



Monitoring report form (Version 03.1)

Monitoring report

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| Title of the project activity | Culiacan Northern Landfill Gas Project |
| Reference number of the project activity | Project 3127 |
| Version number of the monitoring report | Version 1 |
| Completion date of the monitoring report | 22/02/2013 |
| Registration date of the project activity | 09/07/2010 |
| Monitoring period number and duration of this monitoring period | Second Monitoring Period, from 01/07/2011 to 31/07/2012 (both days included) - |
| Project participant(s) | Promotora Ambiental de la Laguna S.A de C.V Gazprom Marketing & Trading Limited |
| Host Party(ies) | Mexico (Host) |
| Sectoral scope(s) and applied methodology(ies) | Sectoral scopes: <ul style="list-style-type: none"> • Sectoral scope 1 : Energy industries (renewable - / non-renewable sources) • Sectoral scope 13 : Waste handling and disposal Methodologies applied to the project activity: <ul style="list-style-type: none"> • ACM0001 ver. 11 - Consolidated baseline and monitoring methodology for landfill gas project activities |
| Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD | 55,264 ¹ tCO ₂ e |
| Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period | 18,607 tCO ₂ e |

¹ The values in the ex-ante calculation of the registered CDM-PDD are 52,390 tCO₂e for 2011 (365 days) and 49,373 tCO₂e for 2012 (366 days). The average for both years equates to 139 tCO₂e/day, which multiplied by 397 days of the current monitored period, equates to 55,264 tCO₂e.

SECTION A. Description of project activity**A.1. Purpose and general description of project activity**

- a) Purpose of the project activity and the measures taken for GHG emission reductions or net anthropogenic GHG removals by sinks;

The objective of Culiacan Northern Landfill Gas Project is to capture the landfill gas (LFG) and to flare and/or utilize it leading to GHG emissions reductions. The principal components of landfill gas are methane (CH₄) and carbon dioxide (CO₂), both of which are greenhouse gases (GHG) listed as such in the Kyoto Protocol.

- b) Brief description of the installed technology and equipment;

Before the project implementation, the most likely scenario was the atmospheric release of landfill gas generated at the landfill site with no landfill gas capture and destruction. During this second monitoring period, the project activity has continued the operation of a landfill gas (LFG) collection and flare system. The purpose of LFG flaring is to safely dispose of the flammable constituents, particularly methane, and to control odour nuisance, health risks and adverse environmental impacts. This phase has involved the investment in a highly efficient landfill gas collection system and the required enclosed flaring equipment.

In particular, the installed equipment of the project activity is composed by a LFG Collection System and a LFG Flare System. The LFG Collection System is composed by deep and shallow vertical wells installed in intermediate or closed areas of the Culiacan Landfill site and interconnected by a piping network for serving the blower station with a specific diameter piping, suitable for the anticipated flow rates. The LFG Flare System is composed by an enclosed ZTOF Biogas Flare which is equipped with all the monitoring equipment as per the methodology requirements including continuous exhaust gas monitoring. The LFG has been only flared during the monitoring period. Eventually, it is expected to install LFG Power Generation equipment. From then on, LFG would be used to generate electricity and only send the excess LFG to the flare. Thus all LFG will be combusted in one of these two ways and methane contained in LFG would be destroyed.

- c) Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.);

| | |
|-------------|--|
| 11/01/2010: | Commissioning of the LFG Flare System of Culiacan Landfill Gas Project; |
| 09/07/2010: | Project registration date with Executive Board of United Nation Framework for Climate Change Convention (UNFCCC) |
| 09/07/2010: | Start date (day included) of the 1 st Monitoring period. |
| 30/06/2011: | End date (day included) of the 1 st Monitoring period. |

- d) Total GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period.

The total emission reductions achieved during the second monitoring period from 01/07/2011 to 31/07/2012 (both days included) are 18,607 tCO₂e.

A.2. Location of project activity

The Culiacan Northern Landfill is located at Km. 2.5, Pitayita way, without number, in the City of Culiacan, Sinaloa State, Mexico. The geographic coordinates of the site are +24.8794, -107.3679.

A.3. Parties and project participant(s)

| Party involved ((host) indicates a host Party) | Private and/or public entity(ies) project participants (as applicable) | Indicate if the Party involved wishes to be considered as project participant (Yes/No) |
|--|---|---|
| Mexico (host) | Promotora Ambiental de la Laguna S.A. de C.V | No |
| United Kingdom of Great Britain and Northern Ireland | Gazprom Marketing & Trading Limited | No |

Hired by Promotora Ambiental de la Laguna S.A. de C.V. as CDM Consultant, the entity responsible for completing the monitoring report form (CDM-MR) is ClimaLoop. The responsible person is Sergi Cuadrat, Climate Change Mitigation Consultant of ClimaLoop. His contact details are:

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A.4. Reference of applied methodology

The baseline and monitoring methodology applied for the proposed project activity is the approved consolidated baseline methodology ACM0001, version 11 (EB47): "*Consolidated baseline and monitoring methodology for landfill gas project activities*". Moreover, the following tools have been applied to the project activity to calculate the emission reductions for the monitoring period:

- In order to determine the flare efficiency and/or to monitor the flare exhaust gases the version 1 of the "Tool to determine project emissions from flaring gases containing methane" is applied. References to this tool in the formulae are marked as T.
- In order to determine emissions associated with electricity consumption in the project scenario, the version 1 of "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" is applied. References to this tool in the formulae are marked as TE.
- The version 2 of the "Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion" is applied in case any fossil fuels are used on site. References to this tool in the formulae are marked as TF.

The registered CDM-PDD also used the following tools, which have not been used to calculate the emission reductions for the monitoring period:

- "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site". Version 4.
- "Combined tool to identify the baseline scenario and demonstrate additionality". Version 2.2
- "Tool to calculate the emission factor for an electricity system". Version 1.1
- "Tool for the demonstration and assessment of additionality". Version 5.2

The methodologies and tools applied to the project activity can be found in the UNFCCC webpage: <http://cdm.unfccc.int/methodologies/PAmethodologies/approved>

A.5. Crediting period of project activity

The first crediting period corresponding to this monitoring period commence from the date of registration that is from 09/07/2010 and will last till 08/07/2020 (fixed).

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity

a) Description of the installed technology, technical processes and equipments;

The Culiacan Northern Landfill was opened in 1992, as a controlled dump. The total amount of waste disposed was approximately 2.86 million tons at the end of 2008. Until 2007, the site received about 850 tons of municipal solid waste (MSW) daily. However, since 2008 it has received on average 450-500 tons per day, because the municipality uses new site for the final disposal of MSW.

Before the project implementation, the most likely scenario was the atmospheric release of landfill gas generated at the landfill site with no landfill gas capture and destruction. The project activity was designed in two phases:

1. The first phase included the construction and operation of a landfill gas (LFG) collection and flare system. The purpose of LFG flaring is to safely dispose of the flammable constituents, particularly methane, and to control odour nuisance, health risks and adverse environmental impacts. This phase has involved the investment in a highly efficient landfill gas collection system and the required enclosed flaring equipment.

2. Once the LFG flow is proven to be steady (in terms of volume and quality) for the electricity generation, a second project phase would be carried out and a reciprocating engine facility will be installed. This phase would imply the installation of generating equipment that would combust the methane of the LFG in order to produce electricity.

The Culiacan Northern Landfill Gas Project is currently operating in its first phase. The installed equipment in the Culiacan Northern Landfill is composed by a LFG Collection System and a LFG Flare System. In order to maximize LFG recovery rates, and thus GHG emission reductions, an active LFG Collection System has been installed. The system consists of a series of vertical extraction wells interconnected by header piping. The LFG is extracted from the landfill by a set of blowers to be initially flared in the LFG Flare System. Once LFG gas recovery is considered to be stationary and proper dimensioning can be conducted, project proponent would install LFG Power Generation equipment. During the current monitored period, LFG has only been flared. The following diagram represents the technology applied in the Culiacan Landfill Gas Project:

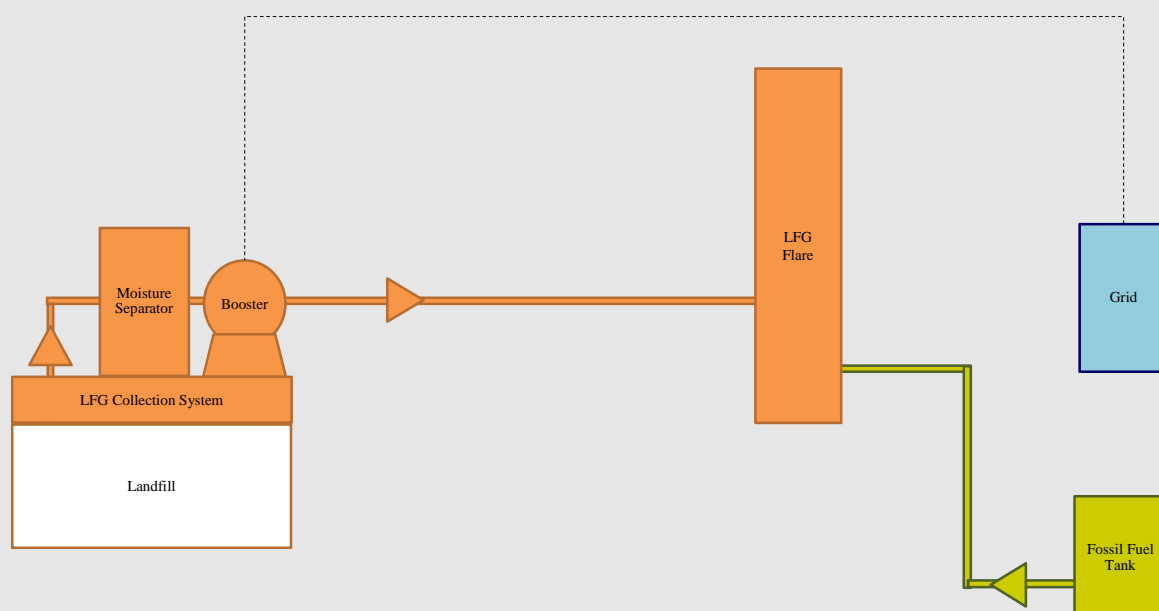


Figure 1. Diagram of the technology applied in the Culiacan Landfill Gas Project.

