from flaring” (Version 02.0.0)

E.4.2. Corrections

It has been checked whether any corrections to project information or parameters fixed at validation have been approved during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

<input checked="" type="checkbox"/>	During the verification of the current MP no need for corrections has been identified.	
<input type="checkbox"/>	The following corrections have been applied:	
1	Issue:	
2	Issue:	
It is confirmed that the updated / corrected information is an accurate reflection of the actual project information and that the corrected parameters are in accordance with the applied methodology and the monitoring plan.		
<input type="checkbox"/> A related post registration change has been submitted prior to the issuance request. The approval has been received on xxx via approval number xxx		
<input type="checkbox"/> A related post registration change is submitted along with this issuance request. Please refer to the related PRC report submitted along with this issuance request for further details w.r.t. the assessment of the PRC.		

E.4.3. Change to the start date of the crediting period

<input type="checkbox"/>	N/A - as this is not the first verification within the crediting period
<input checked="" type="checkbox"/>	The PPs do not intend to change the start date of the crediting period.
<input type="checkbox"/>	As the change in the start date was below the related time period as indicated in PS § 234 and § 235 no prior approval was required but only a notification. This notification has been submitted by the PP without involvement of the DOE. The change and new start date has been checked from the related UNFCCC project webpage.
<input type="checkbox"/>	The PPs intend to change the start date of the crediting period. As the intended change in start date beyond the related time period as indicated in PS § 236 and as per §237 prior approval by the Board is required. For detailed assessment of the change please refer to related PRC validation report. As per assessment in this report the DOE confirms that the change to the start date of the crediting period are in line with the related requirements of the VVS and PS.
<input type="checkbox"/>	The approval to change the start date of the crediting period has been received on DD/MM/YYYY via approval number PRC-XXXX-00Z

E.4.4. Inclusion of a monitoring plan

<input checked="" type="checkbox"/>	N/A - as this monitoring plan was part of the registered PDD
<input type="checkbox"/>	In line with PS § 238 and §78 the PP has forwarded a monitoring plan to the DOE for validation. No prior approval of the monitoring plan was required as the PP in line with PS § 78 wished to submit the monitoring plan together with the request for issuance for the first monitoring period. Please refer to the related PRC report submitted along with this issuance request for further details w.r.t. the assessment of the PRC.
<input type="checkbox"/>	In line with PS § 238 and §78 the PP submitted a monitoring plan prior to the submission of the request for issuance for validation to the DOE. A DOE has assessed the monitoring plan in line with related VVS requirements and submitted a related PRC report for prior approval. The approval has been received on DD/MM/YYYY via approval number PRC-XXXX-00Z.

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

It has been checked whether any permanent changes from the registered monitoring plan (PCfrMP) or applied methodologies (PCfMM) including standardized baselines (PCfSB) have been approved prior or during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

<input type="checkbox"/>	No PCfrMP, PCfMM or PCfSB have been submitted to the UNFCCC prior to the current monitoring period		
<input checked="" type="checkbox"/>	The following PCfrMP, PCfMM or PCfSB have been approved or are under approval by the UNFCCC		
1	Title	T and P parameters won't be monitored separately as the gas flow is expressed at normal conditions under the actual operation conditions.	
	Status	<input type="checkbox"/> under approval; <input checked="" type="checkbox"/> approved	
	Appr.date	02/12/2013	
	Ref. No.	PRC-3378-001	
2	Title		
	Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved	
	Appr.date		
	Ref.No.		
<input checked="" type="checkbox"/>	During the verification of the current MP no need for a PCfrMP, PCfMM or PCfSB has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA		
<input type="checkbox"/>	An approval of the following PCfrMP, PCfMM or PCfSB is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply.		
1	Issue:		
2	Issue:		
<input type="checkbox"/>	The following PCfrMP, PCfMM or PCfSB for which appendix 1 of the PS is applicable have been applied:		
1	Issue:		
2	Issue:		

E.4.6. Changes to the project design

It has been checked whether any changes to the project design (CoPD) have been approved prior or during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

<input type="checkbox"/>	No CoPD has been submitted to the UNFCCC prior to the current monitoring period		
<input checked="" type="checkbox"/>	The following CoPD have been approved or are under approval by the UNFCCC		
1	Title	1. The leachate evaporator is not operated anymore 2. Equipment commissioning is stated as 11 to 14 January 2010, which is prior to the start of the CP (27-10-2010)	

		3. The installation of 2.4 MW power generators was expected for January 2012, this has been postponed in order to upgrade the LFG system to extract sufficient gas to achieve the expected generation.
	Status	<input type="checkbox"/> under approval; <input checked="" type="checkbox"/> approved
	Appr.date	02/12/2013
	Ref. No.	PRC-3378-001
	2	Title
	Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved
	Appr.date	
	Ref.No.	
<input checked="" type="checkbox"/>	During the verification of the current MP no need for a CoPD has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA	
<input type="checkbox"/>	An approval of the following CoPD.is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply.	
	1	Issue:
	2	Issue:
<input type="checkbox"/>	The following CoPD for which appendix 1 of the PS is applicable have been applied:	
	1	Issue:
	2	Issue:

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

<input checked="" type="checkbox"/>	N/A - as this is no A/R project activity
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E.5. Compliance of the registered monitoring plan with applied methodologies, applied standardized baselines, and other applied methodological regulatory documents

Means of verification	By means of comparison of the MR with (i) the applied CDM methodology (ii) all applicable CDM Meth tools and (iii) if applicable, a standardized baseline the verification team has checked whether the MP is in compliance with the MP related requirements of the applied methodology/tools/SB. The following sources of information have been used in this context: <ul style="list-style-type: none"> • /MR/ • /METH/ • /TOOL/ • /unfccc/ 								
Findings	<input checked="" type="checkbox"/>	The MP is completely in accordance with the approved methodology applied by the CDM project (last registered/approved version of the PDD)							
	<input checked="" type="checkbox"/>	The breakdown of MP accordance of the referenced tools is as follows:							
		1	<table border="1"> <tr> <td>Title (of the tool)</td><td>Project emissions from flaring</td></tr> <tr> <td>Version</td><td>02.0.0</td></tr> <tr> <td>MP compliance</td><td> <input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A (for MP) </td></tr> </table>	Title (of the tool)	Project emissions from flaring	Version	02.0.0	MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A (for MP)
Title (of the tool)	Project emissions from flaring								
Version	02.0.0								
MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A (for MP)								
		2	<table border="1"> <tr> <td>Title (of the tool)</td><td>Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation</td></tr> <tr> <td>Version</td><td>03.0</td></tr> </table>	Title (of the tool)	Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation	Version	03.0		
Title (of the tool)	Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation								
Version	03.0								

		MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A	
	3	Title (of the tool)	Tool to calculate project or leakage CO2 emissions from fossil fuel combustion	
		Version	03.0	
		MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A	
	4	Title (of the tool)	Emissions from solid waste disposal sites	
		Version	08.0	
		MP compliance	<input type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input checked="" type="checkbox"/> N/A	
	5	Title (of the tool)	Tool to calculate the emission factor for an electricity system	
		Version	07.0	
		MP compliance	<input type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input checked="" type="checkbox"/> N/A	
	6	Title (of the tool)	Tool to determine the mass flow of a greenhouse gas in a gaseous stream	
		Version	03.0	
		MP compliance	<input type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input checked="" type="checkbox"/> N/A	
	7	Title (of the tool)	Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period	
		Version	03.0.1	
		MP compliance	<input type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input checked="" type="checkbox"/> N/A	
		<input type="checkbox"/>	The breakdown of MP accordance of the applicable SB is as follows:	
			1	Title (of the SB)
			Version	
			MP compliance	
	<input type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised:		
Conclusion	<input checked="" type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.		
	<input type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.		
	-			

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

Means of verification	By means of comparison of the MR and the ER calculation with the latest version of the registered PDD the verification team has checked whether all parameters fixed ex-ante or at renewal of the crediting period have been applied correctly. The following fixed ex ante parameters have been assessed:			
	The following parameters include the parameter which appear explicitly as ex-ante in the PDD section B.6.2.			
	Nbr.	Parameter abbreviation	Description	Value
	1.	OX_{top_layer}	Fraction of methane that would be oxidized in the top layer of the SWDS in the baseline	0.1
	2.	GWP_{CH4}	Global Warming Potential of CH4	25.0
	3.	D_{CH4}	Methane density at normal temperature and pressure (0°C and 1.013 bar) (g/L)	0.7168
	4.	EFEL_{j,y} = EF_{grid, CM, y} = EFEL_{k,y}	Gird Emission factor	0.458
	5.	TDL_y	Average technical transmission and distribution losses in the grid in year y	20
				%
	The following parameters are fixed ex-ante in the CDM-PDD (not explicitly mentioned in section B.6.2) and used for the ex-post calculation:			
	Nbr.	Parameter abbreviation	Description	Value
	1.	ρ_{CH4,n}	Density of methane gas at normal conditions	0.716
	2.	AM_C	Atomic mass of carbon	12.0
	3.	AM_H	Atomic mass of hydrogen	1.01
	4.	AM_O	Atomic mass of oxygen	16.0
	5.	AM_N	Atomic mass of nitrogen	14.01
	6.	NA_{C,CH4}	Number of atoms of carbon in CH4	1.0
	7.	NA_{N,N2}	Number of atoms of nitrogen in N2	2.0
	8.	MM_{CH4}	Molecular mass of methane	16.04
	9.	MM_{N2}	Molecular mass of nitrogen	28.02
	10.	MV_n	Volume of one mole of any ideal gas at normal temperature and pressure	22.414
	11.	MF_{O2}	O2 volumetric fraction of air	0.21
	12.	P_n	Atmospheric pressure at normal conditions	101,325
	13.	R_u	Universal ideal gas constant	8,314.472
	14.	T_n	Temperature at normal conditions	273.15
	The following parameters are fixed ex-ante in the CDM-PDD (explicitly mentioned in section B.6.2) but not used for the ex-post calculation:			
	Nbr.	Parameter abbreviation	Description	Value
	1.	BECH4, S_{WDS,y}	Methane generation from the landfill in the absence of the project activity at year y	2,270,341 Whole CP
	2.	φ	Model correction factor to account for model uncertainties	0.75
	3.	F	Fraction of methane in the SWDS gas (volume fraction)	0.5
	4.	f	Fraction of methane captured at the SWDS and flared, combusted or used in another manner	0
	5.	η_{PJ}	Efficiency of the LFG capture system that will be installed in the project activity	50
	6.	OX	Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)	0.1
	7.	MCF	Methane correction factor	0.8
	8.	DOC_j	Fraction of degradable organic carbon (by weight) in the waste type j	-
				%

			<table border="1"> <tr> <th colspan="2">Waste type j</th><th colspan="2">DOC_j (%wet waste)</th></tr> <tr> <td colspan="2">Wood and wood products</td><td colspan="2">43</td></tr> <tr> <td colspan="2">Pulp, paper and cardboard (other than sludge)</td><td colspan="2">40</td></tr> <tr> <td colspan="2">Food, food waste, beverages and tobacco (other than sludge)</td><td colspan="2">15</td></tr> <tr> <td colspan="2">Textiles</td><td colspan="2">24</td></tr> <tr> <td colspan="2">Garden, yard and park waste</td><td colspan="2">20</td></tr> <tr> <td colspan="2">Glass, plastic, metal, other inert waste</td><td colspan="2">0</td></tr> </table>	Waste type j		DOC _j (%wet waste)		Wood and wood products		43		Pulp, paper and cardboard (other than sludge)		40		Food, food waste, beverages and tobacco (other than sludge)		15		Textiles		24		Garden, yard and park waste		20		Glass, plastic, metal, other inert waste		0								
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Textiles		24																																				
Garden, yard and park waste		20																																				
Glass, plastic, metal, other inert waste		0																																				
9.	DOC _f	Fraction of degradable organic carbon (DOC) that can decompose		0.5	-																																	
10.	K _j	<table border="1"> <tr> <th colspan="2" rowspan="2">Waste type j</th><th colspan="2">Boreal and Temperate (MAT≤20°C)</th><th colspan="2">Tropical (MAT>20°C)</th></tr> <tr> <th>Dry (MAP/PET <1)</th><th>Wet (MAP/PET >1)</th><th>Dry (MAP<1000mm)</th><th>Wet (MAP>1000mm)</th></tr> <tr> <td rowspan="2">Slowly degrading</td><td>Pulp, paper, cardboard (other than sludge), textiles</td><td>0.04</td><td>0.06</td><td>0.045</td><td>0.07</td></tr> <tr> <td>Wood, wood products and straw</td><td>0.02</td><td>0.03</td><td>0.025</td><td>0.035</td></tr> <tr> <td>Moderately degrading</td><td>Other (non-food) organic putrescible garden and park waste</td><td>0.05</td><td>0.10</td><td>0.065</td><td>0.17</td></tr> <tr> <td>Rapidly degrading</td><td>Food, food waste, beverages and tobacco (other than sludge)</td><td>0.06</td><td>0.185</td><td>0.085</td><td>0.40</td></tr> </table>		Waste type j		Boreal and Temperate (MAT≤20°C)		Tropical (MAT>20°C)		Dry (MAP/PET <1)	Wet (MAP/PET >1)	Dry (MAP<1000mm)	Wet (MAP>1000mm)	Slowly degrading	Pulp, paper, cardboard (other than sludge), textiles	0.04	0.06	0.045	0.07	Wood, wood products and straw	0.02	0.03	0.025	0.035	Moderately degrading	Other (non-food) organic putrescible garden and park waste	0.05	0.10	0.065	0.17	Rapidly degrading	Food, food waste, beverages and tobacco (other than sludge)	0.06	0.185	0.085	0.40	-	-
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Rapidly degrading	Food, food waste, beverages and tobacco (other than sludge)	0.06	0.185	0.085	0.40																																	
11.	η _{flare,m}	Flare Efficiency in the minute m		0.9	-																																	
12.	-	Fraction of LFG that is required to be flared due to a requirement in year,y		0	-																																	
13.	-	Regulatory requirements relating to landfill gas projects		0	-																																	
<p>All parameters have been checked in the registered PDD and applied tools and the verification team confirms that all fixed ex-ante parameters were correctly applied. The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /MR/ • /XLS/ • /PDD/ • /PS/ • /VVS/ • /unfccc/ 																																						
Findings	<input type="checkbox"/>	The MR and the ER calculation have considered the parameters fixed ex-ante or at the renewal of the crediting period correctly, no deviations have been observed.																																				
	<input checked="" type="checkbox"/>	The following deviations from the parameters fixed ex-ante or at renewal of crediting period have been identified in the course of this verification: - N/A																																				
	<input checked="" type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised: CAR 09: the data and parameters in section D.1 of the MR have not in line with the latest versions of the PDD																																				
Conclusion	<input type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.																																				
	<input checked="" type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.																																				
	The description provided in the revised MR is in line with the PDD and applicable methodologies. Also the further explanation provided by the PP stating the parameters used for the ex-post calculation and the parameters not explicitly stated in section B.6.2 of the PDD, is correct and in line with the ER calculation spreadsheets.																																					

E.6.2. Data and parameters monitored

Means of verification	<p>During the verification all relevant monitoring parameters (as listed in chapter B.7.1 of the PDD) have been verified with regard to the</p> <ul style="list-style-type: none"> (i) appropriateness of the applied measurement / determination method, (ii) the correctness of the values applied for ER calculation,
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	(iii) the accuracy, and applied QA/QC measures. The results as well as the verification procedure are described parameter-wise in the project specific verification checklist (Appendix 5).	
Findings	CARs: 02, 03, 04, 06, 07, 08, 15, 16, 20 For details please refer to appendix 5	
Conclusion	<input type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	It can be confirmed that all monitoring parameters have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements.	

E.6.3. Implementation of sampling plan

Means of verification	<p>The verification team has been checked whether the PPs have applied a sampling approach to determine the monitored values. Further it has been checked whether the PPs have correctly applied the implemented sampling plan including</p> <ul style="list-style-type: none"> (i) description of the implemented sampling design (ii) collected data (iii) analysis of collected data (iv) demonstration on whether the required confidence/precision has been met. <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /MR/ • /XLS/ • /PDD/. 		
Findings	<input checked="" type="checkbox"/>	The PPs have not applied sampling approaches for the parameters monitored.	
	<input type="checkbox"/>	The PPs have applied sampling approaches for the following parameters monitored.	
		1	Parameter:
			Name:
			Description on how the sampling efforts and survey comply with the validated sampling plan:
		2	Parameter:
	<input type="checkbox"/>		Name:
			Description on how the sampling efforts and survey comply with the validated sampling plan:
Conclusion	<input checked="" type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.	
	<input type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.	

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

Means of verification	During the verification the relevant monitoring equipment has been checked whether the calibration requirements have been met; especially if the calibration frequency is in line with the requirements of the validated PDD and/or the applicable calibration standards.
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	<p>The results as well as the verification procedure are described equipment-wise in the project specific verification checklist (Appendix 6).</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /MR/ • /XLS/ • /CC/.
Findings	<input type="checkbox"/> Based on the details listed in appendix 6 the verification team can confirm that all installed monitoring equipment has been duly calibrated for this entire monitoring period.
	<input checked="" type="checkbox"/> Based on the assessment and information as per appendix 6 delay(s) in calibration have been identified. The PP has applied the maximum permissible error of the instrument to the measured values taken during the period between the scheduled date of calibration and the actual date of calibration. From the related calibration certificates and emission reduction calculation the verification team confirms that the maximum permissible error has been applied in a conservative manner so that the adjusted measured values due to the delayed calibration result in fewer claimed emission reductions. For details please refer to appendix 6
	<input type="checkbox"/> In this context the following CARs, CLs, FARs have been raised: CAR 16
Conclusion	<input checked="" type="checkbox"/> No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	<input type="checkbox"/> The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.

