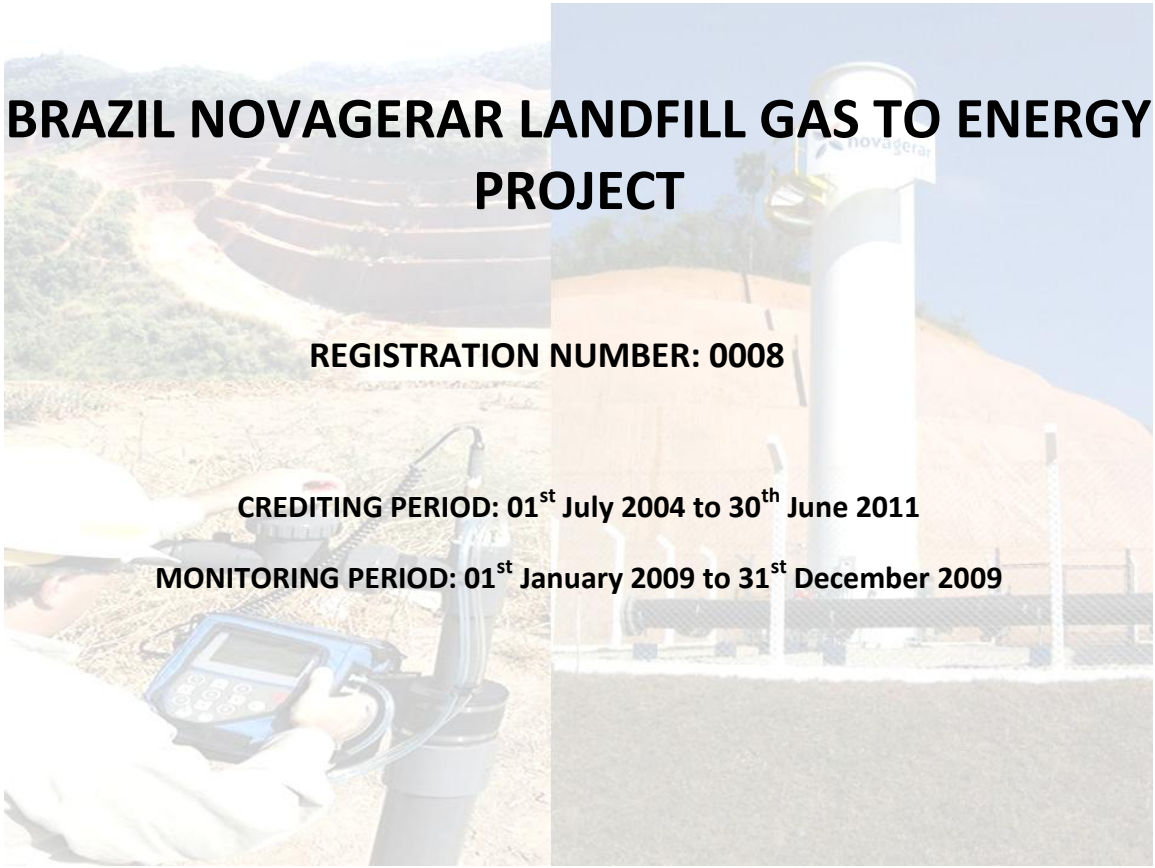
MONITORING REPORT



BRAZIL NOVAGERAR LANDFILL GAS TO ENERGY PROJECT

REGISTRATION NUMBER: 0008

CREDITING PERIOD: 01st July 2004 to 30th June 2011

MONITORING PERIOD: 01st January 2009 to 31st December 2009

YEAR OF REFERENCE: 2009

VERSION: 01

DATE: April 1th , 2010

1. GENERAL PROJECT ACTIVITY AND MONITORING INFORMATION

1.1. TITLE AND REGISTRATION NUMBER OF THE PROJECT ACTIVITY

Brazil Novagerar Landfill Gas to Energy Project, registration number: 0008

1.2. RECOMMENDATIONS AND FINDINGS FROM THE LAST VERIFICATION

In the last verification, SGS United Kingdom Ltd opened FAR #04 asking the project sponsor to revise the Monitoring Plan (MP) before the next verification.