The essential characteristics of the technology applied during the monitoring period for the LFG collection and flaring systems are:

I. LFG Collection System: The LFG collection system is composed by:

- Deep and shallow vertical wells in intermediate or closed areas have been installed, trying not to interfere with landfill operation. Depending on future development plans, some horizontal wells might be installed to capture the gas in areas that continue to be filled;
- A piping network has been installed to include connection to extraction wells for serving the blower station with a specific diameter piping, suitable for the anticipated flow rates. Connection has been made to those extraction wells that have been constructed to final or intermediate grade, and to which the piping connection have a minimal impact on current filling operations.

II. LFG Flare System: The John Zink Biogas Flare System has been installed in the project activity and consists of:

- An Enclosed ZTOF Biogas Flare which offers automated operation and is designed to destroy safely, with automatic temperature control, typical organic compounds generated by solid waste and other biogas processes. The flare system is controlled with a processor, or programmable logic controller (PLC), which receives and transmits signals with respect to operating conditions. If an unacceptable operating condition occurs, the control system discontinues flow of biogas or adjusts the operating parameters to correct the problem. Control of the Enclosed ZTOF Biogas Flare includes an initial purge cycle, automatic ignition sequence, and fail-safe controls. A self-checking flame scanner monitors the pilot flame and main flame and safety shutdown features prevent equipment damage. The Enclosed ZTOF Biogas Flare is equipped with all the monitoring equipment as per the methodology requirements including continuous exhaust gas monitoring.
- A skid assembly containing a panel rack with flare control panel, a moisture separator, and a blower station. The blower station has been installed to provide the necessary suction pressure for the flare and considering future electricity generator flow demands.

b) Information on the implementation and actual operation of the project activity, including relevant dates (e.g. construction, commissioning, continued operation periods, etc.).

The LFG Flare System of el Culiacan Northern Landfill was commissioned on 12th January 2010 and has been operating since then in its first phase (flaring only). The second phase of the project activity, that is electricity generation using LFG, is not in place yet, such that all LFG gas collected during this monitoring period has been flared.

The project was fully operational by the date of registration on 9th July 2010. Since its registration date it has been implemented and monitored as per the monitoring plan of the PDD, with continuous operation.

The events of the actual operation of the “Culiacan Northern Landfill Gas Project” project during the second monitoring period have been summarized in the following table:

Table 1. Information regarding the actual operation of the Culiacán Landfill Gas Project

| Event of actual operation of the project activity | Type of Event |
|---|-----------------------|
| FAU equipment installation with serial number GA08901 on 17/01/2012 | Equipment replacement |
| Installation of flowmeter with serial number 2008364 on 20/06/2012 | Equipment replacement |
| FAU equipment installation with serial number GA08754 on 17/07/2012 | Equipment replacement |
| A blade of the transformer felt at 15:00 on 02/07/2011 and was repaired 12:30 on 03/07/2011 | Failure of equipment |
| Two blades of the transformer felt at 17:44 on 05/07/2011 and was repaired 08:07 on 06/07/2011 | Failure of equipment |
| Not got enough current from CFE wiring transformer plant from 18:58 on 08/07/2011 and was repaired 08:25 on 09/07/2011 | Power failure |
| Power failure from 16:44 on 20/07/2011 and was repaired at 10:23 on 21/07/2011 | Power failure |
| Power cut at 18:41 on 27/06/2012 and established at 07:47 on 28/06/2012. Another power cut from 21/06/2012 at 10:47:00 and reestablished on 22/06/2012 at 09:57. Punctual power cuts 01/01/2012 at 13:00, 10/01/2012 at 14:20 | Power failure |
| Not got enough current from CFE wiring transformer plant from 08:30 on 19/07/2011 and was repaired at 15:34 of the same day. The transformer was replaced at 09:20 on 20/10/2011 | Power failure |
| High temperature alarm in the flare and pilot failure from 05:40 on 26/07/2011 and was repaired at 07:46 of the same day | Operational stoppage |
| Installation of a lightning protection system from 10:30 on 01/09/2011 and was repaired at 17:45 of the same day. The installation continued on 03/09/2011 from 17:49 to 18:11 | Operational stoppage |
| Blower failed on 24/09/2011 at 12:02, 27/09/2011 at 12:02 and 27/09/2011 at 07:36 | Operational stoppage |
| Solenoid valve failed on 09/02/2012 at 00:54 | Operational stoppage |
| Pneumatic actuator failed on 05/02/2012 at 15:38 and 19/05/2012 at 18:27. | Operational stoppage |
| Repair of pneumatic actuator on 22/06/2012 from 10:09 to 15:30 | Operational stoppage |
| Blower failure from 14/07/2012 at 18:00 to 16/07/2012 at 07:14, from 29/07/2012 at 17:21 to 30/07/2012 at 08:07 and 11/01/2012 at 08:05 | Operational stoppage |

- c) Description of events or situations that occurred during the monitoring period that may impact the applicability of the methodology and how the issues resulting from these events or situations are being addressed:

During the monitoring period, there were not major events or situations that affected the applicability of the methodology.

B.2. Post registration changes**B.2.1. Temporary deviations from registered monitoring plan or applied methodology**

Not applicable. The section is left blank intentionally.

B.2.2. Corrections

Not applicable. The section is left blank intentionally.

B.2.3. Permanent changes from registered monitoring plan or applied methodology

Not applicable. The section is left blank intentionally.

B.2.4. Changes to project design of registered project activity

Not applicable. The section is left blank intentionally.

B.2.5. Changes to start date of crediting period

Not applicable. The section is left blank intentionally.

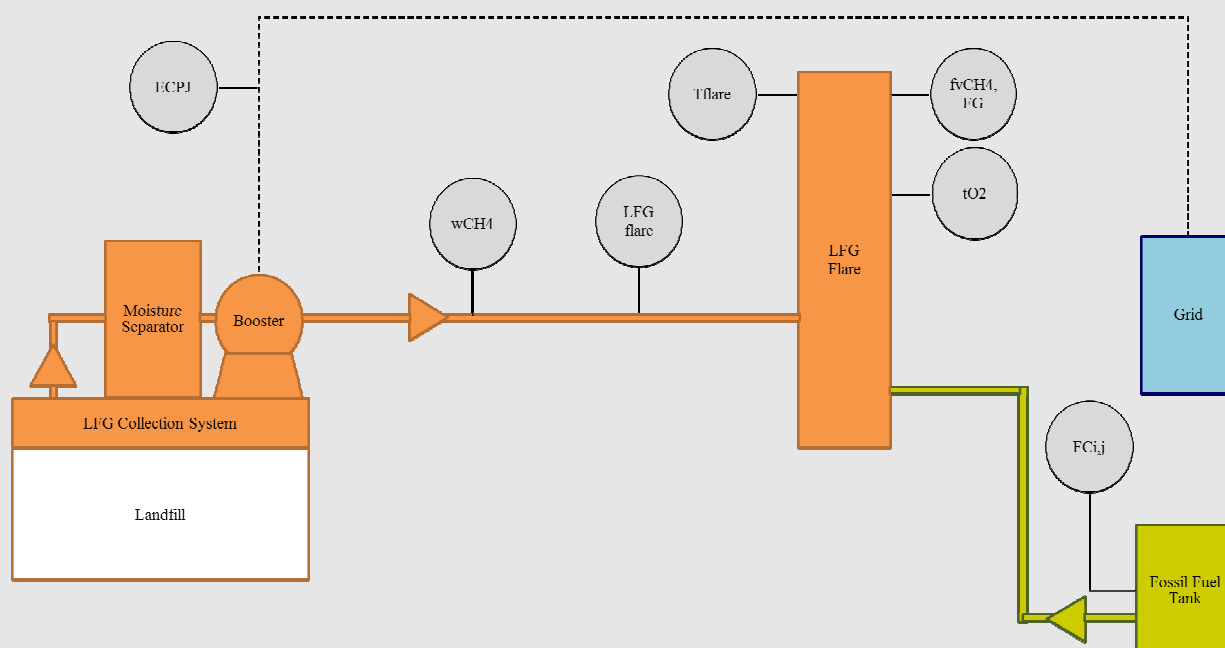
B.2.6. Types of changes specific to afforestation or reforestation project activity

Not applicable. The section is left blank intentionally.

SECTION C. Description of monitoring system

The following section provides a description of the monitoring system including data collection procedures (information flow including data generation, aggregation, recording, calculation and reporting), organizational structure, roles and responsibilities of personnel, and emergency procedures for the monitoring system for the Culiacan Landfill Project:

- a) **Line diagram showing all relevant monitoring points:** The following line diagram shows the monitoring points applied in the Culiacan Landfill Gas Project during the monitoring period:



- b) **Data collection procedures:** The following points provide a description of the data collection procedures followed by the Culiacan Landfill Project during the monitoring period:

- a) **Data generation:** The data generation for the Culiacan Landfill Gas Project is using both Automatic Continuous and Manual Periodic (Daily) Data Gathering System as follows:
- Manual Periodic (Daily) Data Gathering System: The following parameters are gathered manually in daily log sheets:

Table 2. Parameters gathered manually in Culiacán LFS

| Parameter | Data unit | Description of the parameter |
|-----------|-----------|--|
| ECPJ | MWh | On-site consumption of electricity provided by the grid attributable to the project activity |
| FCi,j | m3 | Quantity of fuel type i combusted in process j |

- Automatic Continuous Data Gathering System: In normal operating conditions, data has been recorded

every two minutes electronically and it will be kept during the crediting period and two years after. The company LANDTEC is responsible to aggregate monthly the raw data and transmits these through Excel file to PASA. The following parameters are gathered automatically under such procedure:

Table 3. Parameters gathered automatically in Culiacán LFS.

| Parameter | Data unit | Description of the parameter |
|-----------------|-----------------|--|
| LFGflare | Nm3 | Amount of landfill gas flared at normal temperature and pressure |
| wCH4 | m3 CH4 / m3 LFG | Methane fraction in the landfill gas. |
| tO2 | % | Volumetric fraction of O2 in the exhaust gas of the flare. |
| fvCH4,FG | mg/m3 | Concentration of methane in the exhaust gas of the flare in dry basis at normal conditions |
| Tflare | °C | Temperature in the exhaust gas of the flare. |

- b) Data aggregation:** The data is aggregated monthly in a Monthly Report which is presented to the Board of Promotora Ambiental S.A. de C.V (PASA) as per internal procedures.
- c) Data recording:** The data which is gathered automatically is recorded in monthly spreadsheets while the data gathered manually is recorded both in paper forms and in spreadsheets. Promotora Ambiental S.A. de C.V (PASA) has an in-house back-up system to record the data during the crediting period. In parallel, LANDTEC provides support to back-up the automatic raw data.
- d) ER calculation and reporting:** The gathered data is used to calculate the Emission Reductions (ER) as per the applicable methodologies and the registered PDD and these are reported in the CDM-MR. Previous to this process, a QA/QC procedure is used with the aim of disregard any raw data in the same time interval which do not accomplish the following three operational conditions at the same time:
- Condition 1: The LFGflare should be between 150 and 1,500 Nm3/h
 - Condition 2: The wCH4 should be between 25 and 75% in CH4
 - Condition 3: The Tflare should be between 500 and 1,200°C.