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

Means of verification	<p>During the verification the calculation of baseline GHG emissions has been checked. In detail the following has been verified:</p> <ul style="list-style-type: none"> • <i>Transparency</i>: It has been checked whether the calculation of baseline emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae. • <i>Parameter consistency</i>: It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spreadsheet. • <i>Correctness</i>: It has been checked whether the applied formulae and methods for calculating baseline emissions are in accordance with the monitoring plan and the approved methodology. • <i>Completeness</i>: It has been checked whether all calculations are complete and without omissions. <p><i>The ER calculation is done as follow:</i></p> <p>The ER are calculated monthly in the XLS files called "ER spreadsheets 6thMP_Leon_Month_year". After the monthly calculation, the whole MP is done in the XLS file "ER Summary_6thMP_Leon".</p> <p>In the following description are included the formulas used in for the ER calculation, for ease purposes as the quantity of parameter is very high, the definition of each parameter has not been included in this section, this can be seen in section B.6.1.(for parameters and data fixed ex-ante and in appendix 5 for monitored parameters).</p> <p><i>The following formulas has been applied for the baseline calculation:</i></p> <p>The baseline is calculated as follow in each month ER spreadsheet: $BE_y = BE_{CH_4,y} + BE_{EC,y}$ (eq. 1 page 18 PDD)</p> <p>Where: $BE_{CH_4} = ((1 - OX_{top_layer}) \times F_{CH_4,PJ,y} - F_{CH_4,BL,y}) \times GWP_{CH_4}$ (eq. 2 page 18 PDD)</p>
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	<p>Where: $F_{CH4,PJ,y} = F_{CH4,flared,y} + F_{CH4,EL,y}$ (eq. 3 simplified) $F_{CH4,BL,y} = 0$</p> <p>Where: $F_{CH4,flared,y} = F_{CH4,sent_flare,y} - (PE_{flare} / GWP_{CH4})$ (eq. 4 page 20 PDD)</p> <p>Where: $F_{CH4,sent_flare,y} = V_{LFG,sent_flare,y,db} * V_{CH4,t,db} * DCH4$ (page 23 PDD) And $PE_{flare} = GWP_{CH4} * F_{CH4,RG} * (1 - \eta_{flare}) / 1000$ (eq. 15 page 32 PDD)</p> <p>Where: $\eta_{flare} = 1 - TM_{FG} / TM_{RG}$ (step 6. Eq. Tool 14)</p> <p>where: $TM_{FG} = TV_{n,FG} * fv_{CH4,FG} / 1,000,000$ (step 4. Eq. Tool 12)</p> <p>Where: $TV_{n,FG} = V_{n,FG} * FM_{RG}$ (step 3. eq. Tool 5)</p> <p>Where: $V_{n,FG} = V_{n,CO2} + V_{n,O2} + V_{n,N2}$ (step 3. eq. Tool 6)</p> <p>Where: $V_{n,CO2} = fmC * MV_n / AMC$ (step 3. eq. Tool 9)</p> <p>Where: $fmC = AMC * ((fv_{CH4} * NAC_{CH4} + fv_{N2} * NAN_{N2}) / MM_{RG})$ (step 2. eq. Tool 5)</p> <p>where: $MM_{RG} = fv_{CH4} * MM_{CH4} + fv_{N2} * MM_{N2}$ (step 1. Eq. (Tool 3a))</p> <p><i>Note: $BE_{EC,y} = EC_{BL,k,y} * EF_{EL,k,y} * (1 - TDL_{k,y})$, nonetheless as during this MP no electricity generation has been took place, this is not calculated.</i></p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /MR/ • /XLS/ • /PDD/ 						
Findings	<table border="1"> <tr> <td data-bbox="451 1350 523 1675"><input type="checkbox"/></td> <td data-bbox="523 1350 1444 1675"> <p>The calculation of the baseline emissions was found to be fully compliant with the above stated principles.</p> <p>The calculations of baseline GHG emissions or baseline net GHG removals have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline. Any assumptions used in emission or removal calculations have been justified. Appropriate emission factors, IPCC default values, GWPs and other reference values have been correctly applied.</p> <p>No errors, miscalculations, omissions, misstatements or incomplete information has been identified.</p> </td> </tr> <tr> <td data-bbox="451 1675 523 1742"><input checked="" type="checkbox"/></td> <td data-bbox="523 1675 1444 1742">The verification team has identified mistakes in the baseline emissions calculation or the underlying calculation approaches.</td> </tr> <tr> <td data-bbox="451 1742 523 1843"><input checked="" type="checkbox"/></td> <td data-bbox="523 1742 1444 1843"> <p>In this context the following CARs, CLs, FARs have been raised:</p> <p>CAR 04, CAR 16, CAR 17, CAR 19</p> </td> </tr> </table>	<input type="checkbox"/>	<p>The calculation of the baseline emissions was found to be fully compliant with the above stated principles.</p> <p>The calculations of baseline GHG emissions or baseline net GHG removals have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline. Any assumptions used in emission or removal calculations have been justified. Appropriate emission factors, IPCC default values, GWPs and other reference values have been correctly applied.</p> <p>No errors, miscalculations, omissions, misstatements or incomplete information has been identified.</p>	<input checked="" type="checkbox"/>	The verification team has identified mistakes in the baseline emissions calculation or the underlying calculation approaches.	<input checked="" type="checkbox"/>	<p>In this context the following CARs, CLs, FARs have been raised:</p> <p>CAR 04, CAR 16, CAR 17, CAR 19</p>
<input type="checkbox"/>	<p>The calculation of the baseline emissions was found to be fully compliant with the above stated principles.</p> <p>The calculations of baseline GHG emissions or baseline net GHG removals have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline. Any assumptions used in emission or removal calculations have been justified. Appropriate emission factors, IPCC default values, GWPs and other reference values have been correctly applied.</p> <p>No errors, miscalculations, omissions, misstatements or incomplete information has been identified.</p>						
<input checked="" type="checkbox"/>	The verification team has identified mistakes in the baseline emissions calculation or the underlying calculation approaches.						
<input checked="" type="checkbox"/>	<p>In this context the following CARs, CLs, FARs have been raised:</p> <p>CAR 04, CAR 16, CAR 17, CAR 19</p>						
Conclusion	<table border="1"> <tr> <td data-bbox="451 1865 523 1921"><input type="checkbox"/></td> <td data-bbox="523 1865 1444 1921">No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.</td> </tr> <tr> <td data-bbox="451 1921 523 2009"><input checked="" type="checkbox"/></td> <td data-bbox="523 1921 1444 2009">The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.</td> </tr> </table>	<input type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.	<input checked="" type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.		
<input type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.						
<input checked="" type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.						

The baseline emissions calculation was prepared by the PPs and presented to the verification team. All raised issues were addressed appropriately so that it can be confirmed that the baseline calculation is overall correct.

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

Means of verification	<p>During the verification the calculation of project GHG emissions has been checked. In detail the following has been verified:</p> <ul style="list-style-type: none"> • Transparency: It has been checked whether the calculation of project emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae. • Parameter consistency: It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spreadsheet. • Correctness: It has been checked whether the applied formulae and methods for calculating project emissions are in accordance with the monitoring plan and the approved methodology. • Completeness: It has been checked whether all calculations are complete and without omissions. • The following formulae has been applied for the PE calculation: <p>The PE are calculated as follow:</p> $PE_y = PE_{EC,y} + PE_{FC,y} \quad \text{Simplification of equation (22) of the ACM0001 V 18.0}$ <table border="1" data-bbox="459 878 1332 1137"> <thead> <tr> <th>Variable</th><th>Definition</th></tr> </thead> <tbody> <tr> <td>$PE_{EC,y}$</td><td>= Emissions from consumption of electricity due to the project activity in year y (t CO₂/yr). The project emissions from electricity consumption ($PE_{EC,y}$) will be calculated following the latest version of "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" Version 03.0</td></tr> <tr> <td>$PE_{FC,j,y}$</td><td>= Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (t CO₂/yr). The project emissions from fossil fuel combustion ($PE_{FC,j,y}$) will be calculated following the latest version of "Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion" Version 03.0</td></tr> </tbody> </table> <p>Where:</p> $PE_{EC,y} = \sum_j EC_{PJ,j,y} \times EF_{EL,j,y} \times (1 + TDL_{j,y}) \quad (1)$ <p>$PE_{EC,y}$ Are the project emissions from electricity consumption by the project activity during the year y (tCO₂ / yr)</p> <p>$EC_{PJ,y}$ Is the quantity of electricity consumed by the project activity during the year y (MWh),</p> <p>$EF_{EL,j,y}$ Is the emission factor for the grid in year y (tCO₂/MWh)</p> <p>$TDL_{j,y}$ Are the 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.</p> <p>And,</p> $PE_{FC,j,y} = \sum_i FC_{i,j,y} \times COEF_{i,y} \quad (1)$ <p>Where:</p> <p>$PE_{FC,j,y}$ CO₂ emissions from fossil fuel combustion in process j during the year y (tCO₂/yr)</p> <p>$FC_{i,j,y}$ Is the quantity of fuel type i combusted in process j during the year y (mass or volume unit/yr);</p> <p>$COEF_{i,y}$ Is the CO₂ emission coefficient of fuel type i in year y (tCO₂ / mass or volume unit); i are the fuel types combusted in process j during the year y.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /MR/ • /XLS/ • /PDD/ 	Variable	Definition	$PE_{EC,y}$	= Emissions from consumption of electricity due to the project activity in year y (t CO ₂ /yr). The project emissions from electricity consumption ($PE_{EC,y}$) will be calculated following the latest version of "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" Version 03.0	$PE_{FC,j,y}$	= Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (t CO ₂ /yr). The project emissions from fossil fuel combustion ($PE_{FC,j,y}$) will be calculated following the latest version of "Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion" Version 03.0
Variable	Definition						
$PE_{EC,y}$	= Emissions from consumption of electricity due to the project activity in year y (t CO ₂ /yr). The project emissions from electricity consumption ($PE_{EC,y}$) will be calculated following the latest version of "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" Version 03.0						
$PE_{FC,j,y}$	= Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (t CO ₂ /yr). The project emissions from fossil fuel combustion ($PE_{FC,j,y}$) will be calculated following the latest version of "Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion" Version 03.0						
Findings	<div style="display: flex; align-items: center;"> <input style="margin-right: 10px;" type="checkbox"/> <div> <p>The calculation of the project emissions was found to be fully compliant with the above stated principles.</p> <p>The calculations of project GHG emissions or actual net GHG removals have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline. Any assumptions used in</p> </div> </div>						

		emission or removal calculations have been justified. Appropriate emission factors, IPCC default values, GWPs and other reference values have been correctly applied. No errors, miscalculations, omissions, misstatements or incomplete information have been identified.
	<input checked="" type="checkbox"/>	The verification team has identified mistakes in the project emissions calculation or the underlying calculation approaches.
	<input checked="" type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised: CAR 05, CAR 10
Conclusion	<input type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		The corrected PE calculation is in line with the PDD and applicable methodology, is conservative and traceable.

E.8.3. Calculation of leakage GHG emissions

Means of verification		During the verification it has been checked whether leakage emissions have to be considered and, in cases where leakage emissions have to be calculated, the respective calculation of leakage GHG emissions has been checked. In such cases the same verification principles have been considered as for the baseline and project emissions calculation. Please refer to E.8.1 and E.8.2. The following sources of information have been used in this context: <ul style="list-style-type: none"> • /MR/ • /XLS/.
Findings	<input checked="" type="checkbox"/>	No leakage emissions were to be considered (LE = 0).
	<input type="checkbox"/>	The calculation of the leakage emissions was found to be fully compliant with the above stated principles (see 8.1 and 8.2). The calculations of leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline. Any assumptions used in leakage emissions calculations have been justified. Where applicable, appropriate emission factors, IPCC default values, GWPs and other reference values have been correctly applied. No errors, miscalculations, omissions, misstatements or incomplete information have been identified.
	<input type="checkbox"/>	The verification team has identified mistakes in the project emissions calculation or the underlying calculation approaches.
	<input type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised:
Conclusion	<input checked="" type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	<input type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		As per applied methodology and registered PDD no leakage effects are considered in the ER calculation

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

Means of verification	The verification team has checked if the MR includes a summary table of the emission reductions calculation specifying separately <ul style="list-style-type: none"> - Total baseline emissions, - Total project emissions, - Total leakage, - Total emission reductions.
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	It has been assessed whether the values are correct or need to be revised as a consequence of issues identified above.	
Findings	<input checked="" type="checkbox"/>	Section E.4 of the MR includes in a summary table of the emission reductions calculation.
	<input checked="" type="checkbox"/>	The summary table specified the total baseline, project and leakage emissions as well as the total emission reductions separately.
	<input type="checkbox"/>	The values as specified in the ER summary table are correct; no issues have been identified during the verification which requires changes in the ER calculation.
	<input checked="" type="checkbox"/>	During the verification issues with impact on the ER calculation have been identified.
	<input checked="" type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised: CAR 05
Conclusion	<input type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	It is concluded that the GHG emission reductions are calculated correctly and in line the registered PDD and applicable methodology and tool.	

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

Means of verification	The verification team has checked if the MR includes a comparison of actual values of the monitoring period with the estimations in the registered PDD. It has further checked which of the below listed cases is applicable for the calculated ER of the current monitoring period.	
Findings	<input type="checkbox"/>	Case 1: The ex-ante estimated value was found to be proportionally higher than the ex-post determined value. No further action is deemed required.
	<input type="checkbox"/>	Case 2: The ex-ante estimated value fits very good to the actually monitored value. No further justification is deemed required.
	<input checked="" type="checkbox"/>	Case 3: The ex-ante estimated value was found to be proportionally lower than the ex-post determined value.
	<input type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised:
Conclusion	<input checked="" type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	<input type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
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E.8.6. Remarks on difference from estimated value in registered PDD

Means of verification	On the basis of the above comparison of actual values of the monitoring period with the estimations in the registered PDD the verification team has checked whether (in case 3) an appropriate explanation is included in the MR.	
Findings	<input checked="" type="checkbox"/>	No further justification or explanation is deemed required as actual emissions of this MP do not exceed significantly the ex-ante calculated emission reductions (applicable for case 1 and 2).
	<input type="checkbox"/>	For case 3: The PP has provided a related justification in the MR. The reasons for the increase are as follows: - N/A
	<input type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised:
Conclusion	<input checked="" type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	<input type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.

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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

Means of verification	The verification team has checked chapter E.7 of the MR and the emission reduction calculation sheet /XLS/.								
Findings	<p><input type="checkbox"/> The MR in section E.7 includes a summary table of the ER breakdown</p> <p style="margin-left: 40px;">a) <i>ER up to 2012-12-31 and</i></p> <p style="margin-left: 40px;">b) <i>ER from 2013-01-01 onwards</i></p> <p><input checked="" type="checkbox"/> The breakdown of the ERs during the first commitment period and from 2013-01-01 onwards is as follows:</p> <p style="margin-left: 40px;"><input type="checkbox"/> The ER have completely been generated during the first commitment period</p> <p style="margin-left: 40px;"><input checked="" type="checkbox"/> The ERs have completely been generated from 2013-01-01 onwards,</p> <p style="margin-left: 40px;"><input type="checkbox"/> The ERs have partly been generated during the first commitment period and partly from 2013-01-01 onwards.</p> <p><input checked="" type="checkbox"/> The breakdown of the ERs is correct, considering the applicable guidance.</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th></th><th>until 31/12/2012 ¹⁾</th><th>from 01/01/2013 ¹⁾</th><th>Sum</th></tr> </thead> <tbody> <tr> <td>Emission reductions [tCO_{2e}]</td><td style="text-align: center;">0</td><td style="text-align: center;">42,146</td><td style="text-align: center;">42,146</td></tr> </tbody> </table> <p style="margin-left: 40px;">¹⁾ Both days included</p>		until 31/12/2012 ¹⁾	from 01/01/2013 ¹⁾	Sum	Emission reductions [tCO _{2e}]	0	42,146	42,146
	until 31/12/2012 ¹⁾	from 01/01/2013 ¹⁾	Sum						
Emission reductions [tCO _{2e}]	0	42,146	42,146						
Conclusion	<p><input checked="" type="checkbox"/> No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.</p> <p><input type="checkbox"/> The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.</p> <p>The data provided in the MR is correct as well as the related breakdown. The pro-rata approach was correctly applied to the calculations of GHG emission reductions or net anthropogenic GHG removals in accordance with the project standard, as the monitoring period starts before 31 December 2012 and ends anytime thereafter.</p>								

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

Means of verification	<p><input checked="" type="checkbox"/> N/A – as the PP has not monitored the sustainable development co-benefits of the registered CDM project activity or not requested the DOE to verify them.</p> <p><input type="checkbox"/> The project participants have monitored the sustainable development co-benefits of the registered CDM project activity, and requested the DOE to verify them.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /MR/ • /PDD/ • /DSD/ • /unfccc/.
Findings	<p><input checked="" type="checkbox"/> N/A – as the PP has not monitored the sustainable development co-benefits of the registered CDM project activity or not requested the DOE to verify them.</p> <p><input type="checkbox"/> Therefore the DOE has assessed and confirms that:</p> <p style="margin-left: 20px;">(a) The monitoring has been carried out in accordance with the document for monitoring sustainable development co-benefits, if such document was developed and published on the UNFCCC CDM website in accordance with the “CDM project standard for project activities”;</p> <p style="margin-left: 20px;">(b) The reported monitoring results correspond to the sustainable development co-benefits of the project activity as observed by the DOE.</p> <p><input type="checkbox"/> In this context the following CARs, CLs, FARs have been raised:</p>

Conclusion	<input type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	<input type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	<input checked="" type="checkbox"/>	N/A – as the PP has not monitored the sustainable development co-benefits of the registered CDM project activity or not requested the DOE to verify them.
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E.10. Global stakeholder consultation

Means of verification	<p>In accordance with the PCP the DOE has submitted the initial version of the monitoring report provided by the PP for this monitoring period to be published on the UNFCCC webpage.</p> <p>The monitoring report has been published for the period</p> <p>14/03/2019- to 07/04/2019</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /MR/ • /unfccc/ 		
Findings	<input checked="" type="checkbox"/>	No comments have been received on the published monitoring report for this monitoring period.	
	<input type="checkbox"/>	Comments have been received and the DOE has concluded that comments are related to issues outside the CDM rules and requirements. Please refer to the list provided under Conclusion of this Section below for related information.	
	<input type="checkbox"/>	<p>Comments have been received.</p> <p>The DOE has</p> <ul style="list-style-type: none"> - requested further information from the submitters of the comments - informed the project participants of the comments received, and requested their feedback within a specified timeframe, - considered the input received and has assessed whether such comments are relevant to the CDM project activity, - acknowledged receipt of all submitted comments on the MR of the proposed CDM project activity, - assessed whether the comments are related to the CDM rules and requirements (if so related findings have been raised as per below), - used all possible means to determine the authenticity of the name and contact details of the individual or organization on whose behalf the comments have been submitted, - contacted the secretariat to make them publicly available (if only addressed to the DOE), - determined whether authentic and relevant comments in the global stakeholder consultation were taken into due account in the PDD of the proposed CDM project activity. 	
	<input type="checkbox"/>	<p>In this context the following CARs, CLs, FARs have been raised, i.e. as the DOE concludes that the comments are related to the CDM rules and requirements:</p>	
Conclusion	<input checked="" type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.	
	<input type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.	
	<input checked="" type="checkbox"/>	N/A – as the PP has not monitored the sustainable development co-benefits of the registered CDM project activity or not requested the DOE to verify them.	
	-		
	No.	Original comment received	Feedback by the PP
	1		

	2			
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SECTION F. Internal quality control

Before the submission of the final verification report a technical review of the whole verification procedure was carried out. The technical reviewers are competent GHG auditors being appointed for the scope this project falls under. The technical reviewers are not considered to be part of the verification team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the verification opinion and the topic specific assessments as prepared by the verification team leader may have been confirmed or revised. Furthermore reporting improvements might have been achieved.

After the successful technical review an overall (esp. procedural) assessment of the complete verification has been carried out by a senior assessor located in the accredited premises of TÜV NORD.

After this step the submission for requesting for issuance is conducted.

SECTION G. Verification opinion

Promotora Ambiental S.A.B. de C.V. has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 6th MP (1st verification of the 2nd crediting period) of the project: "Landfill Gas Recovery and Flaring Project in El Verde Landfill Leon", with regard to the relevant requirements for CDM project activities. The project reduces GHG emissions due to capture and destruction of biogas generated in the landfill gas El Verde in the city of Leon. This verification covers the period from 27/10/2017 to 31/12/2018 (including both days).

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document,
- the monitoring plan is in accordance with the applied approved CDM methodology, ACM0001. Ver. 18
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately,
- the monitoring system is in place and functional. The project has generated GHG emission reductions,
- the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner.

TÜV NORD JI/CDM CP further confirms that the project has achieved emission reductions in the above mentioned reporting period as stated on the title page.