TPP The Monitoring Plan has been revised and it has addressed the issues observed in FAR #04, listing clearly the monitored parameters and their units (including those related to project emissions, not mentioned in the registered PDD), monitoring equipment involved in the project activity, with respective calibration frequency and other relevant QA/QC.

1.3. INTRODUCTION

In 2001, NOVAGERAR was granted a 20-year concession (PPP model) by the Nova Iguaçu Municipal Council through it's Municipal Waste Management Company (*EMLURB)* a government agency responsible for waste collection and disposal. The object of this concession is to Build and Operate a Waste Treatment and Disposal Plant (including a sanitary landfill – called Adrianópolis) and to close, rehabilitate and recover the existing dump site called Marambaia in Nova Iguaçu city, state of Rio de Janeiro, and to explore the landfill gas potential of these sites. The Marambaia dump site opened in 1986 and ceased operation in feb/2003 with approximately 700 thousand tons of waste deposited. The New Waste Plant (Adrianópolis) started operation in feb/2003 and receives approximately 2.000 tons of waste per day.

In December of 2008 the *Haztec Tecnologia e Planejamento Ambiental SA* has acquired the control of Novagerar. Haztec works in the areas of environmental diagnosis, remediation of impacted areas, climate changes, integrated environmental management and environmental emergency response. The company is controlled by Grupo Synthesis . The fusion and synergy of the companies will allow Haztec entering the promising and growing market of waste treatment, renew energy. With that, the company will provide integrated solutions in all fields of environmental science and corporate sustainability

NOVAGERAR has implemented a landfill gas collection system, to capture and destroy the methane gas and to generate electricity in the Waste Treatment and Disposal Plant

("*Central de Tratamento de Resíduos – Nova Iguaçu - CTR Nova Iguaçu*"), in accordance with the Project Design Document of February 2004, and with the monitoring plan of February 2004 validated in September 2004 for validation report of DNV NB 2003-0221 – version 03 approved for the Brazilian government in June/2004.

1.4. SHORT DESCRIPTION OF THE REAL PROJECT IMPLEMENTATION

The Waste Treatment and Disposal Plant - CTR Nova Iguaçu has a Landfill divided into 4 cells for waste disposal, named Sub-Landfill 1, Sub-Landfill 2, Sub-Landfill 3, and Sub-Landfill 4. At the end of 2008, the waste disposal was done in only 2 cells (Sub-Aterro 1 and Sub-Aterro 3) and the gas extraction system was operating in the Sub-Aterro 1. Also in November of 2008 the waste disposal has initiated in the Sub-Aterro 4 and the gas extraction system has extended in the in Sub-Aterro 3.

FIGURE 1 – The CTR Nova Iguaçu Landfill

The Adrianópolis and Marambaia sites are adjacent to each other located beside a densely populated section of the municipality of Nova Iguaçu, Rio de Janeiro, with more than 800,000 inhabitants. Because of their location near the city of Rio de Janeiro, many manufacturer companies are either relocating existing facilities or establishing new plants in Nova Iguaçu. The municipality today hosts more than 600 industries and 2,400 commercial establishments. The site is located approximately 10 Kilometers from the center of Nova Iguaçu city. Electrical power transmission lines are located less then 1Km from the site.

The project, in the first step, is to capture and treat (burn in high temperatures), the methane produced by the solid waste anaerobic decomposition in sanitary landfill. Later, the gas will be used to power the electricity engines in the power plant.

The equipments were installed to capture and burn the methane gas with capacity for 3,000 m³/h, allowing for an expansion of up to 9,000 m³/h. This equipment consists of an enclosed flare with controlled burning and the blower system.

This system captures the landfill gas by way of suction in the piping network into the perforated horizontal and vertical well and the Ranzine drains, draining through well-heads, which prevents air flow into the grid and allows for measurements in each well. The gas is analyzed to ascertain its composition, temperature and pressure every 2 minutes. The burning efficiency is automatically adjusted by the system by controlling the air inlet in the burner and registering the temperatures of burn. All data is sent every 4 minutes to the management program which refreshes automatically in the website program. All condensation generated inside the grid is collected and sent to the leachate treatment area.