The following scheme simplifies the Organizational Structure followed by the Culiacan Landfill Gas Project:

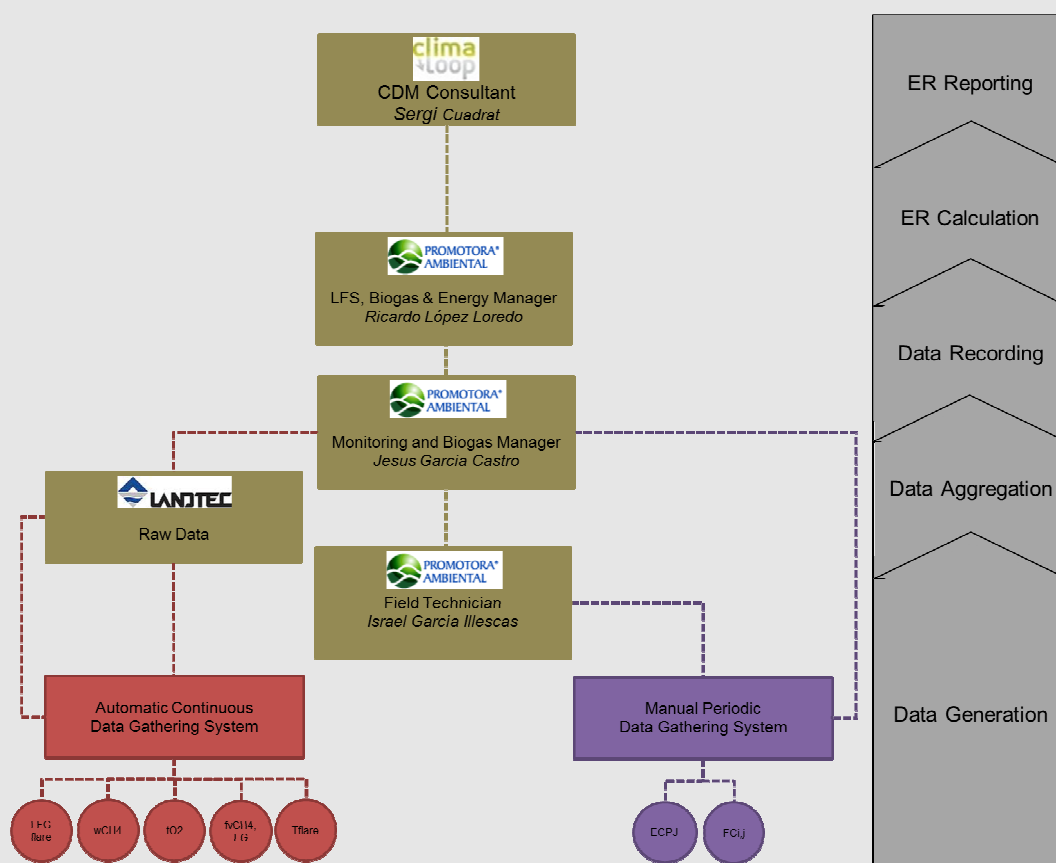


Figure 3. Organizational Structure followed in Culiacan Landfill Gas Project.

The Field Technician is the responsible to conduct the day-to-day operation of equipment and collects data under the Manual Periodic Data Gathering System. The Monitoring and Biogas Manager supervises all CDM activities such as data collection, aggregation and recording and reports to the Landfill Sites, Biogas and Energy Manager who supervises the project activity. Finally, the CDM Consultant is responsible for the CERs calculations and elaborates the Monitoring Report.

d) The responsibilities and authorities for monitoring and reporting: The following list simplifies the responsibilities allocated of each role during the monitoring period:

- Field Technician
 - ✓ Checks day-to-day operation of equipment.
 - ✓ Conduct the required maintenance as per predefined schedule.
 - ✓ Executes the calibration of equipment with procedures and frequency established.
 - ✓ Collects data under the Manual Periodic Data Gathering System (which gathers the parameters ECPJ and FCI,j) in paper registries and transfers to electronic registries.
- Automatic Continuous Data Gathering System provider (LANDTEC)
 - ✓ Aggregates the raw data gathered by the Automatic Continuous Data Gathering System.
 - ✓ Transmits raw data gathered in a monthly basis through Excel file to PASA.
 - ✓ Provides support to back-up the automatic raw data.
- Monitoring and Biogas Manager
 - ✓ Supervises the general operations.
 - ✓ Supervises all CDM activities such as data collection, aggregation and recording.
 - ✓ Supervision of Automatic Continuous Data Gathering System.
 - ✓ Ensures that data is collected as per the registered PDD.
 - ✓ Manages the calibration of equipment with procedures and frequency established.
 - ✓ Ensures proper Back-Up of the Raw Data and CDM Documentation.
 - ✓ Sends Raw Data to CDM Consultant.

- Landfill Sites, Biogas and Energy Manager
 - ✓ Supervises the project activity.
 - ✓ Takes major decisions when required (equipment repair/replacement, improvements, etc).
- CDM Consultant
 - ✓ Performs the CERs calculations;
 - ✓ Performs internal audits of the project;
 - ✓ Elaborates the Monitoring Report;
 - ✓ Supports the project during the verification site visits.

e) Emergency procedures for the monitoring system:

The emergency procedures for the monitoring system in the Culiacan Landfill Gas Project consist in daily checks of the project activity equipment and meters. If any problem occurs, the responsible personnel take the required action to solve the problem. If a malfunction on meters or equipment occurs, no CERs are claimed for the corresponding period.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

| | |
|--------------------------|--|
| Data / Parameter: | $\rho_{CH_4,n}$ |
| Unit: | kg/m ³ |
| Description: | Density of methane gas at normal conditions |
| Source of data: | "Tool to determine project emissions from flaring gases containing methane" (ver. 1) |
| Value(s) applied: | 0.7168 |
| Purpose of data: | Baseline |
| Additional comment: | No additional comments have been found to be necessary |

| | |
|--------------------------|--|
| Data / Parameter: | D_{CH_4} |
| Unit: | tCH ₄ /m ³ CH ₄ |
| Description: | Methane density at normal temperature and pressure (0°C and 1.013 bar) |
| Source of data: | "Tool to determine project emissions from flaring gases containing methane" (ver. 1) |
| Value(s) applied: | 0.0007168 |
| Purpose of data: | Baseline |
| Additional comment: | No additional comments have been found to be necessary |

| | |
|--------------------------|--|
| Data / Parameter: | AM_C |
| Unit: | kg/kmol |
| Description: | Atomic mass of carbon |
| Source of data: | "Tool to determine project emissions from flaring gases containing methane" (ver. 1) |
| Value(s) applied: | 12 |
| Purpose of data: | Baseline |
| Additional comment: | No additional comments have been found to be necessary |

| | |
|--------------------------|--|
| Data / Parameter: | AM_H |
| Unit: | kg/kmol |
| Description: | Atomic mass of hydrogen |
| Source of data: | "Tool to determine project emissions from flaring gases containing methane" (ver. 1) |
| Value(s) applied: | 1.01 |
| Purpose of data: | Baseline |
| Additional comment: | No additional comments have been found to be necessary |

| | |
|--------------------------|--------------------------|
| Data / Parameter: | AM_O |
|--------------------------|--------------------------|

| | |
|---------------------|--|
| Unit: | kg/kmol |
| Description: | Atomic mass of oxygen |
| Source of data: | "Tool to determine project emissions from flaring gases containing methane" (ver. 1) |
| Value(s) applied: | 16 |
| Purpose of data: | Baseline |
| Additional comment: | No additional comments have been found to be necessary |

| | |
|--------------------------|--|
| Data / Parameter: | AM_N |
| Unit: | kg/kmol |
| Description: | Atomic mass of nitrogen |
| Source of data: | "Tool to determine project emissions from flaring gases containing methane" (ver. 1) |
| Value(s) applied: | 14.01 |
| Purpose of data: | Baseline |
| Additional comment: | No additional comments have been found to be necessary |

| | |
|--------------------------|--|
| Data / Parameter: | NA_{C,CH4} |
| Unit: | Atoms |
| Description: | Number of atoms of carbon in CH ₄ |
| Source of data: | "Tool to determine project emissions from flaring gases containing methane" (ver. 1) |
| Value(s) applied: | 1 |
| Purpose of data: | Baseline |
| Additional comment: | No additional comments have been found to be necessary |

| | |
|--------------------------|--|
| Data / Parameter: | NA_{N,N2} |
| Unit: | Atoms |
| Description: | Number of atoms of nitrogen in N ₂ |
| Source of data: | "Tool to determine project emissions from flaring gases containing methane" (ver. 1) |
| Value(s) applied: | 2 |
| Purpose of data: | Baseline |
| Additional comment: | No additional comments have been found to be necessary |

| | |
|--------------------------|--|
| Data / Parameter: | MM_{CH4} |
| Unit: | kg/kmol |
| Description: | Molecular mass of methane |
| Source of data: | "Tool to determine project emissions from flaring gases containing methane" (ver. 1) |
| Value(s) applied: | 16.04 |
| Purpose of data: | Baseline |
| Additional comment: | No additional comments have been found to be necessary |