SECTION H. Certification statement

As a duly accredited DOE, TÜV NORD CERT confirms that the project

"Landfill Gas Recovery and Flaring Project in El Verde Landfill Leon"
registered under

UNFCCC-No. : 3378

has achieved emission reductions in accordance with all applicable requirements for registered CDM project activities during the current monitoring period

MP-No.: 6th MP (1st MP of 2nd CP)

from: 27/10/2017

to: 31/12/2018

(including both days) as follows:

Emission reductions: **42,146 tCO₂e.**

Queretaro, 22/04/2020




Oliver Quireza
Team leader

Appendix 1. Abbreviations

Abbreviations	Full texts
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CFE	Federal Commission of Electricity
CO ₂	Carbon dioxide
CO _{2eq}	Carbon dioxide equivalent
CL	Clarification Request
DVerR	Draft Verification Report
ER	Emission Reduction
ERPA	Emission Reduction Purchase Agreement
FAR	Forward Action Request
GHG	Greenhouse gas(es)
IM	Interview Memo
MP	Monitoring Plan
MR	Monitoring Report
PA	Project Activity
PDD	Project Design Document
PP	Project Participant
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
VT	Verification Team
XLS	Emission Reduction Calculation Spread Sheet

Appendix 2. Competence of team members and technical reviewers



Statement of Competence
Appointment and authorization according to the procedures
of the TUV NORD JICDM Certification Program

Mr. Oliver Quireza Campos


SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification)	2021-05-28
VCS / ISO 14064-2	Lead Assessor	2021-05-28

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewables
13.1	Solid waste and wastewater
13.2	Manure

337 - Rev. 5, Date: 2018-08-17

337_501-VAB89-F20_2018-08-17_rev5.doc 501-VAB89-F20 rev3 / 2012-10-25



Statement of Competence
Appointment and authorization according to the procedures
of the TUV NORD JICDM Certification Program

Mr. David Lubanga


SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification)	2018-10-29
VCS / ISO 14064-2	Lead Assessor	2018-10-29

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
3.1	Energy demand

251 - Rev. 4, Date: 2015-10-21

251_301-VAB89-F20_2015-10-21_rev4.doc 301-VAB89-F20 rev1 / 2012-10-25



Statement of Competence
Appointment and authorization according to the procedures
of the TUV NORD JICDM Certification Program

Mr. Kunal Rami


SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2020-03-26
VCS / ISO 14064-2	Senior Assessor Technical Reviewer	2020-03-26

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
2.1	Energy distribution
3.1	Energy demand
6.1	Construction
7.1	Transport
13.1	Solid waste and wastewater

224 - Rev. 8, Date: 2018-08-31

224_501-VAB89-F20_2018-08-31_rev8.doc 501-VAB89-F20 rev3 / 2012-10-25



Statement of Competence
Appointment and authorization according to the procedures
of the TUV NORD JICDM Certification Program

Mr. Stefan Winter

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2020-07-27
VCS	Senior Assessor (Validation, Verification) Technical Reviewer	2020-07-27

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewables
2.1	Energy distribution
3.1	Energy demand
4.1	Cement and lime production
4.2	Paper
5.2	Caprolactam, nitric and adipic acid
9.1	Aluminum and magnesium production
9.2	Iron, steel and Ferro-alloy production
13.1	Solid waste and wastewater
13.2	Manure

163 - Rev. 5, Date: 2017-07-20

163_501-VAB89-F20_2017-07-20_rev5.doc 501-VAB89-F20 rev3 / 2012-10-25

Appendix 3. Documents reviewed or referenced

No.	Author	Reference	Title	References to the document	Provider
1.	UNFCCC	/ACM0001/	Flaring or use of landfill gas, version 18	https://cdm.unfccc.int/methodologies/DB/Y88077XT5083TZ2PYEZ36LFIAMAODR	Other
2.	DOE	/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)		Other
3.	IPCC	/IPCC/	2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book	www.ipcc-nggip.iges.or.jp	Other
4.	UNFCCC	/KP/	Kyoto Protocol (1997)	http://unfccc.int/kyoto_protocol/items/2830.php	Other
5.	UNFCCC	/MA/	Decision 3/CMP. 1 (Marrakesh – Accords)	http://cdm.unfccc.int/Reference/CO2PMOP/index.html	Other
6.	UNFCCC	/TOOL/	Methodological Tools as per section E.5	https://cdm.unfccc.int/methodologies/index.html	Other
7.	UNFCCC	/MRT/	Monitoring Report Form (CDM-MR-FORM), Version 6	https://cdm.unfccc.int/Reference/PDDs_Forms/index.html	Other
8.	UNFCCC	/PDD/	Project Design Document for CDM project: “Landfill Gas Recovery and Flaring Project in the El Verde Landfill, León” version 13, dated 2013-07-01 Project Design Document for CDM project: “Landfill Gas Recovery and Flaring Project in the El Verde Landfill, León” version 5.0, dated 04/09/2018	https://cdm.unfccc.int/filestorage/ /t/21SWKOQDLRH4J679UBT85VCG0PYF3L.pdf/CDM-PDD-3378-23-09.pdf?t=T1R8b2Q1NG9lfDAITnqu7Ld_ZM4qgIDhwdYq	Other
9.	UNFCCC	/PS/	CDM Project Standard (Version 2.0)	http://cdm.unfccc.int/Reference/Standards/index.html	Other
10.	PP	/VAL/	Validation Report for CDM project “Landfill Gas Recovery and Flaring Project in the El Verde Landfill, León” version 4, dated 2010-10-26. Validation report for renewal of crediting period for CDM activity: Landfill Gas Recovery and Flaring Project in the El Verde Landfill, León, version, from 04/09/2018, by Applus+ Certification.	https://cdm.unfccc.int/filestorage/X/D/K/XDK3CIJ9GAYQ0O8FS4ZLT76RE1N5WM/Revised%20Validation%20Report%20%28clean%29.pdf?t=bjJ8b2Q1a3ZvfDCjfGBF7vDqGz2Uafnd7YFL	Other
11.	PP / DOE	/VER/	Documents of previous verifications (Monitoring report, verification report,		Other

No.	Author	Reference	Title	References to the document	Provider
			ER calculation sheet)		
12.	UNFCCC	/VVS/	CDM Validation and Verification Standard (Version 2.0)	http://cdm.unfccc.int/Reference/Standards/index.html ↓	Other
13.	UNFCCC	/GOT/	Glossary “CDM terms” (version 09.1)	https://cdm.unfccc.int/filestorage/external/20170831165430180-Glos_CDMv9_1.pdf/Glos_CDMv9_1.pdf?t=blN8cDBzbHA3fDD1f2gADBIZ5Xc-Fjleudgc	Other
14.	SEMARNAT	/NOM/	Mexican Official Norm NOM-083-SEMARNAT-2003. Specifications of Environmental Protection for site selection, design, construction, operation, monitoring, closure and complementary works of a final disposal site for municipal solid waste and special handling – <i>“Especificaciones de Protección Ambiental para la selección del sitio, diseño, construcción, operación, monitoreo, clausura y obras complementarias de un sitio de disposición final de residuos sólidos urbanos y de manejo especial”</i> .	N/A	PP
15.	Guanajuato State (Ecology)	/EIA/	<ul style="list-style-type: none"> ➤ Resolution EIA, by Ecology Institute, from 23/11/2000 ➤ Resolution EIA, by Ecology Institute, from 07/07/2017 for the power generation phase 	N/A	PP
16.	Gov	/LIC/	Environmental Resolution num. PAYDS-DS-902-2007 given by the Leon Municipality on 2007-11-14 which states that the Project activity does not required an environmental license.	N/A	PP
17.	EIPS	/INS/	Compliance dictameination as per NOM-083-SEMARNAT-2003, from 29/05/2018	N/A	PP
18.	Several	/TECH/	<ol style="list-style-type: none"> 1. LFG Collectyion System description by Promotora Ambiental (without date) 2. Lay out of LFG collection system num. 06, July 2011 by PASA. 3. LFG Flare System description by Promotora Ambiental (without date) 4. Lay out of LFG flare system (whithout date) 5. Operation and Maintenance Manual for an Enclosed ZTOF Biogas Flare System by John Zink. Sales Order 9084234 	N/A	PP

No.	Author	Reference	Title	References to the document	Provider
			6. Design Specifications by John Zink LFG Flare System, 08-09-2011 7. Technical specification – FAU – by Landtec 8. Technical specification – FEA – by Landtec 9. Technical specification adjustable Liquid-Level Gauge by Rochester Gauges, INC. 10. Integral Thermal Mass Probe Flow Meter specifications model 62-9/9500 by Thermal Instruments Company, Inc. 11. Thermocouples specification sheet by John Zink, project 9084234 Manufacturer statements /recommendation for calibration frequency: 1. Letter from Measurement Resources authorized factory representative for Thermal Instrument dated on 19-06-2011 recommending 18 months calibration frequency. 2. Letters from Landtec dated on 28-10-2013 and 15-06-2011 recommending 6 months calibration frequency for FAUs & FEA. 3. Letter from John Zink (without date) regarding the recommended calibration of <u>thermocouples</u> with frequency every 18 months. 4. Letter from Soni Gas (gas distributor) dated on 08-09-2011 stating that no calibration is required for Liquid-Level Gauge. 5. Data sheet E650 S4e and E330 FOCUS AX Polyphase meters.		
19.	Several	/CCI/	Calibration Certificates information is described in Appendix 6	N/A	PP
20.	PP	/LOG/	Operational logbooks 2017, 2018 ➤ Daily operation reports ➤ Weekly maintenance report	N/A	PP
21.	PP	/MR/	Monitoring Report 6 th "Landfill Gas Recovery and Flaring Project in the El Verde Landfill, León", - versions 01,08/03/2019 - Version 02, 18/04/2019 - Version 03, 30/05/2019 - Version 04, 11/06/2019 - Version 05, 30/09/2019 - Version 06, 17/12/2019 - Version 07, 20/04/2020	N/A	PP
22.	PP	/XLS/	-Emission reduction calculation spreadsheet (Monthly): 0X. ER Spreadsheet_6thMP covering the MP (15 Months), versions:	N/A	PP

No.	Author	Reference	Title	References to the document	Provider
			- ver. 1, 08/03/2019 - ver. 2, 18/04/2019 - ver. 3, 30/05/2019 - ver. 4, 29/09/2019 - ver. 5, 30/09/2019 - ver. 7, 20/04/2020 -ER summary_6thMP_versions v1, v2, v3, v4,v5, v7		
23.	-Landtec -CFE -LP Gas supplier	/raw data/	- Raw Data El Verde 6thMP: Version 1, 08/03/2019 Version 2, 18/04/2019 Version 3, 30/05/2019 Version 4, 29/05/2019 Version 3, 30/05/2019 Version 7, 20/04/2020 - Electricity Invoices issued by CFE covering the MP -LP gas Invoices covering the MP -Raw data downloaded directly from online Landtech data base.	N/A	PP
24.	INFRA	/SPAN/	Span gases quality certificates by INFRA	N/A	PP
25.	IECASA	/moist/	- Spread sheet correlation Moisture vs T - Moisture content report IECASA, Leon, Feb 2011.	N/A	PP

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

Table 3. Remaining FAR from validation and/or previous verifications

Not applicable

Table 4. CL from this verification

CL ID	Section no.	Date: DD/MM/YYYY
Description of CL		
Project participant response		Date: DD/MM/YYYY
Documentation provided by project participant		
DOE assessment		Date: DD/MM/YYYY

Table 5. CAR from this verification

CAR ID	01	Section no.	B.1	Date: 08/04/2019
Description of CAR (1st round)				
<p>The actual status of the power generation phase is not mentioned in section B.1, as the engine and peripheric equipment are already installed.</p> <p>Furthermore the 60% covering of macrocell 1 mentioned in the MR is not in line with the actual status of the landfill as the Macrocell number 1 is already closed and Macrocell 2 is under operation.</p>				
Project participant response				Date: 22/04/2019
<p>Section B.1 has been updated describing that phase 2 is at its commissioning stage and implies the installation of 2 engines of 1,383 MW capacity (JGS 420 GS-L.L model from GE Jenbacher for 2,766 MW of total installed power) with the corresponding LFG conditioning units that would combust the methane of the LFG in order to produce electricity.</p> <p>Moreover, Section B.1 has been also updated describing that the active LFG Collection System has been installed covering the whole Macrocell 1 and around 60% of the area of Macrocell 2</p>				
Documentation provided by project participant				
MR ver.2				
DOE assessment				Date: 01/05/2019
<p>The revised description in section B.1 of the MR is fully on line with the actual status of the PA, according to the observations and declarations provided during the site visit by the landfill and biogas plant managers. Also the operation logbooks confirms that stage 2 of the PA is under testing phase.</p> <p>CAR is closed.</p>				

CAR ID	02	Section no.	D.2	Date: 09/04/2019
Description of CAR (1st round)				
<p>Parameter Management SWDS in section D.2 of the MR doesn't mention any design/technical/regulatory information about the implementation of the project as requested by the applicable methodology and registered PDD.</p>				
Project participant response				Date: 22/04/2019
<p>The value of the monitored parameter "Management SWDS" in section D.2, has been further described as follows:</p> <p><i>The landfill complies with the requirements established by the Official Mexican Standard NOM-083-SEMARNAT-2003 as verified in the Compliance Report FR/15/12 issued on 21/06/2018 by the company E.I.P.S. (Empresa de Inspección de Productos y Servicios S.A de C.V).</i></p>				

The Compliance Report FR /15/12 verifies the fulfilment of the landfill with the applicable standard, verifying its capacity that it has an operation manual, procedures, records, laboratory results, leachate collection system, biogas capture system and system of geomembrane for the waterproofing of the cells. In addition, it is verified that daily coverage of waste is made, ensuring its compaction with machinery. In addition, the Compliance Report FR / 15/12 confirms that the company PASA complies with the original design of the landfill set in the operational authorization (Materia de Impacto Ambiental MIA-026-3357/2000, issued by the Institute of Ecology of the State of Guanajuato) for the construction and operation of the landfill confirming that there is no change in the management of the SWDS after the implementation of the project activity has occurred.

Documentation provided by project participant

The following evidences are provided to the DOE to further evidence in folder 1. Round 1_6thMP_Leon\Annexes:

- Official Mexican Standard NOM-083-SEMARNAT-2003
- NOM-083-SEMARNAT-2003_Compliance Report FR/15/12_21/06/2018
- Resolution MIA-026-3357/2000

DOE assessment

Date: 01/05/2019

The description provided in the revised MR is in line with the evidence reviewed during the site visit, such as EIA approval, among other official documents which described the original design/technical and regulatory features of the landfill. Such features described mainly:

- Location and size of the landfill
- The leachate collection system
- The biogas collection
- Membrane to protect soil from leachates
- Waste compacting by machinery
- Cells type

By the observations and interviews performed during the site visit and the report provided by the third-party verifier (E.I.P.S) it is confirmed that the landfill is managed and operated as per the original design stated in the environmental license.

CAR is closed.

CAR ID	03	Section no.	D.2	Date: 09/04/2019
Description of CAR (1st round)				
In parameter Maintenance _y the maintenance chronogram and registers have not been mentioned in section D2 of the MR.				
Project participant response				Date: 22/04/2019
The section „Value“ of parameter “Maintenance _y ” has been further described confirming that records are kept in a maintenance log under the name “Maintenance Program_Leon.xlsx” as specified by the manufacturer and can be summarized, as follows:				
<p>Maintenance of the Flare:</p> <ol style="list-style-type: none"> 1. Visually inspect the flare tips and flare stack for damage or deterioration. 2. Inspect the exterior surface for indications of heat degradation. Paint discoloration may indicate insulation damage. 3. Assess the overall integrity of the internal insulation once a month. Torn or worn insulation may result in equipment damage. Repair if necessary. 4. Remove the flare tip for cleaning if an obstruction is suspected. Measure the pressure differential between the flare inlet flange and the flare tip exit. 5. Inspect all thermocouple assemblies and replace at least once each year. 6. Inspect the pilot assembly, ignition rod, electrode, and insulators for damage once every three months. Repair or replace if necessary. 7. Verify pilot gas supply pressure and pilot ignition. 8. Inspect the flame detection components. Clean the flame scanner lens and vent port. 9. Verify proper operation of the air damper louvers and lubricate if necessary. 10. Remove the flame arrester element for cleaning every six months. Measure the pressure differential across the flame arrester element. If the value exceeds 5" H₂O, then clean the element. <p>Maintenance of the Control Panel:</p> <ol style="list-style-type: none"> 1. Confirm the control logic is functioning properly and all input and output signals are correct. 2. Verify all safety shutdown devices every three months 				

3. *Inspect all electrical enclosures for any apparent corrosion or moisture.*
4. *Confirm all enclosure and actuator heaters are functioning.*
5. *Confirm the integrity of conduit seals, if applicable.*
6. *Verify the supply power voltage.*
7. *Verify power to motor starters.*
8. *During operation, measure gas blower line current and voltage.*
9. *Confirm chart recorder operation.*

Documentation provided by project participant

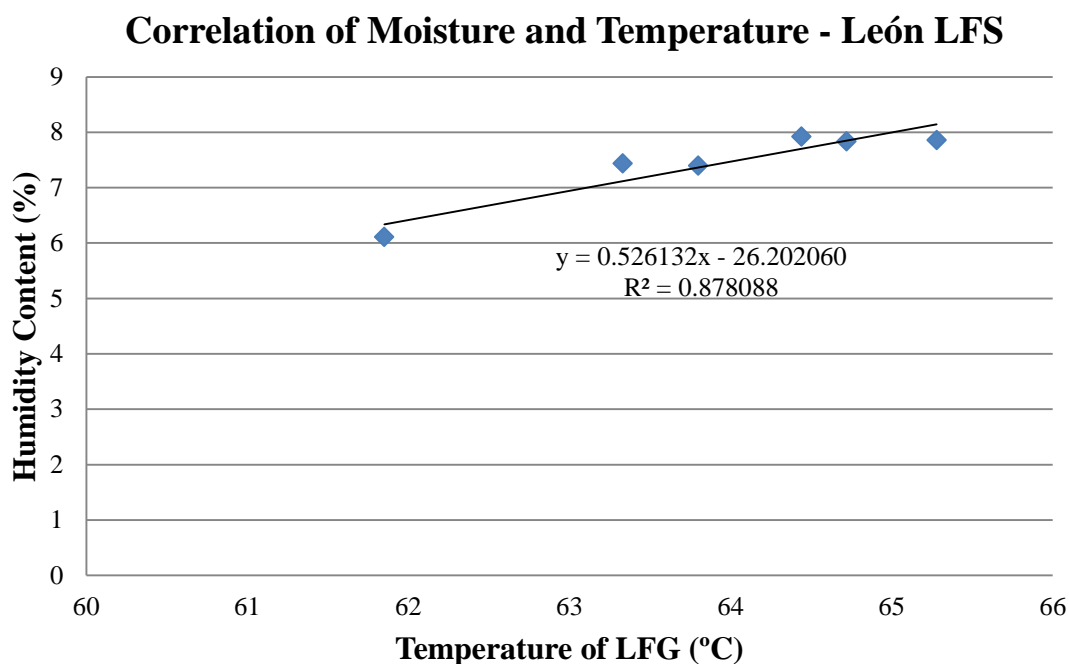
The following evidences are provided to the DOE to further evidence in folder 1. Round 1_6thMP_Leon\Annexes:

- "Maintenance Program_Leon.xlsx"

DOE assessment**Date:** 01/05/2019

As per observations and personnel interviews during the site visit, it could be confirmed that the maintenance of the biogas plant is followed strictly. Also, day/week maintenance logbooks, mayor maintenance reports, and the maintenance chronogram were reviewed. The parameter is monitored as per the applicable methodology and PDD. CAR is closed.