FIGURE 2 – The Flare and Blower System

1.5. CREDITING PERIOD

The crediting period is from 01st July 2004 to 30th June 2011.

1.6. MONITORING PERIOD

The monitoring period is from 01st January 2009 to 31st December 2009.

1.7. BASELINE METHODOLOGY APPLIED TO THE PROJECT ACTIVITY

The baseline applied to this project activity is AM0003: Simplified Financial Analysis for Landfill Gas Capture Projects, version 01, of January 12, 2004.

1.8. MONITORING METHODOLOGY APPLIED TO THE PROJECT ACTIVITY

The monitoring methodology applied to this project activity is AM0003: Simplified Financial Analysis for Landfill Gas Capture Projects, version 01, of January 12, 2004.

1.9. PERSONS RESPONSIBLE FOR THE PREPARATION AND SUBMISSION OF THE MONITORING REPORT:

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2. MONITORING PLAN AND ACTIVITIES

Two landfills sites are part of the projects activity, the project has been in operation since 15th March 2007 for CTR Nova Iguaçu and 17th May 2007 for Marambaia.

2.1 MONITORING EQUIPMENTS

The following equipment are used to monitor the operation of the project and to monitor the Emission Reduction, the control of the periodic time for each maintenance and inspection, was defined in Novagerar procedures and monitored by the Automatic Indicator Hours (hour meter).

2.1.1 Flow Meter

The flow meter is used to measure the gas flow channeled to the flare. The manufacturer of this flow meter is Thermal Instrument Company, the periodic calibration is every 18 months.

The AM0003 indicates the flow monitoring in m3 (cubic meter), but for conservative calculation in the project activities, the Novagerar is using the Thermal Mass Flow Meter that operates with a measurement control system of the biogas temperature and

pressure in the pipeline, to calculate the flow in Normal Conditions (Nm3 / h – Normal cubic meter for hour).

2.1.2 Gas Analyzer

The gas analyzer is used to measure the gas composition. The manufacturer of the gas analyzer is CES Landtec Inc, the periodic calibration is every 6 months.

2.1.3 Flare

The manufacturer of the flare system is John Zinc Company, the flare system is monitored for each 6 months to indicate the efficient of the destroy methane. The flare temperature are continues monitored by the automatic control system to operate in 1,700 °F.

2.2 INVOLVEMENT OF THIRD PARTIES

The Brazil Novagerar Landfill Gas to Energy Project has two sub contracted parties involved.

TASQA SERVIÇOS ANALÍTICOS LTDA

As the analysis of methane concentration in the exhaust gas is every 6 months, Novagerar hired *TASQA Serviços Analíticos Ltda*, a national and certified laboratory to develop the gas analysis and calculation the flare efficiency.

CES LANDTEC

LANDTEC is a leading provider of monitoring systems for renewable energy and Green House Gas (GHG) reduction validation. All readings and files of the Novagerar project are being monitored by LANDTEC System Software

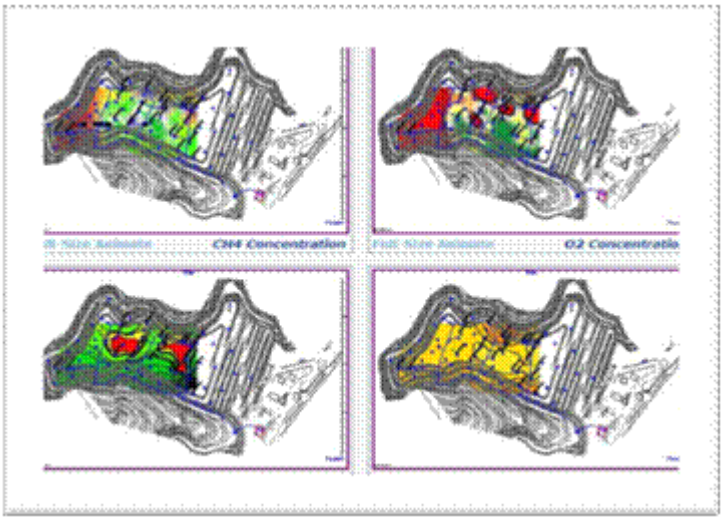


FIGURE 3 – Concentration gas maps for The CTR Nova Iguaçu Landfill

The software (ENVIROCOMP LFG Pro) analyses the maps of each important component to determine how the landfill is producing, if the collection system have escapes and if there is something to improve in the operation.