| | |
|--------------------------|--|
| Data / Parameter: | MM_{N2} |
| Unit: | kg/kmol |
| Description: | Molecular mass of nitrogen |
| Source of data: | "Tool to determine project emissions from flaring gases containing methane" (ver. 1) |
| Value(s) applied: | 28.02 |
| Purpose of data: | Baseline |
| Additional comment: | No additional comments have been found to be necessary |

| | |
|--------------------------|--|
| Data / Parameter: | MVn |
| Unit: | m ³ /Kmol |
| Description: | Volume of one mole of any ideal gas at normal temperature and pressure |
| Source of data: | "Tool to determine project emissions from flaring gases containing methane" (ver. 1) |
| Value(s) applied: | 22.414 |
| Purpose of data: | Baseline |
| Additional comment: | No additional comments have been found to be necessary |

| | |
|--------------------------|--|
| Data / Parameter: | MF_{O2} |
| Unit: | m ³ /Kmol |
| Description: | O ₂ volumetric fraction of air |
| Source of data: | "Tool to determine project emissions from flaring gases containing methane" (ver. 1) |
| Value(s) applied: | 0.21 |
| Purpose of data: | Baseline |
| Additional comment: | No additional comments have been found to be necessary |

| | |
|--------------------------|--|
| Data / Parameter: | Pn |
| Unit: | Pa |
| Description: | Atmospheric pressure at normal conditions |
| Source of data: | "Tool to determine project emissions from flaring gases containing methane" (ver. 1) |
| Value(s) applied: | 101,325 |
| Purpose of data: | Baseline |
| Additional comment: | No additional comments have been found to be necessary |

| | |
|--------------------------|--|
| Data / Parameter: | Ru |
| Unit: | Pa m ³ /kmol K |
| Description: | Universal ideal gas constant |
| Source of data: | "Tool to determine project emissions from flaring gases containing methane" (ver. 1) |

| | |
|---------------------|--|
| Value(s) applied): | 8,314.472 |
| Purpose of data: | Baseline |
| Additional comment: | No additional comments have been found to be necessary |

| | |
|--------------------------|--|
| Data / Parameter: | Tn |
| Unit: | K |
| Description: | Temperature at normal conditions |
| Source of data: | "Tool to determine project emissions from flaring gases containing methane" (ver. 1) |
| Value(s) applied): | 273.15 |
| Purpose of data: | Baseline |
| Additional comment: | No additional comments have been found to be necessary |

| | |
|--------------------------|---|
| Data / Parameter: | GWP_{CH4} |
| Unit: | tCO ₂ e/tCH ₄ |
| Description: | Global Warming Potential of CH ₄ |
| Source of data: | 2006 IPCC value |
| Value(s) applied): | 21 |
| Purpose of data: | Baseline |
| Additional comment: | Shall be updated according to any future COP/MOP decisions. |
| | No additional comments have been found to be necessary |

| | |
|--------------------------|--|
| Data / Parameter: | AF |
| Unit: | % |
| Description: | Adjustment factor (for methane destruction in the baseline) |
| Source of data: | Estimated if there is a contractual or regulations requirements |
| Value(s) applied): | 0 |
| Purpose of data: | Baseline |
| Additional comment: | The regulatory requirements do not indicate any specific amount of landfill gas to collect and destruct or for its utilization. There are no registered amounts of landfill gas that are actually burned at the Culiacan Northern Landfill Gas Project; in any case, only passive venting is used for safety purposes and no methane destruction is occurring previous to the project activity. With these facts, an adjustment factor of 0% is the most proper value to be adopted. |

| | |
|--------------------------|---|
| Data / Parameter: | Carbon Emissssion Factor CEFelec,BL,y = EFgrid,CM,y |
| Unit: | tCO ₂ e/MWh |
| Description: | CO ₂ emissions intensity of the electricity displaced |
| Source of data: | As shown in the PDD, the emissions factor was calculated using the version 1.1 of the "Tool to calculate the emission factor for an electricity system", recommended by ACM0001 Ver.11. |
| Value(s) applied): | 0.538 |
| Purpose of data: | Project |

| | |
|---------------------|--|
| Additional comment: | A single, fixed value is used for each crediting period. |
|---------------------|--|

| Data / Parameter: | Regulatory requirements relating to landfill gas projects |
|---------------------|---|
| Unit: | Dimensionless |
| Description: | Regulatory requirements relating to landfill gas projects |
| Source of data: | Publicly available information of the host country's regulatory requirements relating to landfill gas. |
| Value(s) applied: | 0% |
| Purpose of data: | Baseline |
| Additional comment: | The information though recorded annually, is used for changes to the adjustment factor (AF) or directly MDBL,y at renewal of the credit period. |

D.2. Data and parameters monitored

| Data / Parameter: | LFGtotal,y | |
|---------------------------------|--|---------------|
| Unit | Nm3 | |
| Description | Total amount of landfill gas captured at normal temperature and pressure | |
| Measured/Calculated /Default | When installed, it will be measured by a mass flow meter | |
| Source of data | Automatic Data Gathering System | |
| Value(s) of monitored parameter | Not installed | |
| Monitoring equipment | Type | Not installed |
| | Accuracy class | Not installed |

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| | | |
|---------------------------------------|--|---------------------|
| | Manufacturer | Not installed |
| | Model | Not installed |
| | Serial Number | Not installed |
| | Calibration Frequency | Not installed |
| | Date of last calibration | Not installed |
| | Validity of last calibration | Not installed |
| | Installation date | Not installed |
| | Validity of calibration runs from | Not installed |
| Measuring/Reading/Recording frequency | Continuous mass flow meters will be used to measure flow rates. In normal operating conditions, will be recorded every two minutes electronically and it will be kept during the crediting period and two years after. Data will be also aggregated monthly. | |
| Calculation method (if applicable) | Not used | |
| QA/QC procedures | Flow meters will be subject to regular maintenance and testing regime to ensure accuracy. The same basis (dry or wet) as CH4 concentration is considered for this measurement when the residual gas temperature exceeds 60°C. | |
| Purpose of data | Not used | |
| Additional comment | No separate monitoring of temperature and pressure will be necessary because the project activity will be using flow meters that automatically compensate for temperature and pressure, expressing LFG volumes in normalized cubic meters (Nm3). The meter will be installed once the project achieves its second phase (LFG electricity generation). The project is operating under first phase (only flaring) during the 2nd Monitoring period so this parameter is not monitored. | |
| | | |
| Data / Parameter: | LFGflare,y | |
| Unit | Nm3 | |
| Description | Amount of landfill gas flared at normal temperature and pressure | |
| Measured/Calculated /Default | Measured by a mass flow meter | |
| Source of data | Automatic Data Gathering System | |
| Value(s) of monitored parameter | 4,599,319 | |
| Monitoring equipment | Equipment 1 | |
| | Type | LFGflare_Flowmeter |
| | Accuracy class | ± 1% Full Scale |
| | Manufacturer | Thermal Instruments |
| | Model | 62-9/9500 |
| | Serial Number | 2010313 |
| | Calibration Frequency | 18 months |

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| | | |
|---------------------------------------|---|---------------------|
| | Date of last calibration | 24/08/2010 |
| | Validity of last calibration | 20/06/2012 |
| | Installation date | 21/12/2010 |
| | Validity of calibration runs from | Installation date |
| | Equipment 2 | |
| | Type | LFGflare_Flowmeter |
| | Accuracy class | ± 1% Full Scale |
| | Manufacturer | Thermal Instruments |
| | Model | 62-9/9500 |
| | Serial Number | 2010364 |
| | Calibration Frequency | 18 months |
| | Date of last calibration | 07/10/2011 |
| | Validity of last calibration | 19/12/2013 |
| | Installation date | 20/06/2012 |
| | Validity of calibration runs from | Installation date |
| Measuring/Reading/Recording frequency | Continuous mass flow meters have been used to measure flow rates. In normal operating conditions, data has been recorded every two minutes electronically and it will be kept during the crediting period and two years after. Data has been also aggregated monthly. | |
| Calculation method (if applicable) | <p>The value of the monitored value shown in this table is the result of the accumulated flow in which raw data in the same time interval accomplish the following three operational conditions at the same time:</p> <ul style="list-style-type: none"> • Condition 1: The LFGflare should be between 150 and 1,500 Nm3/h • Condition 2: The wCH4 should be between 25 and 75% in CH4 • Condition 3: The Tflare should be between 500 and 1,200°C. | |
| QA/QC procedures | <p>Flow meters have been subject to regular maintenance and testing regime to ensure accuracy. The same basis (dry or wet) as CH4 concentration is considered for this measurement when the residual gas temperature exceeds 60°C. QA/QC procedure is used with the aim of disregard any raw data in the same time interval which do not accomplish the following three operational conditions at the same time:</p> <ul style="list-style-type: none"> • Condition 1: The LFGflare should be between 150 and 1,500 Nm3/h • Condition 2: The wCH4 should be between 25 and 75% in CH4 • Condition 3: The Tflare should be between 500 and 1,200°C. | |
| Purpose of data | Baseline | |
| Additional comment | <p>No separate monitoring of temperature and pressure have been necessary because the project activity is using flow meters that automatically compensate for temperature and pressure, expressing LFG volumes in normalized cubic meters (Nm3). The meter has been installed in this first phase of the project activity in the main line between the flare and the booster (after the Field Analyser Unit). The project is operating under first phase (only flaring) during the 2nd Monitoring period and that is why it is monitored.</p> | |
| Data / Parameter: | LFGelectricity,y | |
| Unit | Nm3 | |
| Description | Amount of landfill gas combusted in power plant at normal temperature and pressure | |
| Measured/Calculated /Default | When installed, it will be measured by a mass flow meter | |
| Source of data | Automatic Data Gathering System | |
| Value(s) of monitored parameter | Not installed | |
| Monitoring equipment | Type | Not installed |