CAR ID	04	Section no.	XLS	Date: 10/04/2019														
Description of CAR (1st round)																		
As per ER Summary spreadsheet the LFG temperature appears to be higher than 60°C in month November 2017, so that as per methodological tool “Project emissions from flaring” the dry basis of the flow measurement is not ensured. The PP is requested to correct the LFG flow ($V_{LFG, sent_flare, y, db}$) data through an appropriate method to ensure the LFG flow measurement is under dry basis.																		
Project participant response				Date: 22/04/2019														
<p>During the first crediting period, the CDM-PDD did not have any reference to the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream” to correct the flow to dry basis when the temperature was greater than 60°C and there was not guidance to properly apply it. Moreover, considering that no separate monitoring of temperature and pressure is necessary since the PP is using flowmeters that automatically express LFG volumes in normalized cubic meters, there is no measurement of the pressure of the gas to apply the Option 2 (Simplified calculation without measurement of the moisture content) of the "Tool to determine the mass flow of a GHG in a gaseous stream".</p> <p>Considering such situation, the PP started the operation of the project by measuring the moisture content of the gas as can be evidenced with the “Moisture Content Report_Leon_Feb-11” using the third party consultancy IECASA. The experiment was conducted by artificially (i.e increasing the booster’s energy) increasing the temperature of the gas above 60°C and measuring the moisture content of the gas to find a correlation between the temperature of the gas and its moisture content, as follows:</p>																		
<table><tr><th>Temperature LFG (°C)</th><th>Humidity Content (%)</th></tr><tr><td>63.33</td><td>7.429</td></tr><tr><td>61.85</td><td>6.103</td></tr><tr><td>64.44</td><td>7.916</td></tr><tr><td>64.72</td><td>7.828</td></tr><tr><td>63.80</td><td>7.389</td></tr><tr><td>65.28</td><td>7.852</td></tr></table>					Temperature LFG (°C)	Humidity Content (%)	63.33	7.429	61.85	6.103	64.44	7.916	64.72	7.828	63.80	7.389	65.28	7.852
Temperature LFG (°C)	Humidity Content (%)																	
63.33	7.429																	
61.85	6.103																	
64.44	7.916																	
64.72	7.828																	
63.80	7.389																	
65.28	7.852																	
Using the above values, the correlation has been plotted as follows:																		



The PP has corrected the monitored values of the parameter “VLFG,sent_flare,y,db” to dry basis (see sheet Error in file “Raw Data_El Verde_6th MP_v2.xlsb”) for the cases when T exceed the 60°C using the following correlation based on the data measured by IECASA in the “Moisture Content Report_Leon_Feb-11”:

$$vH_2O,t,db \text{ (\%)} = 0.526132 \cdot T \text{ (°C)} - 26.202060$$

The volumetric flow of the gaseous stream in time interval t on a dry basis ($v_{i,t,db}$) is determined by converting the volumetric flow from wet basis to dry basis as per Option B (Eq. 7) of the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”, as follows:

$$v_{i,t,db} = v_{i,t,wb} / (1 + vH_2O,t,db)$$

Documentation provided by project participant

The following evidences are provided to the DOE to further evidence in folder 1. Round 1_6thMP_Leon\Annexes:

- „Correlation of Moisture and Temperature - León LFS.xlsx“
- „Moisture Content Report_Leon_Feb-11“

In folder 1. Round 1_6thMP_Leon\Raw Data:

- Raw Data_El Verde_6th MP_v2.xlsb

DOE assessment

Date: 01/05/2019

The adjustment of parameter LFG flow ($V_{LFG,sent_flare,y,db}$) has been done a per equation 7 of the Tool to determine the mass flow of a greenhouse gas in a gaseous stream. (see column E of sheet “error” of the revised spreadsheet Raw Data_El Verde_6th MP_v2.xlsb).

The approach applied by the PP is considered correct. The lineal regression is done based on data humidity data obtained by a third-party laboratory which is considered appropriate. Also the use of the equation $v_{i,t,db} = v_{i,t,wb} / (1 + vH_2O,t,db)$ is in line with the applicable methodology which refers to the applied tool.

After adjustment due to humidity presence in LFG flow measurement, the final ER calculation turn into a lower value which is correct and in line the applicable methodology and registered PDD. CAR is closed.

CAR ID	05	Section no.	XLS	Date: 10/04/2019
Description of CAR (1st round)				
The LP gas formula in sheet Raw Data Manual, column F in spreadsheet Raw Data_El Verde_6th MP_v1.xlsb is not correct as the tank capacity is not consistent (180L). Furthermore, the reported value in the MR section D.2 is not consistent.				
Project participant response				Date: 22/04/2019

The LP gas formula in xls Raw Data column F has been corrected in line with the capacity of the tank (180L). The reported value in the MR section D.2 has been also corrected as 0.1872 m3	
Documentation provided by project participant	
The following evidences are provided to the DOE to further evidence in folder 1. Round 1_6thMP_Leon\Annexes: <ul style="list-style-type: none"> • “Techn. Specs_Fossil Fuel Tank (Small)_Leon.pdf” In folder 1. Round 1_6thMP_Leon\Raw Data: <ul style="list-style-type: none"> • Raw Data_El Verde_6th MP_v2.xlsb 	
DOE assessment	Date: 01/05/2019
The revised formula applied in column F of sheet Raw Data Manual of the Raw Data_El Verde_6th MP_v2 is correct and in line with the actual LP gas tank capacity. The parameter is monitored as per applied methodology and PDD and the PE calculation is correct, conservative and traceable. CAR is closed.	

CAR ID	06	Section no.	D.2	Date: 10/04/2019
Description of CAR (1st round)				
The value (45.48) of monitored parameter fv _{CH4,FG,h} in section D.2 is not consistent with the value in the ER spreadsheet				
Project participant response				Date: 01/05/2019
The value of monitored parameter fv _{CH4,FG,h} in section D.2 has been corrected in line with the value in the ER spreadsheet as 22.25 mg/m ³				
Documentation provided by project participant				
ER_summary_6thMP_v2_Leon_Linked MR ver.2				
DOE assessment				Date: 01/05/2019
The value of monitored parameter fv _{CH4,FG,h} in section D.2 is in line with the monitored valued in cell W75 of sheet in the ER summary_6thMP_v2_Leon_linked. CAR is closed.				

CAR ID	07	Section no.	D.2	Date: 10/04/2019
Description of CAR (1st round)				
The value reported in parameter Pt section D.2 is not correct, and furthermore the description provided in the calculation methods refers to Temperature instead of Pressure.				
Project participant response				Date: 22/04/2019
The value reported in parameter Pt section D.2 was a typo error since the parameter is not monitored. Moreover, the description has been amended.				
Documentation provided by project participant				
MR ver. 2				
DOE assessment				Date: 01/05/2019
Table D.2 of parameter Pt has been left correctly without information, as such parameter is not monitored. CAR is closed.				

CAR ID	08	Section no.	D.2	Date: 10/04/2019
Description of CAR (1st round)				
As per calibration logbook for the monitoring of parameter v _{CH4,t,db} , FAU meters were replaced 3 times, nonetheless the MR report only one. Correction is requested. Furthermore, FUA GA08966/06 was nor calibrated or replaced on time. A calibration gap was left from 27/10/2017 to 08/12/2017.				
Project participant response				Date: 22/04/2019
The correction of the FAU meters has been conducted.				

Since the calibration of the FAU with serial number GA08966/06 (see Period 1) was not conducted for the period from 27/10/2017 (start of the Monitoring Period) to 08/12/2017 (installation of equipment GA08772/do under Period 2), the PP has applied the maximum permissible error of the FAU (1% of CH₄) to the measured values of the parameters vCH₄,t,db taken during the period from 27/10/2017 (start of the monitoring period) to the 08/12/2017 (both days included).

Documentation provided by project participant

See document "Calibration Chronogram_LEON_6th MP.xlsx" in folder 1. Round 1_6thMP_Leon\Annexes

DOE assessment

Date: 01/05/2019

The revised spreadsheet /error/ in file Raw Data_EI Verde_6th MP_v2.xlsx has been corrected by the maximum permissible error of the meter FAU (1% of CH₄) in column G. The correction is correct and conservative. The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument.

CAR is closed.

CAR ID	09	Section no.	D.1	Date:	10/04/2019
Description of CAR (1st round)					
The data and parameters in section D.1 of the MR have not in line with the latest versions of the PDD.					
Project participant response					Date: 22/04/2019
In Section D.1, the parameters ex-ante have been divided as follows: <ul style="list-style-type: none"> parameters are fixed ex-ante in the CDM-PDD (explicitly fixed in section B.6.2) and used for the ex-post calculation parameters are fixed ex-ante in the CDM-PDD (not explicitly fixed in section B.6.2) and used for the ex-post calculation parameters are fixed ex-ante in the CDM-PDD (explicitly fixed in section B.6.2) but not used for the ex-post calculation. 					
Documentation provided by project participant					
MR ver. 2					
DOE assessment					Date: 01/05/2019
The description provided in the revised MR is in line with the PDD and applicable methodologies. Also the further explanation provided by the PP stating the parameters used for the ex-post calculation and the parameters not explicitly stated in section B.6.2 of the PDD, is correct and in line with the ER calculation spreadsheets.					
CAR is closed.					

CAR ID	10	Section no.	D.1	Date:	27/05/2019
Description of CAR (1st round)					
ER Summary Tab: <ol style="list-style-type: none"> Please clarify the days of compliance flaring if $p_{reg,y} = 0$, Cell X12 The reference page for PE_y equation in the PDD is incorrect The value of the TD_{Ly}, average technical transmission and distribution losses in the grid is applied differently for computing PE_{EC,y} and BE_{EC,y}. Please clarify Please confirm that fvCH₄,FG as per MR/PDD is the same as fvCH₄,RG indicated Why calculations in rows 28 & 29 are not linked?. Only manually inserted 					
Project participant response					Date: 28/05/2019
<ol style="list-style-type: none"> The Cell X12 in "ER Summary" Tab represent the percentage of time which the flare has been in compliance operation (297.52 days) out of the monitoring period (431.00 days). The parameter $p_{reg,y}$ is set to 0 ex-ante as per ACM0001 / Version 18.0, Step A2, Case 2 c), eq. 9., hence there is no relation between the "compliance operation" and $p_{reg,y}$. To avoid confusion, the term has now been named "Hours of Operation Flaring". The reference page for PE_y equation was correct (Page 38 PDD) but the equation number was incorrect. Only reference as "Page 38 PDD" has been left in the ER summary Tab 					

3. The TD_{Ly}, has been applied equally applied for computing PE_{EC,y} and BE_{EC,y} as 20% in the v3 of ER Calculations (see [Monthly ER Spreadsheets](#)). As a result, the ER have been reduced in 5 tCO₂ and result now in 47,230 tCO₂ so the MR v3 has been updated accordingly.
4. The parameter fvCH_{4,FG,h} is the "Concentration of methane in the exhaust gas of the flare in dry basis at normal conditions in the hour h" as per row 75 of the "ER summary" and as per the MR/PDD. This parameter is not the same as fvCH_{4,RG}, which is the "Volumetric fraction of methane in the residual gas on dry basis" as per row 38 of the "ER summary". For clarification, fvCH_{4,FG} is the concentration of methane at the exit of the flare (mg/m³) and fvCH_{4,RG} is at the entrance of the flare (%)
5. The values in row 28 are the same as row 29, and as such has been corrected. The values in row 28 cannot be directly calculated from the totalized values and as such are linked to the monthly ER calculations (see [Monthly ER Spreadsheets](#)) and un-linked for presentation purposes to the EB. The reason why is not possible to calculate is because, in order to apply in row 29 the calculation of "FCH₄flared, y = FCH_{4,sent_flare,y} - (PE_{flare} / GWPC_{H4})", the calculation of "PE_{flare} = GWPC_{H4} * FCH_{4,RG} * (1 - η_{flare}) / 1000" would need to be determined and it is mathematically very complicated to determine the weighted average value of η_{flare} in a monthly basis (see cell Z40 of "ER Summary"). To overcome such difficulty and for demonstration purposes, the value of η_{flare} in W40 is calculated Using Excel's Solver to minimize the Sum of Squared Error in Z29 of the "ER Summary" so the weighted average value of η_{flare} does not need to be calculated using the totalized values.

Documentation provided by project participant

MR ver. 3
Raw Data_El Verde_6th MP_v3
ER summary_6thMP_v3_Leon

DOE assessment**Date:** 29/05/2019

1. The term days of compliance flaring refers to the compliance of operation, no the legislation. The confusion is clarified.
2. The equation reference for PE_y is consistent between PPD and ER summary Tab.
3. The error in the TD_{Ly} value has been corrected in ER monthly calculation sheets. The ER calculation was updated. A lower ER resulted after correction.
4. Clarification provided is in line with the MR/PDD.
5. Clarification provided is correct, values in row 28 and 29 are the same, manually inserted. Calculation is in monthly spreadsheets.

CAR is closed.

CAR ID	11	Section no.	Front Page, A.1	Date: 27/05/2019
Description of CAR (1st round)				
<ol style="list-style-type: none"> 1. Front page: the monitoring period has to be indicated as the number 6th but also the 1st of the 2nd CP to avoid confusion. 2. Section A.1.C. 01/01/2010: Commissioning of the LFG Flare System of el Verde Landfill Gas Project; not as section B1 3. Blowers technical data (plate picture or data sheet) is requested to confirm the capacity 				
Project participant response				Date: 28/05/2019
<ol style="list-style-type: none"> 1. Front page has been corrected as "6th Monitoring Period (1st MP of the 2nd CP)" 2. In Section A.1.C., the date Commissioning of the LFG Flare System of el Verde Landfill Gas Project has been corrected to be 11/01/2010 as section B1 as can be verified in the document "Comissionning Certificate_LFG Flare System_Leon" 3. Please find the blowers technical data in the document "Techn. Specs_LFG Flare System_Leon" 				
Documentation provided by project participant				
MR ver. 3 Comissionning Certificate_LFG Flare System_Leon"				
DOE assessment				Date: 29/05/2019
<ol style="list-style-type: none"> 1. Number of MP is clearly stated 2. Section A.1.C is in line with section B1 and Commissioning certificate. 3. Blowers capacity are consistent in MR and technical specification. 				
CAR is closed.				

CAR ID	CAR 12	Section no.	D.2	Date: 27/05/2019
Description of CAR (1st round)				
<ol style="list-style-type: none"> 1. Accuracy class of FEA instrument is inconsistent in MR and PDD. Correction is requested 2. Last calibration date of FEA 20/02/2018 is missing in pages 25 and 26 of MR 3. As calibration validity is calculated by days count in the calibration logbook, a clarification note in the MR is requested to avoid confusion. 				
Project participant response				Date: 28/05/2019
<ol style="list-style-type: none"> 1. The accuracy of FEA instrument in the PDD is set to be between ± 0.2 to 1% of Full Scale as a generic approach allowing for the situation in which the PP might change the FEA equipment during the operation of the project activity. The current FEA accuracy of the installed equipment in the MR is for O₂ (accuracy of 0.1% + 1% of reading) and for CH₄ (accuracy of 5ppm +1% of reading) with a reading range of 0 to 25% for O₂ and 0 to 500 ppm for CH₄ as can be evidenced in the „Man. Specs Flare Emissions Analyser FEA Leon“. Therefore, considering that the Full Scale will be 25% for O₂ and 500 ppm for CH₄, the range set in the PDD (between ± 0.2 to 1% of Full Scale) would equate to a range from 0.05% to 0.25% of O₂ and a range from 1 to 5 ppm of CH₄, which is line with the accuracy of the FEA used during the MP. 2. The PP has included the calibration date of FEA (20/02/2018) as Period 2 for parameters tO_{2,h} and fV_{CH₄,FG,h} in the MR 3. The following footnotes have been inserted, as required: <ul style="list-style-type: none"> • “Validity of last calibration” is determined by adding the days set in the “Calibration Frequency” to the “Installation date” • “Validity of last calibration” is determined by adding the days set in the “Calibration Frequency” to the “Date of last calibration” 				
Documentation provided by project participant				
MR ver. 3 Man. Specs_Flare Emissions Analyser_FEA_Leon				
DOE assessment				Date: 29/05/2019
<ol style="list-style-type: none"> 1. The clarification provided by the PP is correct, as the FEA measures O₂ and CH₄, wich have different accuracy, in line with the technical specifications. 2. The missing calibrations 20/02/2018 have been included correctly un section D.2 of parameters fV_{CH₄,FG,h} and tO_{2,h} 3. Clarification notes regarding the calibration validity determination are in line with the calibration chronogram, as they are calculated by day instead of month <p>CAR is closed.</p>				

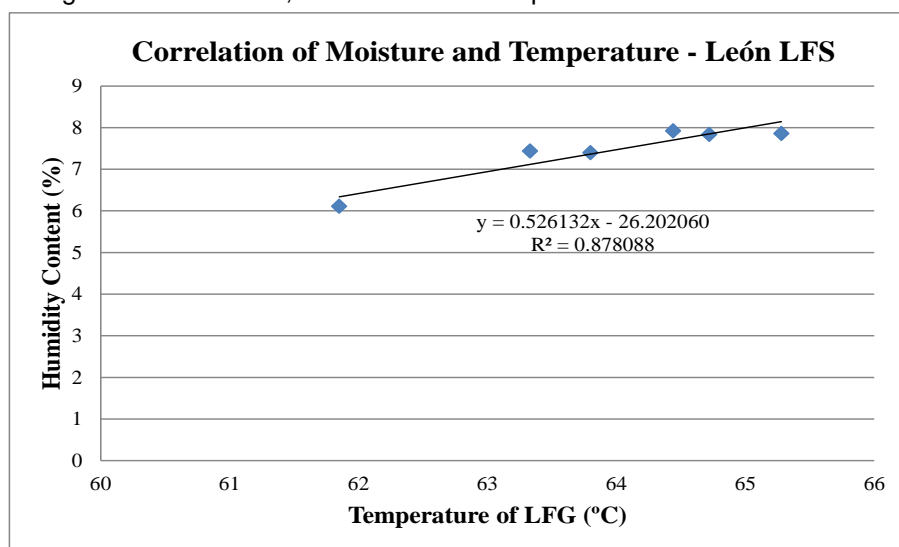
CAR ID	13	Section no.	D.2	Date: 27/05/2019
Description of CAR (1st round)				
<p>Parameter PE_{EC,y}:</p> <p>As per PDD there will be three sources of electricity import. Confirm that this is only from the grid consumption.</p>				
Project participant response				Date: 28/05/2019
<p>For parameter PE_{EC,y}, the following clarification has been included in the MR (page 36): Since the project does not generate electricity being in the first stage, the electricity needed for the operation of the project activity is supplied by the national grid.</p>				
Documentation provided by project participant				
MR ver. 3				
DOE assessment				Date: 29/05/2019
<p>The consideration of only one source of electricity import is in line with the actual project implementation, as the only source so far is the national grid.</p> <p>CAR is closed.</p>				

CAR ID	14	Section no.	E.1	Date: 27/05/2019
Description of CAR (1st round)				
Section E.1: $F_{CH4,sent_flare,y} = V_{LFG,sent_flare,y,db} * V_{CH4,t,db} * DCH4$ (Eq. number 7 and page 23 PDD) are not found in PDD.				
Project participant response				Date: 28/05/2019
The equation $F_{CH4,sent_flare,y} = V_{LFG,sent_flare,y,db} * V_{CH4,t,db} * DCH4$ is adapted from the Eq. number 5, page 23 PDD. Correction has been made in E.1				
Documentation provided by project participant				
MR ver. 4				
DOE assessment				Date: 29/05/2019
The reference of equation $F_{CH4,sent_flare,y} = V_{LFG,sent_flare,y,db} * V_{CH4,t,db} * DCH4$ is correct as per PDD. CAR is closed.				