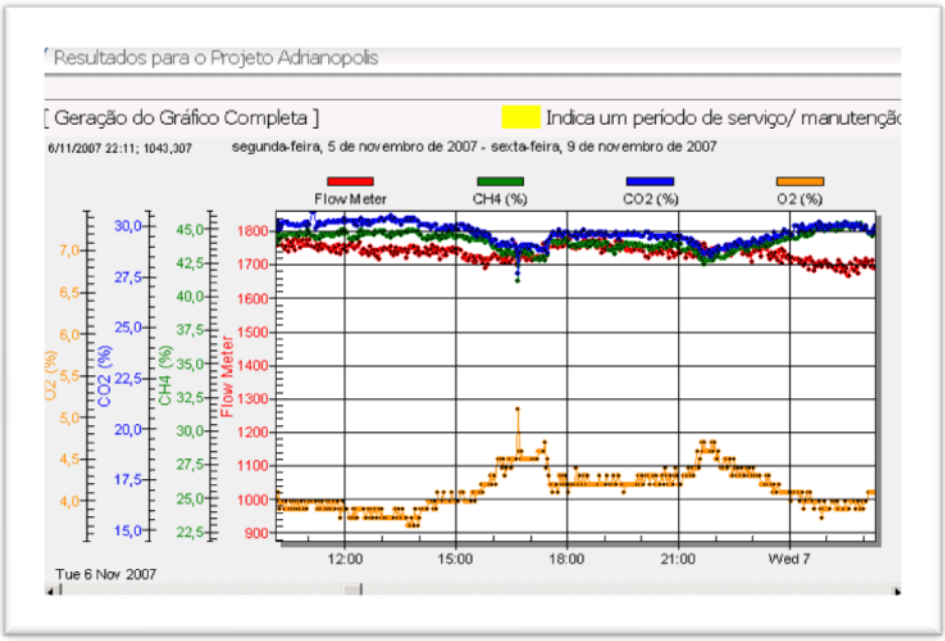


FIGURE 4 – Graphic of the gas composition and flow

The ENVIROCOMP provide in graphics the historical and on-line information of what is happening on the system, in the graph shows the trends and variations on the

operational parameter and readings of the percentage of Methane, Flow, Temperature and others.

Also, the software can show the readings of any variable of the process in real time, and has possibility of make the reports of the readings in any historical time.