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| | | |
|---|---|----------------------------------|
| | Accuracy class | Not installed |
| | Manufacturer | Not installed |
| | Model | Not installed |
| | Serial Number | Not installed |
| | Calibration Frequency | Not installed |
| | Date of last calibration | Not installed |
| | Validity of last calibration | Not installed |
| | Installation date | Not installed |
| | Validity of calibration runs from | Not installed |
| Measuring/Reading/ Recording frequency | Continuous mass flow meters will be used to measure flow rates combusted in power plant at normal temperature and pressure when installed. In normal operating conditions, data will be recorded every two minutes electronically and it will be kept during the crediting period and two years after. Data will also be aggregated monthly. | |
| Calculation method (if applicable) | Not used | |
| QA/QC procedures | Flow meters will be subject to regular maintenance and testing regime to ensure accuracy. The same basis (dry or wet) as CH4 concentration will be considered for this measurement when the residual gas temperature exceeds 60°C. | |
| Purpose of data | Not used | |
| Additional comment | No separate monitoring of temperature and pressure will be necessary because the project activity will be using flow meters that automatically compensate for temperature and pressure, expressing LFG volumes in normalized cubic meters (Nm3). The meter will be installed once the project achieves its second phase of the project activity (LFG electricity generation). The project is operating under first phase (only flaring) during the 2nd Monitoring so this parameter is not monitored. | |
| | | |
| Data / Parameter: | wCH4 | |
| Unit | m3 CH4 / m3 LFG | |
| Description | Methane fraction in the landfill gas. | |
| Measured/Calculated /Default | Measured by a gas analyzer | |
| Source of data | Automatic Data Gathering System | |
| Value(s) of monitored parameter | 33.6% | |
| Monitoring equipment | Equipment 1 | |
| | Type | Field Analyser Unit (FAU) |
| | Accuracy class | ± 0.2% to ± 1% (0 to full scale) |
| | Manufacturer | Landtec |
| | Model | FAU |
| | Serial Number | GA08754 |
| | Calibration Frequency | 6 months |
| | Date of last calibration | 15/07/2010 |

| | | |
|---------------------------------------|--|----------------------------------|
| | Validity of last calibration | 26/03/2012 |
| | Installation date | 27/09/2011 |
| | Validity of calibration runs from | Installation date |
| | Equipment 2 | |
| | Type | Field Analyser Unit (FAU) |
| | Accuracy class | ± 0.2% to ± 1% (0 to full scale) |
| | Manufacturer | Landtec |
| | Model | FAU |
| | Serial Number | GA08901 |
| | Calibration Frequency | 6 months |
| | Date of last calibration | 28/11/2011 |
| | Validity of last calibration | 16/07/2012 |
| | Installation date | 17/01/2012 |
| | Validity of calibration runs from | Installation date |
| | Equipment 3 | |
| | Type | Field Analyser Unit (FAU) |
| | Accuracy class | ± 0.2% to ± 1% (0 to full scale) |
| | Manufacturer | Landtec |
| | Model | FAU |
| | Serial Number | GA08754 |
| | Calibration Frequency | 6 months |
| | Date of last calibration | 10/02/2011 |
| | Validity of last calibration | 16/01/2013 |
| | Installation date | 17/07/2012 |
| | Validity of calibration runs from | Installation date |
| Measuring/Reading/Recording frequency | Methane content has been measured using a continuous gas analyzer. Data has been measured at least once per hour and recorded electronically. Data will be kept during the crediting period and two years after. Data has been aggregated monthly. | |
| Calculation method (if applicable) | <p>The value of the monitored value shown in this table is the result of the weighted average in which raw data in the same time interval accomplish the following three operational conditions at the same time:</p> <ul style="list-style-type: none"> • Condition 1: The LFGflare should be between 150 and 1,500 Nm³/h • Condition 2: The wCH₄ should be between 25 and 75% in CH₄ • Condition 3: The Tflare should be between 500 and 1200°C. | |
| QA/QC procedures | <p>Gas analyzer has been subject to a regular calibration, maintenance and testing regime to ensure accuracy.</p> <p>As per equipment provider, the FAU conducts a span gas check every 8 hours, even though the provider recommends only one check per week. The characteristics of the standard certified gas are as follows:</p> <ul style="list-style-type: none"> -Bottle 1: 45% CH₄, 40% CO₂ y balance 15% (N₂). -Bottle 2: 5% O₂ y balance 95% (N₂). | |
| Purpose of data | Baseline | |

| | | |
|--|---|---------------|
| Additional comment | Paired values of the methane fraction of the landfill gas and LFG flow which are averaged for the same time interval have been used in the calculation of emission reductions. The meter has been installed in this first phase of the project activity in the main line between the flare and the booster (before LFGflare_Flowmeter). The project is operating under first phase (only flaring) during the 2nd Monitoring so this parameter is monitored. | |
| | | |
| Data / Parameter: | EL _{LFG,y} | |
| Unit | MWh | |
| Description | Net quantity of electricity generated using LFG | |
| Measured/Calculated /Default | When installed, it will be measured by an electricity meter | |
| Source of data | Not installed | |
| Value(s) of monitored parameter | Not installed | |
| Monitoring equipment | Type | Not installed |
| | Accuracy class | Not installed |
| | Manufacturer | Not installed |
| | Model | Not installed |
| | Serial Number | Not installed |
| | Calibration Frequency | Not installed |
| | Date of last calibration | Not installed |
| | Validity of last calibration | Not installed |
| | Installation date | Not installed |
| | Validity of calibration runs from | Not installed |
| Measuring/Reading/ Recording frequency | Not installed | |
| Calculation method (if applicable) | Not installed | |
| QA/QC procedures | Not installed | |
| Purpose of data | Not used | |
| Additional comment | The meter will be installed once the project achieves its second phase of the project activity (LFG electricity generation). | |
| | | |
| Data / Parameter: | Operation of the energy (electrical) plant | |
| Unit | Hours | |
| Description | Hours of operation of the electrical energy plant | |
| Measured/Calculated /Default | When installed, it will be measured by an run meter | |
| Source of data | N/A | |
| Value(s) of monitored parameter | Not installed | |
| Monitoring equipment | Type | Not installed |
| | Accuracy class | Not installed |
| | Manufacturer | Not installed |
| | Model | Not installed |
| | Serial Number | Not installed |
| | Calibration Frequency | Not installed |

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| | | |
|---------------------------------------|--|----------------|
| | Date of last calibration | Not installed |
| | Validity of last calibration | Not installed |
| | Installation date | Not installed |
| | Validity of calibration runs from | Not installed |
| Measuring/Reading/Recording frequency | Not installed | |
| Calculation method (if applicable) | Not installed | |
| QA/QC procedures | Not installed | |
| Purpose of data | Not used | |
| Additional comment | The meter will be installed once the project achieves its second phase of the project activity (LFG electricity generation). | |
| | | |
| Data / Parameter: | Operation of the flare station | |
| Unit | Hours | |
| Description | Measurement with run meter connected to the blower | |
| Measured/Calculated /Default | Measured | |
| Source of data | Automatic Data Gathering System | |
| Value(s) of monitored parameter | 8,239 | |
| Monitoring equipment | Type | Run Time Meter |
| | Accuracy class | ±1 second |
| | Manufacturer | Landtec |
| | Model | LFG PRO |
| | Serial Number | N/A |
| | Calibration Frequency | N/A |
| | Date of last calibration | N/A |
| | Validity of last calibration | N/A |
| | Installation date | N/A |
| | Validity of calibration runs from | N/A |
| Measuring/Reading/Recording frequency | Measured with run time meter. In normal operating conditions, data has been recorded every two minutes electronically and it will be kept during the crediting period and two years after. Data has been also been aggregated monthly. | |
| Calculation method (if applicable) | The value of the monitored value shown in this table is the result of the accumulated operational time of the flare in which raw data in the same time interval accomplish the following three operational conditions at the same time: <ul style="list-style-type: none">• Condition 1: The LFGflare should be between 150 and 1,500 Nm3/h• Condition 2: The wCH4 should be between 25 and 75% in CH4• Condition 3:The Tflare should be between 500 and 1200°C. | |
| QA/QC procedures | The run time meter connected to the database from Landtec does not need calibration according to manufacturer's specification. Only time of operation which is between predefined thresholds is accounted as time of operation of the flare. | |
| Purpose of data | Not used | |
| Additional comment | The parameter is monitored to ensure methane destruction is claimed for methane destructed in the flare when it is operational. The parameter is measured with run meter connected to the database from Landtec which is, in turn, conneceted to the blower. | |

The following parameters are used to determine the project emissions from flaring of the residual gas stream (PE_{flare,y}) and have been monitored as per the “Tool to determine project emissions from flaring gases containing methane”.

| | | |
|--|---|----------|
| Data / Parameter: | PE_{flare,y} | |
| Unit | tCO ₂ e | |
| Description | Project emissions from flaring of the residual gas stream | |
| Measured/Calculated /Default | Calculated | |
| Source of data | Automatic Data Gathering System | |
| Value(s) of monitored parameter | 1,036 | |
| Monitoring equipment | Type | Not used |
| | Accuracy class | Not used |
| | Manufacturer | Not used |
| | Model | Not used |
| | Serial Number | Not used |
| | Calibration Frequency | Not used |
| | Date of last calibration | Not used |
| | Validity of last calibration | Not used |
| | Installation date | Not used |
| | Validity of calibration runs from | Not used |
| Measuring/Reading/ Recording frequency | In normal operating conditions, data has been recorded every two minutes electronically and it will be kept during the crediting period and two years after. Data has also been aggregated monthly. | |
| Calculation method (if applicable) | The parameters used for the determination of PE _{flare} are LFG _{flare} , wCH ₄ , fvi, fvCH ₄ ,FG, tO ₂ and T _{flare} . The calculation method is followed as per the “Tool to determine project emissions from flaring gases containing methane”. | |
| QA/QC procedures | Regular maintenance will ensure optimal operation of the flare. Analysers will be calibrated according to manufacturer's recommendations. | |
| Purpose of data | Project | |
| Additional comment | <p>The parameters used for determining the project emissions from flaring of the residual gas stream (PE_{flare,y}) have been monitored as per the “Tool to determine project emissions from flaring gases containing methane”.</p> <p>The project is operating under first phase (only flaring) during the 2nd Monitoring Period and that is why it is monitored. The parameters used for the determination of PE_{flare} are LFG_{flare}, wCH₄, fvi, fvCH₄,FG and tO₂.</p> | |
| Data / Parameter: | FV_{RG,h} | |
| Unit | Nm ³ | |
| Description | Volumetric flow rate of the residual gas in dry basis at normal conditions in the hour h. | |
| Measured/Calculated /Default | Measured by a mass flow meter | |
| Source of data | Automatic Data Gathering System | |