CAR ID	15	Section no.	E.1	Date: 26/09/2019
Description of CAR (1st round)				
In line with the incomplete from UNFCCC received on 26.09.2019 the following finding has been raised:				
<ol style="list-style-type: none"> 1) As per registered PDD, monitoring parameter "volumetric fraction of H₂O in time interval t on a dry basis (vH₂O,t,db)" is estimated using equation (8) of the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 3.0, for wet gaseous stream. Nonetheless the parameter has been determined in a different manner. Correction is requested. 2) Registered PDD states that as per the of the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", version 3.0, under normal operation conditions, the volumetric flow of landfill gas which is sent to flare is monitored as VLFG,sent_flare,y,db (m³ dry gas/h) since the temperature of the landfill gas (Tt) is less than 60°C at the flow measurement point most of the time (Option A). The same volumetric flow is named as VLFG,sent_flare,y,wb (m³ wet gas/h) in case of wet basis of the gas, demonstrating that the temperature of the gaseous stream (Tt) is more than 60°C at the flow measurement point following by converting the measured volumetric flow from wet basis to dry basis (Option B). Further, the submitted Monitoring Report, Verification report and Spreadsheets provide the values of the volumetric flow in normalized cubic meters (Nm³). However, as per the applied methodological tool "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", version 3.0, particularly Options A and B applied by the project activity, the volumetric flow of landfill gas shall be monitored in operation conditions. Clarification is requested. 3) Methane density (DCH₄), page 13 of the MR – by scanning through ACM0001 Version 18, we view that the way DCH₄ is determined is not in accordance with ACM0001 Version 18. On further looking we observed that the applied approach is defined until ACM0001 Version 11 and after that subsequent version of meth has different provision. So, parameter DCH₄ is not in accordance with applied methodology. Clarification is requested. 				
Project participant response				Date: 30/09/2019
<ol style="list-style-type: none"> 1) During the first crediting period, the CDM-PDD did not have any reference to the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" to correct the flow to dry basis when the temperature was greater than 60°C and there was not guidance to properly apply it. Moreover, considering that during the monitoring period no separate monitoring of temperature and pressure is necessary since the PP is using flowmeters that automatically express LFG volumes in normalized cubic meters, there is no measurement of the pressure of the gas to apply the Option 2 (Simplified calculation without measurement of the moisture content) of the "Tool to determine the mass flow of a GHG in a gaseous stream" version 3.0 Considering such situation, for the first submission of this monitoring period, rather than using the using equation (8) of the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 3.0, the PP hired the third party consultancy IECASA to measure the moisture content of the gas (vH₂O,t,db) as can be evidenced with the "Moisture Content Report_Leon_Feb-11". The experiment was conducted by artificially (i.e increasing the booster's suction) increasing the temperature of the gas above 60°C and measuring the moisture content of the gas to find a correlation between the temperature of the gas and its moisture content, as follows: 				

Temperature LFG (°C)	vH ₂ O,t,db (%)
63.33	7.429
61.85	6.103
64.44	7.916
64.72	7.828
63.80	7.389
65.28	7.852

Using the above values, the correlation was plotted as follows:



In the first submission of the current monitoring period, the PP corrected the monitored values of the parameter "VLFG,sent_flare,y,db" to dry basis for the cases when T exceeded the 60°C using the following correlation based on the data measured by IECASA in the "Moisture Content Report_Leon_Feb-11":

$$vH_2O,t,db \text{ (%) } = 0.526132 \cdot T \text{ (°C)} - 26.202060$$

In such first submission, the volumetric flow of the gaseous stream in time interval t on a dry basis (vi,t,db) was determined by converting the volumetric flow from wet basis to dry basis as per Option B (Eq. 7) of the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 3.0, as follows:

$$v_{i,t,db} = v_{i,t,wb} / (1 + vH_2O,t,db)$$

Since the monitoring parameter "volumetric fraction of H₂O in time interval t on a dry basis (vH₂O,t,db)" might have not been estimated as per the provisions defined under registered PDD in the first submission of this monitoring period, for the second submission of this monitoring period the PP has decided to conservatively disregard all flows values when the temperature was greater than 60°C, which accounts for 10% of the landfill gas which is sent to flare as per the following table:

Basis	Parameter	Nm ³	% Prevailed
Wet Basis	VLFG,sent_flare,y,wb	639,491	10%
Dry Basis	VLFG,sent_flare,y,db	5,845,108	90%
Operational Basis	VLFG,sent_flare,y	6,484,599	100%

The changes are applied in the sheet "Error" of the file under the name "Raw Data_El Verde_6th MP_v5.xlsx" for the monitored values, which are later on used in the fifteen Monthly ER Spreadsheets under the name "00.ER Spreadsheet_6thMP_Leon_v5_mmm-yy.xlsx", from which totalized monthly values are summarized in the file "ER Summary_6thMP_v5_Leon.xlsx".

- The PP would like to clarify that the volumetric flow of landfill gas has been firstly monitored under operational conditions in conjunction with the temperature of the landfill gas (T_t). The reported value in the Monitoring Report, Verification report and Spreadsheets as VLFG,sent_flare,y,db (m³ dry gas/h) is determined once it has been confirmed that the temperature of the landfill gas (T_t) is less than 60°C at the flow measurement point. Therefore, the thermo-mass flowmeter measures the operational conditions

and by comparison with the temperature of the landfill gas (T_t), the volumetric flow of landfill gas is considered in the Spreadsheet as VLFG,sent_flare,y,db (m^3 dry gas/h) or VLFG,sent_flare,y,wb (m^3 wet gas/h) depending on whether the flow falls under Option A ($T_t > 60^\circ\text{C}$) or B ($T_t < 60^\circ\text{C}$), respectively. For this monitoring period, as per the previous response, most of the time (90% of the monitoring flow values) were considered in dry conditions (T_t less than 60°C) under Option A and has conservatively disregarded all the values for the parameter VLFG,sent_flare,y,wb (m^3 wet gas/h) under Option B when temperature of the gaseous stream (T_t) was more than 60°C at the flow measurement point.

- 3) In the first submission of the current monitoring period, the parameter density of methane at normal conditions (DCH4) was used in the ex ante calculation of emission reductions as shown in "Appendix 4. Further background information on ex ante calculation of emission reductions" of the registered CDM-PDD with the value of 0,0007168 tCH4/m3CH4 to convert FCH4,PJ, from tonnes to Nm3 of CH4 to determine the volumetric flow of landfill gas as per the "Emissions from solid waste disposal sites" (Version 08.0), which was implicitly required by ACM0001 Version 18.

In this second submission of the current monitoring period, the value of the parameter density of methane at normal conditions ($\rho_{\text{CH}_4,n}$) has been updated as 0.716 kg/m3 (or 0.0007160 tCH4/m3CH4, depending on the case and the units used) as per the Table 1 (page 9) of the methodological tool "Project emissions from flaring" (version 02.0.0), which is implicitly required by ACM0001 Version 18. Please notice that the measurement method of the volumetric flow of landfill gas is based in the thermal principle of the thermal mass flowmeter so no separate monitoring of temperature and pressure is necessary to determine the density since the flowmeters automatically express LFG volumes in normalized cubic meters.

Documentation provided by project participant

MR ver. 5

DOE assessment

Date: 07/10/2019

- 1) In line with the clarification provided by the PP, during the first crediting period, the CDM-PDD did not have any reference to the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" to correct the flow to dry basis when the temperature $> 60^\circ\text{C}$, and the PP provided an alternative method in line with thermodynamics principles and such situation was not updated in renewal of the crediting period. The PP decision to conservatively disregard all flows values $T > 60^\circ\text{C}$ (wet basis) is correct and in line with the registered PDD choices and also the re-calculated ER value is conservative; this is verified in columns D and E of spreadsheet /error/ in xls file Raw_Data_EI_Verde_6MP_v5.
- 2) As described in appendix 5 of this report the parameter VLFG,sent_flare,y,db (m^3 dry gas/h) is measured continuously by a flow meter at normal pressure and temperature and registered electronically by the system Landtec. The meter provided the "Normal" flow values adjusted by P and T so no further adjust is required. As stated in the previous point the PP decided to not consider in the ER calculation the values of parameter VLFG,sent_flare,y,wb (m^3 wet gas/h) under Option B, such decision is in line with registered PDD and the calculation is conservative, this is verified in columns D and E of spreadsheet /error/ in xls file Raw_Data_EI_Verde_6MP_v5.
- 3) The methane density $\rho_{\text{CH}_4,n}$ is expressed in different units 0.716 kg/m3 (or 0.0007160 tCH4/m3CH4) as per methodological tools, nonetheless the value applied for the ER calculation is correct, this is verified in rows 33, 39 and 45 of spreadsheet ER Summary_6th MP_v5. The $\rho_{\text{CH}_4,n}$ values provided in section D.1 of the MR version 5 is in line with the applied methodological tools as per registered PDD.

CAR is closed.

The following finding were raised to attend the Request for review from UNFCCC received on 27/03/2020

As the previous MR version was 6, for ease on files traceability, all updated files such as calculation spreadsheets have been renamed with version 7.

CAR ID	CAR 16	Section no.	D.2	Date: 31/03/2020
Description of CAR (1st round)				
Calibration/installation date of the thermocouple after the validity of the last calibration from 21/11/2018 is missing				
Project participant response				Date: 20/04/2020

The thermocouples with serial number 139023-1,2,3 located at the exhaust of the flare for measurement of parameter TEG,m was calibrated by manufacturer on 24/02/2017 and installed by the PP on 22/05/2017 as evidenced in „Calibration Chronogram_LEON_6th MP“. Therefore, considering the thermocouple has 18 months of validity from the installation date (22/05/2017) its calibration is valid until 21/11/2018. Since the calibration of the thermocouples with serial number 139023-1,2,3 and 4 was not conducted for the period from 21/11/2018 to 31/12/2018 (end of the monitoring period), the PP has applied the maximum permissible error of the thermocouples (0.75% of reading) to the measured values of the parameter TEG,m taken during such period (both days included) as can be evidenced in Column J of Sheet „Error“ of the Raw Data_EI Verde_6th MP_v7.xlsx. Such change has been included in row „QA/QC procedures“ of the table for the parameter in Section D.2 of the MR.

Documentation provided by project participant

Raw Data_EI Verde_6th MP_v7.xlsx.
MR v7

DOE assessment
Date: 21/04/2020

The calibration gap for the period 21/11/2018- 31/12/2018 of the thermocouples has been described in section D.2 of the MR the monitored data has properly been adjusted with the maximum permissible error (0.75% of reading) in column J of Sheet „Error“. As the thermocouples are not calibrated but instead, they are replaced, the comparison of an actual error from a posterior calibration is not applicable. The ER calculation is considered conservative and correct and in line with §365-371 of the VVS version 2.

The finding is closed.

CAR ID	CAR 17	Section no.	D.2	Date: 31/03/2020
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Description of CAR (1st round)

The application of Option A to determine the flow of LFG to flare: As per the tool “Tool to determine mass flow rate of greenhouse gas in a gaseous stream”, version 03.0, for application of Option A for flow measurement on a dry basis, it has to be demonstrated that temperature of the gaseous stream (Tt) is less than 60 degree C

The PP has applied Option A in the calculation when Tt is less than 60°C and considered the flow as zero when Tt is more than 60°C. However, it is observed that Option A for flow measurement was applied when Tt equals 60°C. Correction is requested.

Project participant response
Date: 20/04/2020

The volumetric flow of landfill gas has been firstly monitored under operational conditions in conjunction with the temperature of the landfill gas (Tt). The reported value in the Monitoring Report, Verification report and Spreadsheets as VLFG,sent_flare,y,db (m³ dry gas/h) is determined once it has been confirmed that the temperature of the landfill gas (Tt) is less than 60°C at the flow measurement point. Therefore, the thermo-mass flowmeter measures the operational conditions and by comparison with the temperature of the landfill gas (Tt), the volumetric flow of landfill gas is considered as VLFG,sent_flare,y,db (m³ dry gas/h) or VLFG,sent_flare,y,wb (m³ wet gas/h) depending on whether the flow falls under Option A (Tt < 60°C), or Option B (Tt > 60°C) respectively, as can be evidenced in Column B of Sheet „Error“ of the Raw Data_EI Verde_6th MP_v7.xlsx following the tool “Tool to determine mass flow rate of greenhouse gas in a gaseous stream”, version 03.0. In the previous response, most of the time of the monitoring period (21,799 cases out of the 302,644 of the monitoring flow values) were considered in wet conditions (Tt more than 60°C) under Option B while in this new response, a more conservative approach (24,806 cases out of the 302,644 of the monitoring flow values) have been considered in wet conditions. As per previous approach, the PP has conservatively disregarded all the values for the parameter VLFG,sent_flare,y,wb (m³ wet gas/h) under Option B when temperature of the gaseous stream (Tt) was more or equal than 60°C at the flow measurement point. The PP has applied a temporary deviation from the registered monitoring plan in cases when Tt > 60°C (Option B), where the PP has decided to not consider the values of parameter VLFG,sent_flare,y,wb (m³ wet gas/h) in the ER calculation, being the most conservative approach referred to in the “CDM project standard for project activities” for the non-conforming monitoring period.

Documentation provided by project participant

Raw Data_EI Verde_6th MP_v7.xlsx
MR v7

DOE assessment
Date: 20/04/2020

A more conservative approach was applied by the PP, considering the Option B (Tt > 60°C) of the Tool to determine mass flow rate of greenhouse gas in a gaseous stream”, version 03.0, so the PP has disregarded all the values of parameter VLFG,sent_flare,y,wb (m³ wet gas/h) when temperature of the gaseous stream (Tt) was more or equal than 60°C. The error spreadsheet Raw Data_EI Verde_6th MP_v7.xlsx has been reviewed in conjunction with the monthly ER spreadsheets and the ER summary spreadsheet. All calculation are considered correct, conservative and in line with the calculation provisions of the PDD and applied methodology.

The finding is closed.

CAR ID	CAR 18	Section no.	D.2	Date: 31/03/2020
Description of CAR (1st round)				
<p>As shown in the calculation spreadsheets the flare efficiency is determined/calculated every two minutes instead of each minute which is required by the monitoring plan and the applied tool "Project emissions from flaring" (Version 02.0.0)</p> <p>Furthermore, the required monitored parameters by the tool to determine the flare efficiency:</p> <ul style="list-style-type: none"> ✓ Volumetric flow of the residual gas on a dry basis at reference conditions in the minute m ✓ Mass flow of the residual gas on a dry basis at reference conditions in the minute m ✓ Volumetric fraction of O₂ in the exhaust gas on a dry basis at reference conditions in the minute m ✓ Concentration of methane in the exhaust gas of the flare on a dry basis at reference conditions in the minute m ✓ Mass flow of methane in the residual gaseous stream in the minute m ✓ Volumetric fraction of methane in the residual gas on a dry basis in the minute m <p>are also not averaged on a minute basis as required by the tool.</p> <p>This deviation has not been properly reported in MR</p>				
Project participant response				Date: 20/04/2020
<p>The flare efficiency is determined/calculated every two minutes instead of each minute as required by the monitoring plan and as per option B.2 of the tool "Project emissions from flaring" (Version 02.0.0). Furthermore, the required monitored parameters by the tool to determine the flare efficiency have not been averaged on a minute basis as required by the tool neither. The PP has applied a temporary deviation from the registered monitoring plan considering that the monitoring system would need to be updated (inclusion of extra monitoring data from extra flowmeters, pressure meters amongst other technical updates such as the gathering frequency) once the Phase 2 finishes its commissioning stage.</p>				
Documentation provided by project participant				
MR v7				
DOE assessment				Date: 21/04/2020
<p>When the project was originally registered, the methodological tool requested a continuous monitoring of the flare efficiency, but not specifically the determination/calculating every minute, so the project was designed with a data gathering system with two minutes determination/calculating frequency. When the CP was renewed the applicable tool "Project emissions from flaring" (Version 02.0.0) requests the determination/calculating specifically each minute. This change was not envisaged at renewal of the CP, furthermore such change requires new investment in equipment, so it is understandable that at this stage of the verification is not possible to upgrade the monitoring system to correct the deviation. The PP is contemplating the upgrade of the monitoring system when the electricity generation phase begins. A temporary deviation is reported in MR and this report, furthermore the PRC is assessed in a separate PRC validation report.</p> <p>The finding is closed</p>				

CAR ID	CAR 19	Section no.	D.2	Date: 31/03/2020
Description of CAR (1st round)				
<p>In the corresponding cells in the monthly spreadsheet which calculate the flare efficiency (e.g. cells in column DR of sheet "ER calculation" for October 2017), the PP included a provision that if the calculated efficiency is less than 0.9, an efficiency of 0.9 will be used. This provision is not in line with equation (2) of the tool "Project emissions from flaring" (Version 02.0.0)</p>				
Project participant response				Date: 20/04/2020
<p>The PP selected Option B to determine flare efficiency as required by the "Project emissions from flaring" (version 02.0.0) using equation (2) of the tool. Considering that when the enclosed flare is operated as per manufacturer specifications an efficiency of 0.9 is achieved, the PP included a provision in column DR of sheet "ER calculation" that if the calculated efficiency is less than 0.9, the value of 0.9 should apply because this is due a malfunction of the continuous gas analyser. This is in line with the registered PDD which, in page 24, considers the following: <i>"To determine the flare efficiency for minute m ex-post ($\eta_{flare,m}$) in the project activity, the project participant uses the case for enclosed flares (not defined as low height flares) choosing the "Option B: Measure the flare efficiency" under normal operational conditions. In case there is a malfunction or a delay in the installation of the measurement equipment to determine the flare efficiency, "Option A: Apply a default value for flare efficiency" for enclosed flares will be used by the project participant."</i></p>				
Documentation provided by project participant				
MR v7				

DOE assessment	Date: 20/04/2020
<p>The clarification provided by the PP is in line with the provisions in the PDD. As the flare is of enclosed type, the default efficiency value of 90% is correctly applied and in line with the TOOL Project emissions from flaring" (version 02.0.0).</p> <p>The finding is closed.</p>	

CAR ID	CAR 20	Section no.	D.2	Date: 31/03/2020
Description of CAR (1st round)				
<p>It is not clear how parameter Flamem (Flame detection of flare in the minute m) has been determined as per the applied tool which requires the detection of flame. In MR is indicated that the parameter is linked with parameter Opflare,h which detects whether the flame is on or off (page 35). However, as shown in the emission reductions spreadsheets, the parameter Opflare,h, is determined based on the temperature in the exhaust gas of the enclosed flare in minute m (TEG,m), i.e. when TEG,m is larger than 500 degree C, the flame is considered on. Correction is requested</p>				
Project participant response				Date: 20/04/2020
<p>The parameter Flamem (Flame detection of flare in the minute m) is used to ensure that the equipment is in operation (T_{EG,m} above 500 °C indicates that the flare is operating) since the control system of the equipment ensures that the enclosed flare will stop if no flame is detected. The PLC program installed at the flare stops if there is no flame and as such is considered appropriate by the PP taking into account that the hours of operation of the flare are determined and reported in the MR and the fact that the parameter is not directly used in the determination of ERs. Clarification (T_{EG,m} above 500 °C indicates that the flare is operating) has been added to section „Calculation method“ of the table of the parameter in Section D.2.</p>				
Documentation provided by project participant				
MR v7				
DOE assessment				Date: 20/04/2020
<p>The flare is equipped with the flame detector IRIS Model S706-PF flame scanner UV detector, which detects when the flare is on or off. As per PDD page 25 the flare operation is determined by a flame detector plus additional requirements provided by the manufacturer. In this case the flare temperature is also a manufacturer monitoring parameter. As both instruments the flame detector and the thermocouples are programmed to control de ON and OFF of the biogas flow, the calculation of the Opflare,h is correct. If the T_{EG,m} is below 500 °C the flare turn off and the flame scanner also will send the signal to stop. On the other hand, if the flame detects no flame, it sends the signal to stop the flow. As the monitored system is set to register the Opflare,h based on the T_{EG,m} the Opflare,h monitored is correct.</p> <p>The finding is closed.</p>				

Table 6. FAR from this verification

FAR ID		Section No.		Date: DD/MM/YYYY
Description of FAR				
N/A				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

Appendix 5. Parameters

Table A-5: Periodic Verification Checklist – Monitored Parameters

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
1. Management of SWDS		Management of SWDS		
<p>a) Measurement / Determination method (VVS, §§ 360-364) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	/ MR / / PDD / / EIA / / NOM / / INS /	<p><i>Description:</i> the original technical design of the landfill is described in the EIA approval documents, where the main requirement is the compliance with the norm NOM-083-SEMARNAT-2003 regarding landfill management. The PP confirmed the fulfilment of such norm by periodic checking by a third-party verifier.</p>	CAR-02	OK
		<p><i>Verifier's action:</i></p> <ul style="list-style-type: none"> ➤ The VT reviewed the main technical specification of the landfill as per EIA documentation. ➤ The VT performed an onsite inspection throughout the landfill to check the general operation, including the biogas management plant and reviewed the requirement of the NOM-083-SEMARNAT-2003. ➤ The VT reviewed the last inspection report performed by a third-party verifier. 		
		<p><i>Conclusion:</i> It is confirmed that the original landfill design has not been modified as per assessed evidence of the landfill actual technical situation, nonetheless the following finding was raised:</p>		
		<input checked="" type="checkbox"/> In this context the following findings have been raised:		
		<input checked="" type="checkbox"/> CAR 02: Parameter Management SWDS in section D.2 of the MR doesn't mention any design/technical/regulatory information about the implementation of the project as requested by the applicable methodology and registered PDD.		