| | | |
|---------------------------------------|---|---------------------|
| Value(s) of monitored parameter | 4,599,319 | |
| Monitoring equipment | Equipment 1 | |
| | Type | LFGflare_Flowmeter |
| | Accuracy class | ± 1% Full Scale |
| | Manufacturer | Thermal Instruments |
| | Model | 62-9/9500 |
| | Serial Number | 2010313 |
| | Calibration Frequency | 18 months |
| | Date of last calibration | 24/08/2010 |
| | Validity of last calibration | 20/06/2012 |
| | Installation date | 21/12/2010 |
| | Validity of calibration runs from | Installation date |
| | Equipment 2 | |
| | Type | LFGflare_Flowmeter |
| | Accuracy class | ± 1% Full Scale |
| | Manufacturer | Thermal Instruments |
| | Model | 62-9/9500 |
| | Serial Number | 2010364 |
| | Calibration Frequency | 18 months |
| | Date of last calibration | 07/10/2011 |
| | Validity of last calibration | 19/12/2013 |
| | Installation date | 20/06/2012 |
| | Validity of calibration runs from | Installation date |
| Measuring/Reading/Recording frequency | Continuous mass flow meters have been used to measure flow rates. In normal operating conditions, data has been recorded every two minutes electronically and it will be kept during the crediting period and two years after. Data has been also aggregated monthly. | |
| Calculation method (if applicable) | <p>The value of the monitored value shown in this table is the result of the accumulated flow in which raw data in the same time interval accomplish the following three operational conditions at the same time:</p> <ul style="list-style-type: none"> • Condition 1: The LFGflare should be between 150 and 1,500 Nm³/h • Condition 2: The wCH₄ should be between 25 and 75% in CH₄ • Condition 3: The Tflare should be between 500 and 1,200°C. | |
| QA/QC procedures | Flow meters have been subject to regular maintenance and testing regime to ensure accuracy. The same basis (dry or wet) as CH ₄ concentration is considered for this measurement when the residual gas temperature exceeds 60°C. | |
| Purpose of data | Project | |

| | | |
|---------------------------------|---|----------------------------------|
| Additional comment | <p>As a simplified approach, this parameter is considered to be the same as the amount of landfill gas flared at normal temperature and pressure (LFGflare) as per the "Tool to determine project emissions from flaring gases containing methane". No separate monitoring of temperature and pressure have been necessary because the project activity is using flow meters that automatically compensate for temperature and pressure, expressing LFG volumes in normalized cubic meters (Nm3).</p> <p>The meter has been installed in this first phase of the project activity in the main line between the flare and the booster (after the Field Analyser Unit).</p> <p>The variable is monitored, as required by the "Tool to determine project emissions from flaring gases containing methane" to calculate the flare efficiency.</p> | |
| Data / Parameter: | fv_{i,h} | |
| Unit | m3 CH4 / m3 LFG | |
| Description | Volumetric fraction of methane in the residual gas | |
| Measured/Calculated /Default | Measured by a gas analyzer | |
| Source of data | Automatic Data Gathering System | |
| Value(s) of monitored parameter | 33.6% | |
| Monitoring equipment | Equipment 1 | |
| | Type | Field Analyser Unit (FAU) |
| | Accuracy class | ± 0.2% to ± 1% (0 to full scale) |
| | Manufacturer | Landtec |
| | Model | FAU |
| | Serial Number | GA08754 |
| | Calibration Frequency | 6 months |
| | Date of last calibration | 15/07/2010 |
| | Validity of last calibration | 26/03/2012 |
| | Installation date | 27/09/2011 |
| | Validity of calibration runs from | Installation date |
| | Equipment 2 | |
| | Type | Field Analyser Unit (FAU) |
| | Accuracy class | ± 0.2% to ± 1% (0 to full scale) |
| | Manufacturer | Landtec |
| | Model | FAU |
| | Serial Number | GA08901 |
| | Calibration Frequency | 6 months |
| | Date of last calibration | 28/11/2011 |
| | Validity of last calibration | 16/07/2012 |
| | Installation date | 17/01/2012 |
| | Validity of calibration runs from | Installation date |
| | Equipment 3 | |
| | Type | Field Analyser Unit (FAU) |
| | Accuracy class | ± 0.2% to ± 1% (0 to full scale) |
| | Manufacturer | Landtec |
| | Model | FAU |
| | Serial Number | GA08754 |
| | Calibration Frequency | 6 months |
| | Date of last calibration | 10/02/2011 |

| | | |
|---------------------------------------|--|--------------------------------|
| | Validity of last calibration | 16/01/2013 |
| | Installation date | 17/07/2012 |
| | Validity of calibration runs from | Installation date |
| Measuring/Reading/Recording frequency | Methane content has been measured using a continuous gas analyzer. Data has been measured at least once per hour and recorded electronically. Data will be kept during the crediting period and two years after. Data has been aggregated monthly. | |
| Calculation method (if applicable) | <p>The value of the monitored value shown in this table is the result of the weighted average in which raw data in the same time interval accomplish the following three operational conditions at the same time:</p> <ul style="list-style-type: none"> • Condition 1: The LFGflare should be between 150 and 1,500 Nm³/h • Condition 2: The wCH₄ should be between 25 and 75% in CH₄ • Condition 3: The Tflare should be between 500 and 1,200°C. | |
| QA/QC procedures | <p>As a simplified approach, only methane content of the residual gas will be measured and the remaining part will be considered as N₂. Gas analyzer has been subject to a regular calibration, maintenance and testing regime to ensure accuracy. The same basis (dry or wet) is considered for this measurement when the residual gas temperature exceeds 60°C.</p> <p>As per equipment provider, the FAU conducts a span gas check every 8 hours, even though the provider recommends only one check per week. The characteristics of the standard certified gas are as follows:</p> <p>-Bottle 1: 45% CH₄, 40% CO₂ y balance 15% (N₂).</p> <p>-Bottle 2: 5% O₂ y balance 95% (N₂).</p> | |
| Purpose of data | Project | |
| Additional comment | <p>This parameter is considered to be the same as the methane fraction in the landfill gas (wCH₄) as per the "Tool to determine project emissions from flaring gases containing methane". As a simplified approach, only methane content of the residual gas has been measured and the remaining part has been considered as N₂.</p> <p>The meter has been installed in this first phase of the project activity in the main line between the flare and the booster (before LFGflare_Flowmeter).</p> <p>The variable is monitored, as required by the "Tool to determine project emissions from flaring gases containing methane" to calculate the flare efficiency.</p> | |
| Data / Parameter: | t_{O₂,h} | |
| Unit | % | |
| Description | Volumetric fraction of O ₂ in the exhaust gas of the flare. | |
| Measured/Calculated /Default | On-site measurements using a continuous gas analyser. | |
| Source of data | Automatic Data Gathering System | |
| Value(s) of monitored parameter | 15.5% | |
| Monitoring equipment | Type | Flare Emissions Analyser (FEA) |
| | Accuracy class | O ₂ = 0.1% + 1% |
| | Manufacturer | Landtec |
| | Model | FEA |

| | | |
|---|--|--------------------------------|
| | Serial Number | 4300 |
| | Calibration Frequency | 12 months |
| | Date of last calibration | 04/11/2011 |
| | Validity of last calibration | 03/11/2012 |
| | Installation date | 21/01/2010 |
| | Validity of calibration runs from | Calibration Date |
| Measuring/Reading/ Recording frequency | Oxygen concentration in the exhaust gas has been measured at least once per hour using a continuous gas analyser, and data records will be kept during the crediting period and two years after. Data has also been aggregated daily/monthly/yearly. | |
| Calculation method (if applicable) | The value of the monitored value shown in this table is the result of the weighted average in which raw data in the same time interval accomplish the following three operational conditions at the same time: <ul style="list-style-type: none">• Condition 1: The LFGflare should be between 150 and 1,500 Nm3/h• Condition 2: The wCH4 should be between 25 and 75% in CH4• Condition 3:The Tflare should be between 500 and 1,200°C. | |
| QA/QC procedures | Analyser has been periodically calibrated according to the manufacturer's recommendation. A zero check and typical value check by comparison with a standard certified gas has been conducted. The FEA is calibrated manually by the Field Technician at least one time per week. The characteristics of the standard certified gas are as follows: -Bottle 1: 400 ppm CH4, 15% O2 and balance ≈85% (N2). -Bottle 2: 100% N2. | |
| Purpose of data | Project | |
| Additional comment | Extractive sampling analysers with water and particulates removal devices have been used. The point of measurement (sampling point) is in the upper section of the flare (80% of total flare height). Sampling is conducted with appropriate sampling probes adequate to high temperatures level (e.g. inconel probes). The variable is monitored, as required by the "Tool to determine project emissions from flaring gases containing methane" to calculate the flare efficiency. | |
| | | |
| Data / Parameter: | f_v_{CH4,FG,h} | |
| Unit | mg/m3 | |
| Description | Concentration of methane in the exhaust gas of the flare in dry basis at normal conditions | |
| Measured/Calculated /Default | On-site measurements using a continuous gas analyser. | |
| Source of data | Automatic Data Gathering System | |
| Value(s) of monitored parameter | 35.77 | |
| Monitoring equipment | Type | Flare Emissions Analyser (FEA) |
| | Accuracy class | O2 = 0.1% + 1% |
| | Manufacturer | Landtec |
| | Model | FEA |

| | | |
|---------------------------------------|---|----------------------------|
| | Serial Number | 4300 |
| | Calibration Frequency | 12 months |
| | Date of last calibration | 04/11/2011 |
| | Validity of last calibration | 03/11/2012 |
| | Installation date | 21/01/2010 |
| | Validity of calibration runs from | Calibration Date |
| Measuring/Reading/Recording frequency | Methane concentration in the exhaust gas has been measured at least once per hour using a continuous gas analyser, and data records will be kept during the crediting period and two years after. Data has also been aggregated daily/monthly/yearly. | |
| Calculation method (if applicable) | The value of the monitored value shown in this table is the result of the weighted average in which raw data in the same time interval accomplish the following three operational conditions at the same time: <ul style="list-style-type: none">• Condition 1: The LFG flare should be between 150 and 1,500 Nm3/h• Condition 2: The wCH4 should be between 25 and 75% in CH4• Condition 3: The T flare should be between 500 and 1,200°C. | |
| QA/QC procedures | Analyser has been periodically calibrated according to the manufacturer's recommendation. A zero check and typical value check by comparison with a standard certified gas has been conducted. The FEA is calibrated manually by the Field Technician at least one time per week. The characteristics of the standard certified gas are as follows: -Bottle 1: 400 ppm CH4, 15% O2 and balance ≈85% (N2). -Bottle 2: 100% N2. | |
| Purpose of data | Project | |
| Additional comment | Extractive sampling analysers with water and particulates removal devices have been used. The point of measurement (sampling point) is in the upper section of the flare (80% of total flare height). Sampling is conducted with appropriate sampling probes adequate to high temperatures level (e.g. inconel probes). To convert from ppmv to mg/m3, the monitored values have been multiplied by 0.716 as per the page 13 of the "Tool to determine project emissions from flaring gases containing methane" (Annex 13, EB 28). The variable is monitored, as required by the "Tool to determine project emissions from flaring gases containing methane" to calculate the flare efficiency. | |
| | | |
| Data / Parameter: | T _{flare} | |
| Unit | °C | |
| Description | Temperature in the exhaust gas of the flare. | |
| Measured/Calculated /Default | On-site measurements using a thermocouple. | |
| Source of data | Automatic Data Gathering System | |
| Value(s) of monitored parameter | 722.42 | |
| Monitoring equipment | Type | Thermocouple |
| | Accuracy class | 99.98% accurate |
| | Manufacturer | Thermo Sensors Corporation |
| | Model | K |