			<input type="checkbox"/>					
b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i> <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i> <i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i>	N/A	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan		OK	OK		
		<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6					
		<input type="checkbox"/>	No delayed calibration has occurred					
		<input type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.					
		<input type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.					
		<input type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: End date of delay: For both meters, the main and backup					
		<input type="checkbox"/>	A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:					
		<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration					
		<input type="checkbox"/>	The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument					
		<input type="checkbox"/>	The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument					
		<input type="checkbox"/>	The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals					

		<input type="checkbox"/>	The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.		
		<input type="checkbox"/>	In this context the following findings have been raised:		
		<input type="checkbox"/>	N/A		
		<input type="checkbox"/>			
2. p _{reg,y}		Fraction of LFG that is required to be flared due to a requirement in year y			
<p>a) Measurement / Determination method (VVS, §§ 360-364) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	/MR/ /PDD/ /EIA/ /NOM/ /INS/ /LIC/ /ACM/	<p><i>Description:</i> the legal obligations are described in the EIA approval documents and also the norm NOM-083-SEMARNAT-2003 regarding landfill management. No regulatory either contractual requirements regarding the fraction of LFG to be flared is stated in such documents and either requested by other parties such as clients.</p> <p><i>Verifier's action:</i></p> <ul style="list-style-type: none"> ➤ The VT reviewed the main technical specification of the landfill as per EIA documentation. ➤ The VT interviewed the biogas management personnel ➤ The VT reviewed the NOM-083-SEMARNAT-2003 <p><i>Conclusion:</i></p> <p>By means of the above the verification team could confirm that:</p> <ul style="list-style-type: none"> - Measurement method is in accordance with the registered PDD and applied methodology <p>The value given in the MR is correct and traceable. No mistakes or deviation were identified during the verification.</p>		OK	OK
<p>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371) In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the</p>		<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	OK	OK
		<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6		

<p><i>monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>		<input type="checkbox"/> No delayed calibration has occurred			
		<input type="checkbox"/> As per the initial assessment the monitored value is deemed to be correct.			
		<input type="checkbox"/> Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.			
		<input type="checkbox"/> Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: End date of delay: For both meters, the main and backup			
		<input type="checkbox"/> A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:			<input type="checkbox"/> The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration
					<input type="checkbox"/> The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument
					<input type="checkbox"/> The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument
					<input type="checkbox"/> The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals
					<input type="checkbox"/> The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.
		<input type="checkbox"/> In this context the following findings have been raised:			<input type="checkbox"/>
<input type="checkbox"/>					
3. $V_{LFG, total, y, db}$		Volumetric flow of total landfill gas which is sent to flare and used for electricity generation in year y on a dry basis			

<p>a) Measurement / Determination method (VVS, §§ 360-364) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	/MR/ /PDD/	<p><i>Description:</i> So far all LFG is flared so no meter has been installed for total and electricity LFG, which is line with the registered PDD.</p>		OK	OK
<p><i>Verifier's action:</i> The verification team reviewed PDD and O&M registries and visited the installations</p>					
<p><i>Conclusion:</i> No measurement was required for this MP.</p>					
<input type="checkbox"/>		<p>In this context the following findings have been raised:</p> <table border="1"> <tr> <td data-bbox="1106 416 1178 464"><input type="checkbox"/></td><td data-bbox="1178 416 1856 464">N/A</td></tr> <tr> <td data-bbox="1106 464 1178 598"><input type="checkbox"/></td><td data-bbox="1178 464 1856 598"></td></tr> </table>	<input type="checkbox"/>		
<input type="checkbox"/>	N/A				
<input type="checkbox"/>					
<p>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371) In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs. Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance. Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</p>	N/A	<input type="checkbox"/>	<p>It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan</p>	OK	OK
<input type="checkbox"/>		<p>For details regarding the accuracy and calibration details please refer to Appendix 6</p>			
<input type="checkbox"/>		<p>No delayed calibration has occurred</p>			
<input type="checkbox"/>		<p>As per the initial assessment the monitored value is deemed to be correct.</p>			
<input type="checkbox"/>		<p>Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.</p>			
<input type="checkbox"/>		<p>Based on calibration certificates checked a delay in calibration has been identified for the following period:</p> <p>Start date of delay:</p> <p>End date of delay:</p> <p>For both meters, the main and backup</p>			
<input type="checkbox"/>		<p>A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:</p> <table border="1"> <tr> <td data-bbox="1106 1326 1178 1383"><input type="checkbox"/></td><td data-bbox="1178 1326 1856 1383">The maximum permissible error of the instrument has been applied to the values during the period between</td></tr> </table>	<input type="checkbox"/>		
<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between				

			<input type="checkbox"/> scheduled date of calibration and the actual date of calibration <input type="checkbox"/> The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument <input type="checkbox"/> The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument <input type="checkbox"/> The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals <input type="checkbox"/> The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.		
		<input type="checkbox"/> In this context the following findings have been raised:			
		<input type="checkbox"/> N/A			
		<input type="checkbox"/>			
4. V_{LFG,sent flare,y,db}		Volumetric flow of landfill gas which is sent to flare in year y on a dry basis			
a) Measurement / Determination method (VVS, §§ 360-364) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/CC/ /MR/ /XLS/ /PDD/ /raw data/	<p><i>Description:</i> The parameter is measured continuously by a flow meter each 2 minutes at normal pressure and temperature and registered electronically by the system Landtec. The meter provided the flow values adjusted by P and T so no further adjust is required. One flow meter was used during this MP. Further details as per Appendix 6.</p> <p>The meters were subjected to maintenance and were calibrated as required by the manufacturer as indicated in Appendix 6. Two flow meters were used during this MP the first meter has been exchanged on 20/10/2017. As per manufacturer specification the validity of the first/manufacturer calibration starts with the date of installation. Further details as per Appendix 6.</p> <p>The meter is equipped with a condensate system to trap the water and ensure dry basis and to be in line with all parameters which are measured on dry basis. Also the dry basis is ensure by the monitoring of the gas temperature. According to the registered PDD and the “tool to determine project emissions from flaring gases containing methane” the dry basis happens when the gas T is below</p>	CAR-04	OK	

		<p>60°C.</p> <p>The monitored data is used in the ER calculation spread sheet, where the following conditions are applied for the calculation:</p> <ul style="list-style-type: none"> • Condition 1: The $V_{LFG, sent_flare, y, db}$ should be between 450 and 5047 Nm³/h • Condition 2: The $v_{CH_4, t, db}$ should be between 25 and 75% in CH₄ • Condition 3: The $T_{EG, m}$ should be between 500 and 1200°C <p>As the T below 60°C was not ensured during all time, the PP should have adjusted the monitored data, so a finding was raised:</p> <p><i>Verifier's action:</i></p> <ul style="list-style-type: none"> ➤ Check the physically existence of the meters, checked the respective serial numbers and the correct functioning. ➤ The VT reviewed the manufacturer's specifications and user's guide. ➤ Checked the monthly raw data from SCADA of the whole monitoring period, obtained in real time. ➤ The obtained monthly information was corroborated to be the same in the MR and calculation spreadsheet. ➤ The verification team reviewed the following evidence: ➤ O&M registers including the check of the condensates system. ➤ Calibration certificates from manufacturer ➤ To ensure the dry basis of data required by the tool, the ER spread sheets were revised and it can be confirmed that in some cases the gas T surpassed the 60 °C nonetheless the PP corrected the monitored data by subtracting the average humidity content as per data obtained from the lineal regression. The periods when the gas T surpassed the 60 °C is clearly stated in columns D and E of spreadsheet /error/ in xls file Raw_Data_EI_Verde_6MP_v5. 		
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		<p><i>Conclusion:</i> The measurement of the parameter is in line with the registered monitoring plan and the applied methodology, nonetheless the following finding was raised:</p>		
		<input checked="" type="checkbox"/> In this context the following findings have been raised:		
		<input checked="" type="checkbox"/> CAR 04: As per ER Summary spreadsheet the LFG temperature appears to be higher than 60°C in month November 2017, so that as per methodological tool "Project emissions from flaring" the dry basis of the flow measurement is not ensured. The PP is requested to correct the LFG flow ($V_{LFG, sent_flare, y, db}$) data through an appropriate method to ensure the LFG flow measurement is under dry basis.		
		<input checked="" type="checkbox"/> CAR 15: In line with the incomplete from UNFCCC received on 26.09.2019 the following finding has been raised: <ol style="list-style-type: none"> 1) As per registered PDD, monitoring parameter "volumetric fraction of H₂O in time interval t on a dry basis ($v_{H_2O, t, db}$)" is estimated using equation (8) of the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 3.0, for wet gaseous stream. Nonetheless the parameter has been determined in a different manner. Correction is requested. 2) Registered PDD states that as per the of the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", version 3.0, under normal operation conditions, the volumetric flow of landfill gas which is sent to flare is monitored as $V_{LFG, sent_flare, y, db}$ (m³ dry gas/h) since the temperature of the landfill gas (T_t) is less than 60°C at the flow measurement point most of the time (Option A). The same volumetric flow is named as $V_{LFG, sent_flare, y, wb}$ (m³ wet gas/h) in case of wet basis of the gas, demonstrating that the temperature of the gaseous stream (T_t) is more than 60°C at the flow measurement point following by converting the measured volumetric flow from wet basis to dry 		

				<p>basis(Option B). Further, the submitted Monitoring Report, Verification report and Spreadsheets provide the values of the volumetric flow in normalized cubic meters (Nm3). However, as per the applied methodological tool "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", version 3.0, particularly Options A and B applied by the project activity, the volumetric flow of landfill gas shall be monitored in operation conditions. Clarification is requested.</p> <p>3) Methane density (DCH4), page 13 of the MR – by scanning through ACM0001 Version 18, we view that the way DCH4 is determined is not in accordance with ACM0001 Version 18. On further looking we observed that the applied approach is defined until ACM0001 Version 11 and after that subsequent version of meth has different provision. So, parameter DCH4 is not in accordance with applied methodology. Clarification is requested.</p>		
<p>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>	/MR/ /CC/	<input checked="" type="checkbox"/>	<p>It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan</p>	OK	OK	
	<input checked="" type="checkbox"/>	<p>For details regarding the accuracy and calibration details please refer to Appendix 6</p>				
	<input checked="" type="checkbox"/>	<p>No delayed calibration has occurred</p>				
	<input type="checkbox"/>	<p>As per the initial assessment the monitored value is deemed to be correct.</p>				
	<input checked="" type="checkbox"/>	<p>Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.</p>				
	<input type="checkbox"/>	<p>Based on calibration certificates checked a delay in calibration has been identified for the following period:</p> <p>Start date of delay:</p> <p>End date of delay:</p> <p>For both meters, the main and backup</p>				

		<input type="checkbox"/> A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:		
		<input type="checkbox"/> The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration		
		<input type="checkbox"/> The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument		
		<input type="checkbox"/> The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument		
		<input type="checkbox"/> The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals		
		<input type="checkbox"/> The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.		
		<input type="checkbox"/> In this context the following findings have been raised:		
		<input type="checkbox"/> N/A		
		<input type="checkbox"/>		
5. V _{LFG,EL,y,db}		Volumetric flow of landfill gas which is used for electricity generation in year y on a dry basis		
a) Measurement / Determination method (VVS, §§ 360-364) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	N/A	Description: this is parameter is not applicable as the power generation phase is not running yet. Verifier's action: ➤ The verifier physically confirms the existence the power generation and complementary equipment in the machine room in the landfill site. ➤ Logbooks and data from the SCADA were reviewed. Conclusion: By means of the above the verification team could confirm that: No LFG has been sent the power generation yet.	OK	OK
		<input type="checkbox"/> In this context the following findings have been raised:		

			<input type="checkbox"/> N/A		
			<input type="checkbox"/>		
b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i> <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i> <i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i>	N/A	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	N/A	OK
		<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6		
		<input type="checkbox"/>	No delayed calibration has occurred		
		<input type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.		
		<input type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.		
		<input type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: End date of delay: For both meters, the main and backup		
		<input type="checkbox"/>	A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:		
		<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration		
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		<input type="checkbox"/>	The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument		
		<input type="checkbox"/>	The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals		

		<input type="checkbox"/> The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.		
		<input type="checkbox"/> In this context the following findings have been raised:		
		<input type="checkbox"/> N/A		
		<input type="checkbox"/>		
6. to2,h		Volumetric fraction of O₂ in the exhaust has of the flare in the hour h		
a) Measurement / Determination method (VVS, §§ 360-364) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/CC/ /MR/ /XLS/ /PDD/ /SPAN/ /Raw Data/ /TOOL/	<p><i>Description:</i> The parameter was measured automatically at least one time per hour continuously by a gas analyser FEA as stated in the PDD. The sampling probe is installed at 80% of the flare height as per registered PDD. The data is saved and managed by the system Landtec. The data is downloaded every month for operation purposes and also ER calculation.</p> <p>The meter FEA were subjected to maintenance and were calibrated as required by the manufacturer (once a year) as indicated in appendix 6. The FEA is calibrated by a technician at least once a week. For the calibration span gases are used as recommended by the manufacturer. The span gases recommended concentration is the following:</p> <p>Bottle 1: 400 ppm CH₄, 15% O₂ and balance ≈85% (N₂).</p> <p>Bottle 2: 100% N₂, which could be confirm in site to be correct.</p> <p>The FEA is equipped with a condensate system to trap the water and ensure dry basis and to be in line with all parameters which are measured on dry basis.</p> <p>The monitored data is used in the ER calculation spread sheet, where the following conditions are applied for the calculation:</p> <ul style="list-style-type: none"> • Condition 1: The $V_{LFG, sent_flare, y, db}$ should be between 450 and 5047 Nm³/h • Condition 2: The $v_{CH_4, t, db}$ should be between 25 and 75% in CH₄ • Condition 3: The $T_{EG, m}$ should be between 500 and 1200°C <p><i>Verifier's action:</i> The verification team reviewed:</p> <ul style="list-style-type: none"> ➤ O&M registers including the weekly calibration report and condensate system checks. ➤ calibration certificates from manufacturer 	OK	OK

		<ul style="list-style-type: none"> ➤ Quality certificates of the span gases provided by the gases supplier. ➤ comparison between gases concentration and manufacturer recommendation ➤ The verifier physically confirms the existence of the FEA gas analyser, including the moist trap and checked the respective serial numbers and the correct functioning. ➤ The VT reviewed the manufacturer's specifications and user's guide. ➤ Check the Monitoring Room and reviewed the raw data downloaded from the Landtec system and compare it against the excel calculation sheets ➤ The obtained monthly information was corroborated to be the same in the MR and ER calculation spreadsheet. ➤ It was confirmed that the spread sheet applied correctly the conditions, so that, the methodological tool "project emissions from flaring" version 02.0 is follow in the calculation. <p><i>Conclusion:</i></p> <p>By means of the above the verification team could confirm that:</p> <ul style="list-style-type: none"> - Measurement method is in accordance with the registered PDD and applied methodology - The metering equipment complies with the PDD requirements. - Frequency of measurements are as per requirements in the PDD - Equipment was not changed or replaced during the monitoring period - The value given in the MR is correct and traceable. No mistakes or deviation were identified during the verification. <table border="1" data-bbox="1037 1134 1859 1278"> <tr> <td data-bbox="1037 1134 1106 1182" style="text-align: center;"><input checked="" type="checkbox"/></td> <td data-bbox="1106 1134 1859 1182">In this context the following findings have been raised:</td> </tr> <tr> <td data-bbox="1037 1182 1106 1230" style="text-align: center;"><input type="checkbox"/></td> <td data-bbox="1106 1182 1859 1230">N/A</td> </tr> <tr> <td data-bbox="1037 1230 1106 1278" style="text-align: center;"><input type="checkbox"/></td> <td data-bbox="1106 1230 1859 1278"></td> </tr> </table>	<input checked="" type="checkbox"/>	In this context the following findings have been raised:	<input type="checkbox"/>	N/A	<input type="checkbox"/>			
<input checked="" type="checkbox"/>	In this context the following findings have been raised:									
<input type="checkbox"/>	N/A									
<input type="checkbox"/>										
b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)	/CC/ /MR/	<table border="1"> <tr> <td data-bbox="1037 1278 1106 1382" style="text-align: center;"><input checked="" type="checkbox"/></td> <td data-bbox="1106 1278 1859 1382">It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan</td> </tr> </table>	<input checked="" type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	OK	OK				
<input checked="" type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan									

<p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>	/XLS/ /SCADA/	<input checked="" type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6			
			<input type="checkbox"/>	No delayed calibration has occurred		
		<input type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.			
		<input type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.			
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			<input type="checkbox"/>	The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.		
		<input checked="" type="checkbox"/>	In this context the following findings have been raised:			
<input type="checkbox"/>	N/A					

		<input type="checkbox"/>				
7. fvCH4,FG,h		Concentration of methane in the exhaust gas of the flare in dry basis at normal conditions in the hour h				
<p>a) Measurement / Determination method (VVS, §§ 360-364)</p> <p>Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	<p>/CC/ /MR/ /XLS/ /PDD/ /SPAN/ /Raw Data/ /TOOL/</p>	<p><i>Description:</i> The parameter was measured automatically at least one time per hour continuously by a gas analyser FEA as stated in the PDD. The sampling probe is installed at 80% of the flare height as per registered PDD. The data is saved and managed by the system Landtec. The data is downloaded every month for operation purposes and also ER calculation.</p> <p>The meter FEA were subjected to maintenance and were calibrated as required by the manufacturer (once a year) as indicated in appendix 6. The FEA is calibrated by a technician at least once a week. For the calibration span gases are used as recommended by the manufacturer. The span gases recommended concentration is the following:</p> <p>Bottle 1: 400 ppm CH4, 15% O2 and balance ≈85% (N2).</p> <p>Bottle 2: 100% N2, which could be confirm in site to be correct.</p> <p>The FEA is equipped with a condensate system to trap the water and ensure dry basis and to be in line with all parameters which are measured on dry basis.</p> <p>The monitored data is used in the ER calculation spread sheet, where the following conditions are applied for the calculation:</p> <ul style="list-style-type: none">• Condition 1: The VLFG,sent_flare,y,db should be between 450 and 5047 Nm3/h• Condition 2: The vCH4,t,db should be between 25 and 75% in CH4 <p>Condition 3: The TEG,m should be between 500 and 1200°C</p> <p><i>Verifier's action:</i> The verification team reviewed:</p> <ul style="list-style-type: none">➤ O&M registers including the weekly calibration report and condensate system checks.➤ calibration certificates from manufacturer➤ Quality certificates of the span gases provided by the gases supplier.➤ Comparison between gases concentration and manufacturer recommendation			CAR-06	OK