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| | | |
|---------------------------------------|---|-------------------|
| | Serial Number | 123781-3,5,6,10 |
| | Calibration Frequency | 12 months |
| | Date of last calibration | 23/12/2010 |
| | Validity of last calibration | 26/04/2012 |
| | Installation date | 27/04/2011 |
| | Validity of calibration runs from | Installation date |
| Measuring/Reading/Recording frequency | Temperature in the exhaust gas has been measured at least once per hour using four thermocouples distributed along the flare stack. Data records will be kept during the crediting period and two years after. Data has also been aggregated daily/monthly/yearly. | |
| Calculation method (if applicable) | <p>The value of the monitored value shown in this table is the result of the weighted average in which raw data in the same time interval accomplish the following three operational conditions at the same time:</p> <ul style="list-style-type: none"> • Condition 1: The LFGflare should be between 150 and 1,500 Nm³/h • Condition 2: The wCH₄ should be between 25 and 75% in CH₄ • Condition 3: The Tflare should be between 500 and 1,200°C. | |
| QA/QC procedures | Continuous measurement of the temperature of the exhaust gas stream in the flare by a thermocouple. A temperature above 500 °C indicates that a significant amount of gases are still being burnt and that the flare is operating. | |
| Purpose of data | Not used directly in the calculations | |
| Additional comment | An excessively high temperature at the sampling point may be an indication that the flare is not being adequately operated or that its capacity is not adequate to the actual flow. The parameter Tflare is measured with four measurements (sampling points), distributed along the flare stack. | |

The following variables are required to determine the electricity consumption from the grid using the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”, version 1.

| | |
|---------------------------------------|---|
| Data / Parameter: | PE_{EC,y} |
| Unit | tCO ₂ |
| Description | Project emissions from electricity consumption by the project activity |
| Measured/Calculated /Default | Calculated as per the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” (Version 1) |
| Source of data | Manual Data Gathering System |
| Value(s) of monitored parameter | 39 |
| Measuring/Reading/Recording frequency | Calculated from on-site consumption of electricity, which is measured continuously with electricity meter and aggregated monthly in invoices provided by the grid operator. |
| Calculation method (if applicable) | As per the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” (Version 1) |
| QA/QC procedures | As per the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” (Version 1) |

| | | |
|--|---|-------------------|
| Purpose of data | Project. | |
| Additional comment | Project electricity consumption is the sum of electricity consumption by the LFG blower and the monitoring equipment (incl. office). Each component has the same emissions factor for electricity generation and the same transmission and distribution losses. | |
| | | |
| Data / Parameter: | EC_{P,J,y} | |
| Unit | MWh | |
| Description | On-site consumption of electricity provided by the grid and/or LFG-based power plant(s) attributable to the project activity | |
| Measured/Calculated /Default | On-site measurements | |
| Source of data | Manual Data Gathering System | |
| Value(s) of monitored parameter | 60 | |
| Monitoring equipment | Type | Electricity Meter |
| | Accuracy class | ±0.2% |
| | Manufacturer | Elster |
| | Model | FM 9S (8S) |
| | Serial Number | 75P2X2 |
| | Calibration Frequency | 24 months |
| | Date of last calibration | 23/01/2011 |
| | Validity of last calibration | 23/01/2013 |
| | Installation date | 10/02/2010 |
| Measuring/Reading/ Recording frequency | Validity of calibration runs from | |
| | No calibration expiration | |
| Measuring/Reading/ Recording frequency | Measured continuously with electricity meter, aggregated monthly in invoices provided by the grid operator. | |
| Calculation method (if applicable) | Monthly invoices are aggregated and compared against accumulated electricity readings from electricity meter. | |
| QA/QC procedures | According to manufacturer's specifications, the electricity meters does not need to be calibrated. Monthly invoices are aggregated and cross-checked against accumulated electricity readings from electricity meter to ensure reliability of data. | |
| Purpose of data | Project | |
| Additional comment | <p>Project electricity consumption is mainly due to the electricity consumption by the LFG blower and the monitoring equipment (incl. office) and is monitored as per the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" (Version 1).</p> <p>The meter has been installed in this first phase of the project activity outside the compound in order to be accessible by the electricity company (CFE).</p> | |
| | | |

| Data / Parameter: | TDL _y |
|--|--|
| Unit | - |
| Description | Average technical transmission and distribution losses in the grid for the voltage level at which electricity is obtained from the grid. |
| Measured/Calculated /Default | A default value of 20%. |
| Source of data | As per "Tool to calculate project, baseline and leakage emissions from electricity consumption" (version 1) |
| Value(s) of monitored parameter | 20% |
| Measuring/Reading/ Recording frequency | Default value of average technical transmission and distribution losses is used so its Measuring/ Reading/ Recording frequency are not relevant for its accuracy. |
| Calculation method (if applicable) | No calculation method is used. |
| QA/QC procedures | In the absence of data from the relevant year, most recent figures should be used, but not older than 5 years. |
| Purpose of data | Project |
| Additional comment | Project electricity consumption is mainly due to the electricity consumption by the LFG blower and the monitoring equipment (incl. office). Each component has the same emissions factor for electricity generation and the same transmission and distribution losses. |

The following variables are required to determine the CO₂ emissions from fossil fuel combustion using the "Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion".

| Data / Parameter: | PE _{FC,j,y} |
|--|--|
| Unit | tCO ₂ e |
| Description | Project emissions from fossil fuel combustion in process j |
| Measured/Calculated /Default | Calculated as per the "Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion" |
| Source of data | Manual Data Gathering System |
| Value(s) of monitored parameter | 0 |
| Measuring/Reading/ Recording frequency | Calculated from on-site consumption of fuel, which is measured periodically with a Liquid-Level Gauge and aggregated monthly in invoices provided by the fuel provider. |
| Calculation method (if applicable) | Calculated as per the "Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion" |
| QA/QC procedures | Not applicable |
| Purpose of data | Project |
| Additional comment | Any eventual fossil fuel consumption during project activity will be accounted for with purchase receipts or invoices. For the 2nd Monitoring Period, LPG has been used. |

| | | |
|--|--|-----------------------|
| Data / Parameter: | FC_{i,j,y} | |
| Unit | m ³ | |
| Description | Quantity of fuel type i combusted in process j during the year y | |
| Measured/Calculated /Default | Onsite measurements | |
| Source of data | Manual Data Gathering System | |
| Value(s) of monitored parameter | 0.0756 | |
| Monitoring equipment | Type | Liquid-Level Gauge |
| | Accuracy class | ±5% |
| | Manufacturer | Rochester Gauges, Inc |
| | Model | 6281 |
| | Serial Number | 4-1693 |
| | Calibration Frequency | NA |
| | Date of last calibration | NA |
| | Validity of last calibration | NA |
| | Installation date | NA |
| | Validity of calibration runs from | NA |
| Measuring/Reading/ Recording frequency | Measured continuously with a volume meter. Since fuel (LPG) is supplied from small daily tanks, a ruler is used to determine the volume of the fuel consumed. The ruler gauge is part of the daily tank and the control for recording the measurements is done in daily logsheets. | |
| Calculation method (if applicable) | The consumed value in a daily basis is determined by the difference of two consecutive Liquid-Level Gauge readings (%) and multiplied by the storage tank capacity. | |
| QA/QC procedures | <p>The consistency of metered fuel consumption quantities has been crosschecked by an energy balance that is based on purchased quantities and stock changes. Since the purchased fuel invoices can be identified specifically for the CDM project, the metered fuel consumption quantities have also been crosschecked with available purchase invoices from the financial records as per the "Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion".</p> <p>As per manufacturer's specification, the Liquid-Level Gauge does not require a calibration.</p> | |
| Purpose of data | Project | |
| Additional comment | <p>The parameter FC_{i,j,y} is measured by the Liquid Level Gauge. Since fuel (LPG) is supplied from small daily tanks, this measurement method have been used to determine the volume of the fuel consumed as per the "Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion" in its Version 2. The ruler gauge is part of the tank, installed inside the compound.</p> | |

The following variables have been provided by third parties and no equipment has been used for its measurement:

| Data / Parameter: | NCV_{i,y} |
|---------------------------------------|--|
| Unit | GJ/m ³ |
| Description | Weighted average net calorific value of fuel type i (LPG) |
| Measured/Calculated /Default | Default |
| Source of data | Value provided by the fuel supplier |
| Value(s) of monitored parameter | 27.3 |
| Monitoring equipment | Not necessary since it is a default value |
| Measuring/Reading/Recording frequency | Not applicable since it is a default value |
| Calculation method (if applicable) | Not applicable since it is a default value |
| QA/QC procedures | Not applicable |
| Purpose of data | Project |
| Additional comment | Mixture of LPG at 70% Propane and 30% Butane is used to start-up the flare. The net calorific value of LPG has been provided by the fuel supplier as per the "Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion". |

| Data / Parameter: | EFCO_{2,i} |
|---------------------------------------|--|
| Unit | tCO ₂ /GJ |
| Description | Weighted average CO ₂ emission factor of fuel type i in year y |
| Measured/Calculated /Default | Default |
| Source of data | IPCC default values as provided in Table 1.4 of Chapter 1 Vol. 2 (energy) of the 2006 IPCC Guidelines on National GHG Inventories. |
| Value(s) of monitored parameter | 0.0656 |
| Monitoring equipment | Not necessary since it is a default value |
| Measuring/Reading/Recording frequency | Not applicable since it is a default value |
| Calculation method (if applicable) | Not applicable since it is a default value |
| QA/QC procedures | Not applicable |
| Purpose of data | Project |
| Additional comment | The CO ₂ emission factor of LPG has been taken from IPCC default values as per the "Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion" |

D.3. Implementation of sampling plan

Not applicable. The section is left blank intentionally.