		<ul style="list-style-type: none"> ➤ The verifier physically confirms the existence of the FEA gas analyser, including the moist trap and checked the respective serial numbers and the correct functioning. ➤ The VT reviewed the manufacturer's specifications and user's guide. ➤ Check the Monitoring Room and reviewed the raw data downloaded from the Landtec system and compare it against the excel calculation sheets ➤ The obtained monthly information was corroborated to be the same in the MR and ER calculation spreadsheet. ➤ It was confirmed that the spread sheet applied correctly the conditions, so that, the methodological tool "project emissions from flaring" version 02.0 is follow in the calculation. <p><i>Conclusion:</i> By means of the above the verification team could confirm that:</p> <ul style="list-style-type: none"> - Measurement method is in accordance with the registered PDD and applied methodology - The metering equipment complies with the PDD requirements. - Frequency of measurements are as per requirements in the PDD - Equipment was not changed or replaced during the monitoring period <p>The value given in the MR is correct and traceable. No mistakes or deviation were identified during the verification.</p> <table border="1" data-bbox="1037 1038 1856 1246"> <tr> <td data-bbox="1037 1038 1106 1086" style="text-align: center;"><input checked="" type="checkbox"/></td> <td data-bbox="1106 1038 1856 1086">In this context the following findings have been raised:</td> </tr> <tr> <td data-bbox="1037 1086 1106 1198" style="text-align: center;"><input checked="" type="checkbox"/></td> <td data-bbox="1106 1086 1856 1198">CAR 06: The value (45.48) of monitored parameter $f_{V_{CH4,FG,h}}$ in section D.2 is not consistent with the value in the ER spreadsheet</td> </tr> <tr> <td data-bbox="1037 1198 1106 1246" style="text-align: center;"><input type="checkbox"/></td> <td data-bbox="1106 1198 1856 1246"></td> </tr> </table>	<input checked="" type="checkbox"/>	In this context the following findings have been raised:	<input checked="" type="checkbox"/>	CAR 06: The value (45.48) of monitored parameter $f_{V_{CH4,FG,h}}$ in section D.2 is not consistent with the value in the ER spreadsheet	<input type="checkbox"/>			
<input checked="" type="checkbox"/>	In this context the following findings have been raised:									
<input checked="" type="checkbox"/>	CAR 06: The value (45.48) of monitored parameter $f_{V_{CH4,FG,h}}$ in section D.2 is not consistent with the value in the ER spreadsheet									
<input type="checkbox"/>										
<p>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the</i></p>	<p>/CC/ /MR/ /XLS/ /SCADA/</p>	<table border="1"> <tr> <td data-bbox="1037 1246 1106 1358" style="text-align: center;"><input checked="" type="checkbox"/></td> <td data-bbox="1106 1246 1856 1358">It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan</td> </tr> <tr> <td data-bbox="1037 1358 1106 1431" style="text-align: center;"><input checked="" type="checkbox"/></td> <td data-bbox="1106 1358 1856 1431">For details regarding the accuracy and calibration details please refer to Appendix 6</td> </tr> </table>	<input checked="" type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	<input checked="" type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6	OK	OK		
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<input checked="" type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6									

<p><i>monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>		<table border="1"> <tr> <td data-bbox="1048 151 1106 201"><input checked="" type="checkbox"/></td> <td data-bbox="1106 151 1856 201">No delayed calibration has occurred</td> </tr> <tr> <td data-bbox="1048 201 1106 277"><input type="checkbox"/></td> <td data-bbox="1106 201 1856 277">As per the initial assessment the monitored value is deemed to be correct.</td> </tr> <tr> <td data-bbox="1048 277 1106 389"><input checked="" type="checkbox"/></td> <td data-bbox="1106 277 1856 389">Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.</td> </tr> <tr> <td data-bbox="1048 389 1106 608"><input type="checkbox"/></td> <td data-bbox="1106 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8. Maintenance _y		Maintenance events completed in year y																												

<p>a) Measurement / Determination method (VVS, §§ 360-364) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	/PDD/ /MR/ /LOG/ /TECH/ /TOOL/	<p><i>Description:</i> as per PDD the parameter is monitored to ensure the enclosed flare proper operation and it is defined as per the manufacturer (JohnZink) specifications.</p> <p>The PP manages the maintenance of the equipment in the yearly xls file "Maintenance Chronogram" where planned dates and revision details are registered. The maintenance reports are evidenced in the logbook "weekly Biogas inspection and maintenance" which is filled out by the Biogas technician which is supported for 2 support employees. The reports are signed by the landfill manager.</p> <p><i>Verifier's action:</i></p> <ul style="list-style-type: none"> ➤ The VT reviewed the manufacturer's specifications and user's guide. ➤ The VT reviewed the maintenance reports and maintenance chronogram. ➤ The VT interviewed the maintenance personnel of the biogas plant. <p><i>Conclusion:</i></p> <p>By means of the above the verification team could confirm that:</p> <ul style="list-style-type: none"> - Determination method is in accordance with the registered PDD and applied methodology - The maintenance events have been performed during the MP as per the maintenance chronogram. <p>Nonetheless the following finding has been raised: CAR 03</p> <table border="1" data-bbox="1043 1011 1854 1182"> <tr> <td><input checked="" type="checkbox"/></td><td>In this context the following findings have been raised:</td></tr> <tr> <td><input checked="" type="checkbox"/></td><td>CAR 03: the maintenance chronogram and registers have not been mentioned in section D2 of the MR.</td></tr> <tr> <td><input type="checkbox"/></td><td></td></tr> </table>	<input checked="" type="checkbox"/>	In this context the following findings have been raised:	<input checked="" type="checkbox"/>	CAR 03: the maintenance chronogram and registers have not been mentioned in section D2 of the MR.	<input type="checkbox"/>		CAR-03	OK
<input checked="" type="checkbox"/>	In this context the following findings have been raised:									
<input checked="" type="checkbox"/>	CAR 03: the maintenance chronogram and registers have not been mentioned in section D2 of the MR.									
<input type="checkbox"/>										
<p>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371) In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions</p>	N/A	<table border="1"> <tr> <td><input type="checkbox"/></td><td>It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan</td></tr> <tr> <td><input type="checkbox"/></td><td>For details regarding the accuracy and calibration details please refer to Appendix 6</td></tr> <tr> <td><input type="checkbox"/></td><td>No delayed calibration has occurred</td></tr> </table>	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6	<input type="checkbox"/>	No delayed calibration has occurred	OK	OK
<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan									
<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6									
<input type="checkbox"/>	No delayed calibration has occurred									

<p><i>theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>		<div> <input type="checkbox"/> As per the initial assessment the monitored value is deemed to be correct. </div> <div> <input type="checkbox"/> Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period. </div> <div> <input type="checkbox"/> Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: End date of delay: For both meters, the main and backup </div> <div> <input type="checkbox"/> A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the: <div> <input type="checkbox"/> The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration <input type="checkbox"/> The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument <input type="checkbox"/> The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument <input type="checkbox"/> The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals <input type="checkbox"/> The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration. </div> </div> <div> <input type="checkbox"/> In this context the following findings have been raised: <div> <input type="checkbox"/> N/A <input type="checkbox"/> </div> </div>		
9. T _t		Temperature of the gaseous stream in time interval t		
a) Measurement / Determination method	/XLS/	Description: No separate equipment has been used for the	CAR-17	OK

<p>(VVS, §§ 360-364) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	/ MR / / PDD / / TOOL / / CC / / LOG / / SPAN / / Raw Data /	<p>monitoring of biogas temperature, it is measured continuously by the thermal flow meters and registered by the Automatic Data Gathering System Landtec. One flow meter was used in the period.</p> <p>The Temperature of the gaseous stream is used to confirm the condition that dry basis of the methane measurement.</p> <p>According to the registered PDD and the "tool to determine project emissions from flaring gases containing methane" the dry basis happens when the gas T is below 60°C.</p> <p>The methane amount is determined as per option B of the "tool to determine the mass flow of a GHG in a gaseous stream" (Version 02.0.0).</p> <p>The meters were subjected to maintenance and were calibrated regularly as indicated in Appendix 6.</p> <p><i>Verifier's action:</i> The verification team reviewed:</p> <ul style="list-style-type: none"> ➤ O&M registers including the weekly calibration report and condensate system checks. ➤ Calibration certificates from manufacturer ➤ Quality certificates of the span gases provided by the gases supplier. ➤ Comparison between gases concentration and manufacturer recommendation. ➤ The verifier physically confirms the existence of the FEA gas analyser, including the moist trap and checked the respective serial numbers and the correct functioning. ➤ The VT reviewed the manufacturer's specifications and user's guide. ➤ Check the Monitoring Room and reviewed the raw data downloaded from the Landtec system and compare it against the excel calculation sheets ➤ The obtained monthly information was corroborated to be the same in the MR and ER calculation spreadsheet. 		
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		<p>➤ It was confirmed that the spread sheet applied correctly the conditions, so that, the methodological tool “project emissions from flaring” version 02.0 is followed in the calculation.</p> <p><i>Conclusion:</i> By means of the above the verification team could confirm that:</p> <ul style="list-style-type: none"> - Measurement method is in accordance with the registered PDD and applied methodology - The metering equipment complies with the PDD requirements. - Frequency of measurements are as per requirements in the PDD - Equipment was not changed or replaced during the monitoring period <p>nonetheless the following finding was raised.</p> <p><input checked="" type="checkbox"/> In this context the following findings have been raised:</p> <p><input checked="" type="checkbox"/> CAR 17</p>		
<p>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>	<p>/CC/ /MR/ /XLS/ /SCADA/</p>	<p><input checked="" type="checkbox"/> It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan</p> <p><input checked="" type="checkbox"/> For details regarding the accuracy and calibration details please refer to Appendix 6</p> <p><input checked="" type="checkbox"/> No delayed calibration has occurred</p> <p><input checked="" type="checkbox"/> As per the initial assessment the monitored value is deemed to be correct.</p> <p><input checked="" type="checkbox"/> Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.</p> <p><input type="checkbox"/> Based on calibration certificates checked a delay in calibration has been identified for the following period:</p> <p>Start date of delay:</p> <p>End date of delay:</p> <p>For both meters, the main and backup</p> <p><input type="checkbox"/> A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:</p>	OK	OK

			<input type="checkbox"/> The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration		
			<input type="checkbox"/> The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument		
			<input type="checkbox"/> The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument		
			<input type="checkbox"/> The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals		
			<input type="checkbox"/> The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.		
		<input type="checkbox"/> In this context the following findings have been raised:			
		<input type="checkbox"/> N/A			
		<input type="checkbox"/>			
10. P_t		Pressure of the gaseous stream in time interval t			
a) Measurement / Determination method (VVS, §§ 360-364) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/MR/ /PDD/ /TOOL/ /XLS/	Description: No separate equipment has been used for the monitoring of biogas Pressure as the flow is measured in standard conditions by a thermal flow meter. Verifier's action: The verification team reviewed: ➤ MR and Spread sheet calculations were reviewed against the applicable tool and registered PDD. Conclusion: By means of the above the verification team could confirm that the measurement method is in accordance with the registered PDD and applied methodology	<input checked="" type="checkbox"/> In this context the following findings have been raised: <input checked="" type="checkbox"/> CAR 07: The value reported in parameter P _t section D.2 is not correct, and furthermore the description provided in the calculation methods refers to Temperature instead of Pressure.	CAR-07	OK

			<input type="checkbox"/>			
b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i> <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i> <i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i>	N/A	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan		OK	OK
		<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6			
		<input type="checkbox"/>	No delayed calibration has occurred			
		<input type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.			
		<input type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.			
		<input type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: End date of delay: For both meters, the main and backup			
		<input type="checkbox"/>	A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:			
		<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration			
<input type="checkbox"/>	The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument					
<input type="checkbox"/>	The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument					
<input type="checkbox"/>	The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals					

		<input type="checkbox"/> The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.		
		<input type="checkbox"/> In this context the following findings have been raised:		
		<input type="checkbox"/> N/A		
		<input type="checkbox"/>		
11. VCH4,t,db		Volumetric fraction of CH4 in a time interval t on a dry basis		
<p>a) Measurement / Determination method (VVS, §§ 360-364)</p> <p>Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	/CC/ /MR/ /XLS/ /PDD/ /LOG/ /SPAN/ /Raw Data/ /ER/	<p>Description:</p> <p>The parameter was measured at least one time per hour continuously by a gas analyser FAU which register the data electronically by the system Landtec. The data is downloaded from the Landtec system every month as spread sheets which are used for operation purposes and also ER calculation.</p> <p>The meters were subjected to maintenance and were calibrated as indicated in Appendix 6. Four meters were used during the MP.</p> <p>The equipment is auto calibrated every 8 hours and uses the following span gases:</p> <p>The FAU manufacturer recommends using span gas with at least 50% of CH₄.</p> <p>During the MP the following concentrations of the gas bottles were confirmed:</p> <p>Labels by INFRA:</p> <p>From 10-08-2017</p> <p>-Bottle 1: CO₂=34.17%, N₂=15.83% and CH₄ balance (50%).</p> <p>From 01-03-2016</p> <p>-Bottle 2: 4.9% O₂ y balance N₂ (95%).</p> <p>Furthermore the equipment is sent every 6 months to the manufacturer for revision and calibration.</p> <p>The FAU is equipped with a condensate system to trap the water and ensure dry basis and to be in line with all parameters which are measured on dry basis. Also the dry basis is ensured by the</p>	CAR-08	OK

		<p>monitoring of the gas temperature. According to the registered PDD and the tool "project emissions from flaring" the dry basis happens when the gas T is below 60°C.</p> <p><i>Verifier's action:</i> verification team has checked the raw data downloaded directly from the data management system Landtec and compared with the values applied in the calculation spread sheets.</p> <p>The verification team reviewed the following evidence:</p> <ul style="list-style-type: none"> ➤ Daily and weekly O&M registers including the check of the condensates system. ➤ Calibration certificates from manufacturer ➤ Quality purity certificates of span gases provided by the gases supplier and comparison against the manufacturer recommendation. ➤ The verifier physically confirms the existence of the meter, checked the respective serial numbers and the correct functioning of both meters. ➤ The VT reviewed the manufacturer's specifications and user's guide. ➤ Check the physical location of the meter and actual date registration in the SCADA (Landtec) ➤ Raw Data downloaded from the SCADA (Landtec) of the whole monitoring period ➤ The obtained monthly information was corroborated to be the same in the MR and calculation spreadsheet. ➤ Finally, data was cross-checked against monthly invoices of the monitoring period, the auditor confirmed consistency. <p><i>Conclusion:</i> By means of the above the verification team could confirm that:</p> <ul style="list-style-type: none"> - Measurement method is in accordance with the registered PDD and applied methodology. - The meter calibration frequency was not performed as per requirements in the PDD <p><input checked="" type="checkbox"/> In this context the following findings have been raised:</p>		
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			<input checked="" type="checkbox"/> CAR 08: As per calibration logbook for the monitoring of parameter $V_{CH4,t,db}$, FAU meters were replaced 3 times, nonetheless the MR report only one. Correction is requested. Furthermore, FUA GA08966/06 was not calibrated or replaced on time. A calibration gap was left from 27/10/2017 to 08/12/2017		
b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i> <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i> <i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i>	/CC/ /MR/ /XLS/ /SCADA/	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	CAR 08	OK
		<input checked="" type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6		
		<input type="checkbox"/>	No delayed calibration has occurred		
		<input type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.		
		<input type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.		
		<input checked="" type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: 27/10/2017 End date of delay: 08/12/2017		
		<input checked="" type="checkbox"/>	A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:		
		<input checked="" type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration		
		<input checked="" type="checkbox"/>	The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument		
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		<input checked="" type="checkbox"/>	The error has been applied in a conservative manner, such that the adjusted measured values of the delayed		

			calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals		
		<input checked="" type="checkbox"/>	The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.		
		<input checked="" type="checkbox"/>	In this context the following findings have been raised:		
		<input checked="" type="checkbox"/>	CAR 08: As per calibration logbook for the monitoring of parameter vCH ₄ ,t,db, FAU meters were replaced 3 times, nonetheless the MR report only one. Correction is requested. Furthermore, FUA GA08966/06 was nor calibrated or replaced on time. A calibration gap was left from 27/10/2017 to 08/12/2017		
		<input type="checkbox"/>			
12. EC BL,k,y			Net quantity of electricity generated using LFG		
a) Measurement / Determination method (VVS, §§ 360-364) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/MR/ /XLS/ /PDD/ /TECH/ /CC/ /LOG/		<i>Description:</i> no applicable as no electricity has been generated because the planned phase 2 of the project is not implemented yet. <i>Verifier's action:</i> Review of the physical installation and logbooks. <i>Conclusion:</i> No electricity has been generated using LFG.	OK	OK
		<input checked="" type="checkbox"/>	In this context the following findings have been raised:		
		<input type="checkbox"/>	N/A		
		<input type="checkbox"/>			
b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371) In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions	N/A	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	OK	OK
		<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6		
		<input type="checkbox"/>	No delayed calibration has occurred		

<p><i>theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>		<table border="1"> <tr> <td data-bbox="1041 151 1176 231"><input type="checkbox"/></td> <td data-bbox="1176 151 1854 231">As per the initial assessment the monitored value is deemed to be correct.</td> </tr> <tr> <td data-bbox="1041 231 1176 343"><input type="checkbox"/></td> <td data-bbox="1176 231 1854 343">Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.</td> </tr> <tr> <td data-bbox="1041 343 1176 566"><input type="checkbox"/></td> <td data-bbox="1176 343 1854 566"> Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: End date of delay: For both 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<input type="checkbox"/>	N/A																											
<input type="checkbox"/>																												
13. EG _{EC,y}		Amount of electricity consumed by the project activity in year y																										
a) Measurement / Determination method	/MR/	<i>Description:</i> according to the MP, the parameter shall be measured to determine the use of electricity and other energy in the project	OK	OK																								

<p>(VVS, §§ 360-364) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	<p>/XLS/ /PDD/ /TECH/ /CC/ /raw data/</p>	<p>activity.</p> <p>A Gridstream RF Landys power meter is used in the landfill (S/N 40B9C408) (CFE ID 040CFE) to continuously measure the consumption of electricity from the project activity. As the power meter is owned by the grid operator, the amount of electricity consumed is taken from the monthly power consumption invoices. Therefore, the project activity is in line with the revised monitoring plan of the PDD and the applied methodology.</p> <p>According to the revised MP the power meter shall be calibrated according to manufacturer specifications. The PP provided Manufacturer specification where is stated that the meter does not require any calibration and can be monitored remotely. Furthermore there are no specific requirements for power meters calibration in the host county Mexico and the power meters are property of the official grid operator CFE (Federal Commission of Electricity). The PP cannot provide any calibration to the meters or manipulate the meter. Hence no further action can be done by the PP regarding this matter.</p> <p>The meter was replaced on 19/11/2015 by CFE for a new one with the same type of technology as the previous one. The previous meter was installed on 01/10/2012. Concluding that new and calibrated equipment was installed at the project site.</p> <p>The verification team considers reliable the electricity data provided by the grid operator CFE.</p> <p><i>Verifier's action:</i> The verification team reviewed:</p> <ul style="list-style-type: none"> ➤ The power invoices and cross checked the data against the ER calculation sheet and MR. ➤ The verifier physically confirms the existence of the meter and check the respective serial numbers and verifiers seals. ➤ Verification report by CFE from 29/06/2018 stating that the meter has "Correct Efficiency" <p><i>Conclusion:</i></p> <p>By means of the above the verification team could confirm that:</p> <ul style="list-style-type: none"> - Measurement method is in accordance with the registered PDD and applied methodology 		
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		<ul style="list-style-type: none"> - The metering equipment complies with the PDD requirements. - Frequency of measurements are as per requirements in the PDD <p>Equipment was not changed or replaced during the monitoring period</p> <p>The value given in the MR is correct and traceable. No mistakes or deviation were identified during the verification.</p> <p>The monitoring of this parameter is in line with the revised MP of the PDD and with the applied methodology.</p> <p>The verification team has confirmed that there are no mandatory calibration requirements for power meters owned by power utility CFE. This is the common practice in Mexico. The CFE meters calibration certificates are not provided to the user.</p>						
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<input type="checkbox"/>	N/A							
<input type="checkbox"/>								
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<input type="checkbox"/>	N/A													
<input type="checkbox"/>														
14. Op_{engine,h}		Operation of the engine that consumes the LFG												
a) Measurement / Determination method (VVS, §§ 360-364) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/MR/ /XLS/ /PDD/ /TECH/	Description: not applicable. This parameter is was not monitored as the power generator is not running yet. Verifier's action: Review of the physical installation and logbooks. Conclusion: This parameter is was not monitored as the power generator is not running yet. <input type="checkbox"/> In this context the following findings have been raised: <table border="1"> <tr> <td><input type="checkbox"/></td><td>N/A</td></tr> </table>	<input type="checkbox"/>	N/A	OK	OK								
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<p>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i> <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i> <i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>	<p>N/A</p>	<table border="1"> <tr> <td><input type="checkbox"/></td><td>It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan</td></tr> <tr> <td><input type="checkbox"/></td><td>For details regarding the accuracy and calibration details please refer to Appendix 6</td></tr> <tr> <td><input type="checkbox"/></td><td>No delayed calibration has occurred</td></tr> <tr> <td><input type="checkbox"/></td><td>As per the initial assessment the monitored value is deemed to be correct.</td></tr> <tr> <td><input type="checkbox"/></td><td>Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.</td></tr> <tr> <td><input type="checkbox"/></td><td>Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: End date of delay: For both meters, the main and backup</td></tr> <tr> <td><input type="checkbox"/></td><td>A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:</td></tr> <tr> <td><input type="checkbox"/></td><td>The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration</td></tr> <tr> <td><input type="checkbox"/></td><td>The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument</td></tr> <tr> <td><input type="checkbox"/></td><td>The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument</td></tr> <tr> <td><input type="checkbox"/></td><td>The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals</td></tr> <tr> <td><input type="checkbox"/></td><td>The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.</td></tr> </table>	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6	<input type="checkbox"/>	No delayed calibration has occurred	<input type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.	<input type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.	<input type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: End date of delay: For both meters, the main and backup	<input type="checkbox"/>	A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:	<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration	<input type="checkbox"/>	The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument	<input type="checkbox"/>	The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument	<input type="checkbox"/>	The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals	<input type="checkbox"/>	The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.	<p>OK</p>	<p>OK</p>
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<input type="checkbox"/>	The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument																											
<input type="checkbox"/>	The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument																											
<input type="checkbox"/>	The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals																											
<input type="checkbox"/>	The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.																											

		<input type="checkbox"/> In this context the following findings have been raised: <input type="checkbox"/> N/A		
15. $Op_{flare,h}$		Operation of the flare that consumes the LFG		
<p>a) Measurement / Determination method (VVS, §§ 360-364) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	/MR/ /XLS/ /PDD/ /TECH/ /CC/	<p><i>Description:</i> in line with the PDD a flame detection system is installed to ensure that the flare is operating. If no flame is detected the LFG pumping system is stopped. The detector data is registered and recorded continuously by the Flare Emission Analyser (FEA) at least once every two minutes) and the data is managed by the SCADA Landtec.</p> <p>As per PDD, in the calculation spread sheet when the flame is detected continuously for 1 hour with at least one instantaneous measurement per minute the $Op_{flare,h} = 1$ and when measurement is not detected at least once per minute during 1 hour the $Op_{flare,h} = 0$.</p> <p>As described in parameter $T_{EG,m}$ the flare temperature is also a manufacturer monitoring parameter. As both instruments the flame detector and the thermocouples are programmed to control de ON and OFF of the biogas flow, the calculation of the $Op_{flare,h}$ is done based on the $T_{EG,m}$. If the $T_{EG,m}$ is below 500 °C the flare turn off and the flame scanner also will send the signal to stop. On the other hand, if the flame detects no flame, it sends the signal to stop the flow. As the monitored system is set to register the $Op_{flare,h}$ based on the $T_{EG,m}$ the $Op_{flare,h}$ monitorin is in lie with the PDD.</p> <p><i>Verifier's action:</i></p> <ul style="list-style-type: none"> ➤ The verifier physically confirms the existence of the LEA meter ➤ Check the actual FEA readings. ➤ The VT reviewed the manufacturer's specifications and user's guide. ➤ Raw Data from the SCADA for the monitored months was cross checked against the ER calculation sheet and the MR. ➤ As per logbooks the flame detector was not replaced. <p><i>Conclusion:</i> By means of the above the verification team could confirm that:</p>	CAR-20	OK

		<ul style="list-style-type: none"> - Measurement method is in accordance with the registered PDD and applied methodology - The metering equipment complies with the PDD requirements. - Frequency of measurements are as per requirements in the PDD - Equipment was not changed or replaced during the monitoring period <p>The data given in the MR and spread sheet is correct and traceable. Nonetheless the following finding has been raised</p> <table border="1"> <tr> <td><input checked="" type="checkbox"/></td><td>In this context the following findings have been raised:</td></tr> <tr> <td><input checked="" type="checkbox"/></td><td>CAR 20</td></tr> </table>	<input checked="" type="checkbox"/>	In this context the following findings have been raised:	<input checked="" type="checkbox"/>	CAR 20														
<input checked="" type="checkbox"/>	In this context the following findings have been raised:																			
<input checked="" type="checkbox"/>	CAR 20																			
<p>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>	N/A	<table border="1"> <tr> <td><input type="checkbox"/></td><td>It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan</td></tr> <tr> <td><input type="checkbox"/></td><td>For details regarding the accuracy and calibration details please refer to Appendix 6</td></tr> <tr> <td><input type="checkbox"/></td><td>No delayed calibration has occurred</td></tr> <tr> <td><input checked="" type="checkbox"/></td><td>As per the initial assessment the monitored value is deemed to be correct.</td></tr> <tr> <td><input type="checkbox"/></td><td>Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.</td></tr> <tr> <td><input type="checkbox"/></td><td>Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: End date of delay: For both meters, the main and backup</td></tr> <tr> <td><input type="checkbox"/></td><td>A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:</td></tr> <tr> <td><input type="checkbox"/></td><td>The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration</td></tr> </table>	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6	<input type="checkbox"/>	No delayed calibration has occurred	<input checked="" type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.	<input type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.	<input type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: End date of delay: For both meters, the main and backup	<input type="checkbox"/>	A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:	<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration	OK	OK
<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan																			
<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6																			
<input type="checkbox"/>	No delayed calibration has occurred																			
<input checked="" type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.																			
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<input type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: End date of delay: For both meters, the main and backup																			
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<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration																			

		<input type="checkbox"/> The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument <input type="checkbox"/> The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument <input type="checkbox"/> The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals <input type="checkbox"/> The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.		
		<input type="checkbox"/> In this context the following findings have been raised:		
		<input type="checkbox"/> N/A		
16. Flame_m		Flame detection of flare in the minute m		
<p>a) Measurement / Determination method (VVS, §§ 360-364)</p> <p>Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	/MR/ /XLS/ /PDD/ /TECH/ /CC/	<p><i>Description:</i> in line with the PDD a flame detection system is installed. The flare has a flame scanner UV detector "IRIS" Model S706-PF which doesn't require calibration or maintenance.</p> <p>As described in prior parameter, to ensure that the flare is operating; if no flame is detected the LFG pumping system is stopped. The detector data is registered continuously at least once every two minutes.</p> <p>As per PDD, in the calculation spread sheet when the flame is detected continuously for 1 hour with at least one instantaneous measurement per minute the $Op_{\text{flare,h}} = 1$ and when measurement is not detected at least once per minute during 1 hour the $Op_{\text{flare,h}} = 0$.</p> <p><i>Verifier's action:</i></p> <ul style="list-style-type: none"> ➤ The verifier physically confirms the existence of the FEA meter and IRIS and their electronic control. ➤ The VT reviewed the manufacturer's specifications and user's guide. ➤ Check the actual FEA and IRIS readings. ➤ Raw Data from the SCADA for the monitored months was cross checked against the ER calculation sheet and the MR. 	OK	OK

		<p>➤ As per logbooks the flame detector was not replaced.</p> <p><i>Conclusion:</i> By means of the above the verification team could confirm that:</p> <ul style="list-style-type: none"> - Measurement method is in accordance with the registered PDD and applied methodology - The metering equipment complies with the PDD requirements. - Frequency of measurements are as per requirements in the PDD - Equipment was not changed or replaced during the monitoring period <p>The data given in the MR and spread sheet is correct and traceable. See CAR 20 in the previous parameter.</p>				
		<input type="checkbox"/> In this context the following findings have been raised: <table border="1"> <tr> <td><input type="checkbox"/></td> <td>N/A</td> </tr> </table>	<input type="checkbox"/>	N/A		
<input type="checkbox"/>	N/A					
<p>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>	N/A	<input type="checkbox"/> It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan <input type="checkbox"/> For details regarding the accuracy and calibration details please refer to Appendix 6 <input type="checkbox"/> No delayed calibration has occurred <input checked="" type="checkbox"/> As per the initial assessment the monitored value is deemed to be correct. <input type="checkbox"/> Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period. <input type="checkbox"/> Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: End date of delay: For both meters, the main and backup <input type="checkbox"/> A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the: <table border="1"> <tr> <td><input type="checkbox"/></td> <td>The maximum permissible error of the instrument has been applied to the values during the period between</td> </tr> </table>	<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between	OK	OK
<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between					

			<input type="checkbox"/> scheduled date of calibration and the actual date of calibration <input type="checkbox"/> The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument <input type="checkbox"/> The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument <input type="checkbox"/> The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals <input type="checkbox"/> The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.		
		<input type="checkbox"/> In this context the following findings have been raised:	<input type="checkbox"/> N/A		
		<input type="checkbox"/>			
17. PE _{EC,y}		Project emissions from electricity consumption by the project activity during the year y			
a) Measurement / Determination method (VVS, §§ 360-364) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/MR/ /XLS/ /PDD/ /EGG/ /TOOL/	Description: The parameter is not measured directly but it is calculated as per Tool to calculate baseline, project and/or leakage emissions from electricity consumption. The main electricity consumption comes from the LFG blowers. Verifier's action: The verifier reviewed the calculation spread sheet to confirm the correctness and traceability of the PE _{EC,y} calculation. Conclusion: By means of the above the verification team could confirm that: - Determination method is in accordance with the registered PDD and applied methodology The value given in the MR is correct and traceable. No mistakes or deviation were identified during the verification.		OK	OK
		<input type="checkbox"/> In this context the following findings have been raised:	<input type="checkbox"/> N/A		

<p>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>	N/A	<table><tr><td><input type="checkbox"/></td><td>It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan</td></tr><tr><td><input type="checkbox"/></td><td>For details regarding the accuracy and calibration details please refer to Appendix 6</td></tr><tr><td><input type="checkbox"/></td><td>No delayed calibration has occurred</td></tr><tr><td><input checked="" type="checkbox"/></td><td>As per the initial assessment the monitored value is deemed to be correct.</td></tr><tr><td><input type="checkbox"/></td><td>Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.</td></tr><tr><td><input type="checkbox"/></td><td>Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: End date of delay: For both meters, the main and backup</td></tr><tr><td><input type="checkbox"/></td><td>A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:</td></tr><tr><td><input type="checkbox"/></td><td>The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration</td></tr><tr><td><input type="checkbox"/></td><td>The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument</td></tr><tr><td><input type="checkbox"/></td><td>The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument</td></tr><tr><td><input type="checkbox"/></td><td>The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals</td></tr><tr><td><input type="checkbox"/></td><td>The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.</td></tr></table>	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6	<input type="checkbox"/>	No delayed calibration has occurred	<input checked="" type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.	<input type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.	<input type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: End date of delay: For both meters, the main and backup	<input type="checkbox"/>	A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:	<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration	<input type="checkbox"/>	The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument	<input type="checkbox"/>	The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument	<input type="checkbox"/>	The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals	<input type="checkbox"/>	The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.	OK	OK
<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan																											
<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6																											
<input type="checkbox"/>	No delayed calibration has occurred																											
<input checked="" type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.																											
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<input type="checkbox"/>	A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:																											
<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration																											
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<input type="checkbox"/>	The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals																											
<input type="checkbox"/>	The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.																											

		<input type="checkbox"/> In this context the following findings have been raised:		
		<input type="checkbox"/> N/A		
		<input type="checkbox"/>		
18. FC_{i,j,y}		Quantity of fuel type i combusted in process j during the year y		
<p>a) Measurement / Determination method (VVS, §§ 360-364)</p> <p>Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	<p>/MR/ /XLS/ /PDD/ /SAM/ /LOG/</p>	<p><i>Description:</i> according to the PDD the measurement method is to use mass or volume meters.</p> <p>The LPG gas tank is storage in a tank of 180 L which also has a liquid-level Gauge.</p> <p>The gas consumption is monitored by the operators, which registers the level in an operation log book "Biogas daily register".</p> <p>According to the PDD the cross check procedure is determined by reviewing the annual energy balance that is based on purchased quantities and stock changes. This was originally included in the PDD as a leachate evaporator was installed on site. Nevertheless the PPD decided to permanently cease the use of such equipment. A PRC was approved by the EB on 02/12/2013. As fuel is now only consumed on a rarely basis just to start ignition of the flare. This occurs only in unexpected situations. Furthermore according to the PDD where the purchased fuel invoices can be identified specifically for the CDM project, the metered fuel consumption quantities should also be cross-checked with available purchase invoices from the financial record.</p> <p><i>Verifier's action:</i> All daily log books were checked to confirm that the amount of LP gas applied in the calculation spread sheet is correct.</p> <ul style="list-style-type: none"> ➤ The verification team reviewed the fuel invoices of fuel consumption. The LP gas calculated value from the invoices is 176.29 L considering that the tank started the MP with 30% and end up the MP with 75%. Such value is minor than the monitored value 187.2 L, so the monitored value is confirmed to be correct and conservative for the ER calculation. ➤ The tank and its liquid-level Gauge was also checked. 	CAR-06	OK

		<p><i>Conclusion:</i> By means of the above the verification team could confirm that:</p> <ul style="list-style-type: none"> - Measurement method is in accordance with the registered PDD and applied methodology - The metering equipment complies with the PDD requirements. <p>Nor the tank either the gauge were changed or replaced during the monitoring period</p> <p>The value given in the MR is not correct. Mistakes were identified during the verification.</p>			
		<input checked="" type="checkbox"/>	In this context the following findings have been raised:		
		<input checked="" type="checkbox"/>	CAR 06: the LP gas formula in xls Raw Data column F is not correct as the tank capacity is not consistent (180L)		
<p>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>	<p>/CC/ /MR/ /XLS/</p>	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	OK	OK
		<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6		
		<input type="checkbox"/>	No delayed calibration has occurred		
		<input type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.		
		<input type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.		
		<input type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: End date of delay: For both meters, the main and backup		
		<input type="checkbox"/>	A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:		

		<input type="checkbox"/> The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration <input type="checkbox"/> The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument <input type="checkbox"/> The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument <input type="checkbox"/> The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals <input type="checkbox"/> The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.		
		<input type="checkbox"/> In this context the following findings have been raised: <input type="checkbox"/> N/A		
19. TEG,m		Temperature in the exhaust gas of the enclosed flare in minute m		
a) Measurement / Determination method (VVS, §§ 360-364) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/MR/ /XLS/ /PDD/ /CC/ /LOG/	Description: the monitoring of this parameter is done by a thermocouple which is replaced every 18 months as requested by the manufacturer. The temperature is registered at least once per hour. For the calculation the following condition is applied: The T_{flare} should be between 500 and 1200°C. For operations purposes the flare has 4 thermocouples, but as per MP and methodology only the data from the one located at 80% of the flare height is used for calculations. Verifier's action: the MR, excel spreadsheet and equipment were checked against the registered PDD. Probe points were also verified. The verification team reviewed O&M registers. Conclusion: the values given in the MR and the excel spreadsheet are consistent.	CAR-16	OK
		<input checked="" type="checkbox"/> In this context the following findings have been raised:		

			<input type="checkbox"/> N/A		
			<input type="checkbox"/>		
<p>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i> <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i> <i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>	/CC/ /MR/ /XLS/ /SCADA/	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	CAR-16	OK
		<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6		
		<input type="checkbox"/>	No delayed calibration has occurred		
		<input type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.		
		<input type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.		
		<input checked="" type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: Start date of delay: 21/11/2018 End date of delay: 31/12/2018 For both meters, the main and backup		
		<input checked="" type="checkbox"/>	A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:		
		<input checked="" type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration		
		<input type="checkbox"/>	The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument		
		<input type="checkbox"/>	The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument		
		<input checked="" type="checkbox"/>	The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals		

		<input checked="" type="checkbox"/>	The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.		
		<input checked="" type="checkbox"/>	In this context the following findings have been raised:		
		<input checked="" type="checkbox"/>	CAR 16		

Appendix 6. Calibration dates and validity of installed monitoring equipment

Table A-6: Periodic Verification Checklist – Calibration details

Monitoring equipment	Related monitoring parameter as per applicable registered monitoring plan	Serial number	Type	Accuracy or accuracy class	Previous calibration (last calibration before start of this MP)	Calibration date(s) during this MP	Validity of calibration(s)	Delay in calibration: yes/no	Period of delayed calibration
Thermal Flow Meter	V _{LFG,sent_flare,y,db} T _t	2008394	62-9/9500	±1% Full scale	01/02/2017	Installed: 20/10/2017	19/04/2019	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	N/A
Field Analyser Unit (FAU)	V _{CH4,t,db}	GA08966/06	Field Analyser Unit	± 0.2% to ± 1% (0 to full scale)	20/02/2017	Installed: 02/03/2017	31/08/2017	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From: 27/10/2017 To: 08/12/2017
Field Analyser Unit (FAU)	V _{CH4,t,db}	GA08772/do	Field Analyser Unit	± 0.2% to ± 1% (0 to full scale)	-	Calibrated: 03/11/2017 Installed: 08/12/2017	08/06/2018	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From To
Field Analyser Unit (FAU)	V _{CH4,t,db}	GA08966/06	Field Analyser Unit	± 0.2% to ± 1% (0 to full scale)	-	Calibrated: 26/01/2018 Installed: 05/03/2018	03/09/2018	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From To
Field Analyser Unit (FAU)	V _{CH4,t,db}	GA08772/do	Field Analyser Unit	± 0.2% to ± 1% (0 to full scale)	-	Calibrated: 16/04/2018 Installed: 17/07/2018	15/01/2019	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From To
Flare Emissions Analyser (FEA)	to _{2,h} fV _{CH4,FG,h}	04299	Flare Emissions Analyser	For to _{2,h} ± 0.1% + 1% of reading (0 to full scale) For fV _{CH4,FG,h} 5ppm +1% of reading	28/02/2017	20/02/2018	27/02/2018 19/02/2019	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:

Monitoring equipment	Related monitoring parameter as per applicable registered monitoring plan	Serial number	Type	Accuracy or accuracy class	Previous calibration (last calibration before start of this MP)	Calibration date(s) during this MP	Validity of calibration(s)	Delay in calibration: yes/no	Period of delayed calibration
Thermocouple Thermo Sensors	$T_{EG,m}$	139023-1,2,3 & 4	Thermocouple K	$\pm 2.2^{\circ} \text{C}$ or 0.75% of reading, whichever is greater	24/02/2017	Installed: 22/05/2017	21/11/2018	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	from 21/11/2018 to 31/12/2018
Landys Electricity Meter	$EG_{EC,y}$	40B9C408	FM 9S (8S)	$\pm 0.25\%$	N/A	Installed: 19/11/2015	N/A	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
Liquid-Level Gauge Rochester Gauges	$FC_{i,j,y}$	N/A	4_1693	$\pm 5\%$	N/A	Installed: 05/10/2016	N/A	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-