SECTION E. Calculation of emission reductions or GHG removals by sinks

The raw data gathered is presented in Monthly ER Spreadsheets to calculate the Emission Reductions (ER_y) in a monthly basis as per the applicable methodologies and the registered PDD and these are aggregated and reported in the Summary ER Spreadsheet to be presented in conjunction with the CDM-MR.

E.1. Calculation of baseline emissions or baseline net GHG removals by sinks

The following table summarizes the actual values used to calculate the baseline emissions (BE_y) with the corresponding results applying the formulae as per the registered PDD:

Table 5 Results and parameters to calculate the Baseline Emissions of the Culiacan Landfill Project.

| Data / Parameter: | Description | Source | Total Value | Unit |
|--|--|-------------------|------------------|--|
| BE | Baseline Emissions | | | |
| $BE = (MD_{project} - MD_{BL}) * GWPC_{CH4} + ELLFG * CE_{Elec,BL} + ET_{LFG} * CE_{Fther,BL}$ | | Eq. (1) | 18,646 | tCO ₂ e |
| MD_{project} | Amount of methane that would have been destroyed | | | |
| $MD_{project} = MD_{flared} + MD_{electricity} + MD_{thermal} + MD_{PL}$ | | Eq (3) | 888 | tCH ₄ |
| MD_{flared} | Methane destroyed by flaring | | | |
| $MD_{flared} = (LFG_{flare} * w_{CH4} * D_{CH4}) - (PE_{flare} / GWPC_{CH4})$ | | Eq (4) | 888 | tCH ₄ |
| LFG_{flare} | Quantity of landfill gas fed to the flare | Monitored | 4,599,319 | m ³ LFG |
| w_{CH4} | Average methane fraction of the landfill gas | Monitored | 33.6% | m ³ CH ₄ /m ³ LFG |
| D_{CH4} | Methane density at normal temperature and pressure | Default | 0.0007168 | tCH ₄ /m ³ CH ₄ |
| PE_{flare} | Project emissions from flaring of the residual gas stream | | | |
| $PE_{flare} = TMRG * (1 - \eta_{flare}) * GWPC_{CH4} / 1000$ | | Step 7. Eq (T.15) | 1,036 | tCO ₂ e |
| TMRG | Total mass flow rate in the residual gas | Step 5. Eq (T.13) | 937,269 | kg |
| η_{flare} | Flare combustion efficiency | Step 6. Eq (T.14) | 94.7% | |
| GWPC_{CH4} | Global Warming Potential value for methane | Default | 21 | tCO ₂ e/tCH ₄ |
| MD_{BL} | Methane that would have been destroyed due to regulatory requirement | | | |
| $MD_{BL} = MD_{project} * AF$ | | Eq (2) | - | tCH ₄ |
| AF | Adjustment factor (for methane destruction in the baseline) (%) | Default | - | m ³ LFG |

As shown in the Table 5 and according to ACM0001 (version 11), the greenhouse gas baseline emissions (BE_y) during the monitoring period are given by the Equation (1), once the required simplifications have been adopted (i.e. EL_{LFG}=0 and ET_{LFG}=0). The methane destroyed by the project activity (MD_{project}) during the monitoring period is determined by monitoring the quantity of methane flared and gas used to generate electricity and/or produce thermal energy and the total quantity of methane captured applying Equation (3), applying the required simplifications (i.e. MD_{electricity}=0, MD_{thermal}=0) because there is no generation of electricity neither utilization for thermal purposes during the monitoring period.

The calculation of MD_{flared} is conducted applying the Equation (4) where the methane sent to the flare is determined by monitoring LFG_{flare} and w_{CH4} every 2 minutes (under normal operational conditions) with paired values added over the monitoring period. In the Table 5 above, the values of LFG_{flare} and w_{CH4} are cumulative and average values, respectively. The calculation of PE_{flare} in Equation (T.15) is conducted as per the seven steps described in the "Tool to determine project emissions from flaring gases containing methane" (ver. 1) using continuous monitoring of the methane destruction efficiency of the flare (flare efficiency) as shown in the ER Calculation Spreadsheets (see Monthly ER Spreadsheets).

E.2. Calculation of project emissions or actual net GHG removals by sinks

The following table summarizes the actual values used to calculate the project emissions (PE) with the corresponding results applying the formulae as per the registered PDD:

Table 6 Results and parameters used to calculate the Project Emissions of the Culiacan Landfill Project.

| Data / Parameter: | Description | Source | Total Value | Unit |
|---------------------------------------|--|------------|---------------|-----------------------|
| PE | Project Emissions | | | |
| $PE = PEEC + PEFC,j$ | | Eq. (8) | 39 | tCO ₂ |
| PEEC | Emissions from consumption of electricity in the project case | | | |
| $PEEC = ECPJ * EF_{grid} * (1 + TDL)$ | | Eq. (9) | 39 | tCO ₂ |
| ECPJ | Quantity of electricity consumed by the project activity | Monitored | 60 | MWh |
| EF_{grid} | Emission factor for the grid | Default | 0.538 | tCO ₂ /MWh |
| TDL | Average technical transmissions and distribution losses | Default | 20.0% | % |
| PEFC,j | Emissions from the consumption of heat in the project case (tCO ₂) | | | |
| $PEFC,j = FCI,j * COEF_i$ | | Eq. (10) | 0 | tCO ₂ |
| FCI,j | Quantity of fuel type i combusted in process j | Monitored | 0.0756 | m ³ |
| COEF_i | CO ₂ emission coefficient of fuel type i | | | |
| $COEF_i = NCV_i * EF_{CO2,i}$ | | Eq. (TF.4) | 1.791 | tCO ₂ /TJ |
| NCV_i | Weighted average net calorific value of the fuel type i | Provider | 27.30 | GJ/m ³ |
| EF_{CO2,i} | Weighted average CO ₂ emission factor of fuel type | IPCC | 0.0656 | tCO ₂ /GJ |

As shown in the Table 6 and according to ACM0001 (version 11), the greenhouse gas project emissions (PE_v) during the monitoring period are given by the Equation (8). The values for PE_{EC,v} and PE_{FC,i,v} in Equation (8) are calculated as follows:

- The project emissions from consumption of electricity (PE_{EC,v}) have been calculated using the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” (TE) applying Equation (9) using the monitored value of the quantity of electricity consumed by the project activity, a fixed value of the emission factor (EF_{grid}) and an average technical transmission and destruction losses (TDL).
- The project emissions from the fossil consumption (PE_{FC,i}) have been calculated according to the version 2 of the “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion” (TF) and is given by the Equation (TF.4), using the monitored value of the quantity of fuel LPG consumed by the project activity (FC_{i,i}) and the CO₂ emission coefficient of the LPG (COEF_i) calculated as per the Equation (TF.4).

E.3. Calculation of leakage

The calculation does not need to consider leakage emissions, so LE_v=0.

E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks

The following table summarizes the actual values used to calculate the emission reductions (ER_v) with the corresponding results applying the Equation (11) as per the registered PDD:

| Item | Baseline emissions or baseline net GHG removals by sinks (t CO ₂ e) | Project emissions or actual net GHG removals by sinks (t CO ₂ e) | Leakage (t CO ₂ e) | Emission reductions or net anthropogenic GHG removals by sinks (t CO ₂ e) |
|--------------|--|---|-------------------------------|--|
| Total | 18,646 | 39 | 0 | 18,607 |

E.5. Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

The following table shows a comparison of actual values of the emission reductions achieved during the monitoring period with the estimations in the registered CDM-PDD. Since the monitoring period is considered from 01/07/2011 to 31/07/2012 (first and last days included), it comprises 184 days of 2011 and 213 days of 2012 hence relative values (tCO₂e/day) for each year have been compared:

| Item | Values estimated in ex-ante calculation of registered PDD | Actual values achieved during this monitoring period |
|---|---|--|
| Emission reductions or GHG removals by sinks (t CO₂e) | 55,264 (*) | 18,607 |

As can be observed in the above table (*), in order to compare the actual emission reductions with the estimated values in the registered CDM-PDD in the same period, the actual relative emission reductions achieved during the current monitoring period (47 tCO₂e/day) are lower than the relative emission reductions stated in the registered CDM-PDD (139 tCO₂e/day). Considering the same time basis and the same periods, the actual emission reductions achieved during the current monitoring period (18,607 tCO₂e) are lower than the emission reductions derived from the yearly values stated in the registered CDM-PDD (55,264 tCO₂e).

E.6. Remarks on difference from estimated value in registered PDD

The actual emission reductions achieved during the current monitoring period (18,607 tCO₂e) are lower than the emission reductions derived from the yearly values stated in the registered CDM-PDD (55,264 tCO₂e). Therefore, there is no need to provide explanation of any increase.

E.7. Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

| Item | Actual values achieved up to 31 December 2012 | Actual values achieved from 1 January 2013 onwards |
|---|---|--|
| Emission reductions or GHG removals by sinks (t CO₂e) | 18,607 | 0 |

Document information

| <i>Version</i> | <i>Date</i> | <i>Description</i> |
|---|-----------------|--|
| 03.1 | 2 January 2013 | Editorial revision to correct table in section E.5. |
| 03.0 | 3 December 2012 | Revision required to introduce a provision on reporting actual emission reductions or net anthropogenic GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11). |
| 02.0 | 13 March 2012 | Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20). |
| 01 | 28 May 2010 | EB 54, Annex 34. Initial adoption. |
| Decision Class: Regulatory Document Type: Form Business Function: issuance Keywords: monitoring report, performance monitoring | | |