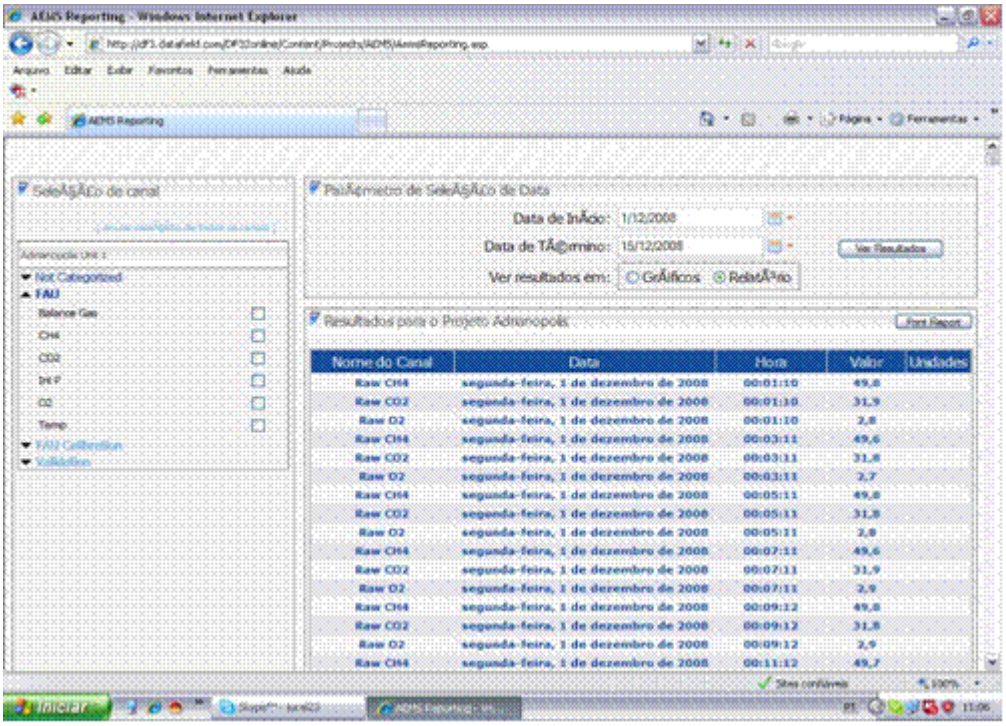


FIGURE 5 – The historical report of the gas composition and flow

2.3 DATA COLLECTION

2.3.1 List of fixed default values:

- Global Warming Potential of CH4 (GWPCH4) = 21 (tCO2e/tCH4);
- Density of Methane = 0.00067899 (tCH4/m3 CH4);
- Carbon Emission Factor of LPG(EFLPG) = 17.20 (tC/TJ);
- Fraction of carbon oxidized of LPG = 0.995 ;
- Conversion factor of C to CO2 = 44/12 = 3.67 (CO2/C);
- Units Conversion = 9.484E-16 (TJ/BTU);

2.3.2 List of variables:

- Q_{biogas}, flares = amount of biogas sent to flare (Nm^3);
- % CH4 = percentage of methane in the biogas (% volume);
- FE = Flare Efficiency % (calculated using data from methane sent to flares and methane content in the exhaust gas, monitored by temperature);
- Emission Factor of Brazilian Grid (EF) - (tCO2e/MWh);
- Electrical energy used (kW);
- LPG consumption (number of ignitions)
- Adjustment Factor (AF) = 0.2 (restricted for Marambaia);

2.3.3 Data concerning GHG emissions of the project activity

The Brazil Novagerar Landfill Gas Energy Project consumes electrical energy from the grid and uses fossil fuel (LPG – Liquefied Petroleum Gas) for the ignition of the flare system. These emissions are being monitored. This process has been audited since the First Verification of the Novagerar process, and can be described in the following tables.

The calculation of the LPG, consumed in the flare system, is according to the instructions extracted of the 1996 IPCC Guidelines for national Greenhouse Gas Inventories: Reference Manual - Energy, to determine the emissions and the volume for only one ignition in the flare system, in tCO2e. The number of ignitions is determined by the PLC (programmable logical controller), it is programmed to count each time that an ignition occurs, and stores the value in the database (Envirocomp) in the Landtec server. It is made by counting how many times the solenoid valve (SV-303 Pilot Gas) opened in the month.

The LPG emission for only one the Ignition can be resumed in this expression and the follow table:

$$\mathbf{LPG_{Emission}} = F_{ox} * F_{ec} * F_{tCO2/tC} * F_{TJ/BTU} * \Phi * \xi * \mathbf{(tCO2e)}$$

LPG EMISSION FOR ONLY ONE THE IGNITION							
SYMBOL	$LPG_{Emission}$ =	F_{ox}	F_{ec}	$F_{tCO2/tC}$	$F_{TJ/BTU}$	Φ	ξ
VARIABLES NAME	LPG emission for only one the ignition (tCO2e)	Fraction Carbon Oxidized (%)	Carbon Emission Factor (tC/TJ)	Conversion Factor (tCO2/tC)	Units Conversion TJ/BTU	Ignition Heat (BTU/hr)	Ignition Time (hr)
VALUE	9.92E-11 =	0.995	17.2	3.6667	9.484E-16	50,000	0.033333
SOURCE	N/A	Fraction Carbon Oxidised- 1996 IPCC Guidelines for national Greenhouse Gas Inventories: Reference Manual - Energy	Carbon Emission Factor - 1996 IPCC Guidelines for national Greenhouse Gas Inventories: Reference Manual - Energy	Periodic Table: [44/12= 3.6667] Atomic Mass of the "CO2" (44) divided by the Atomic Mass of the "C" (12)	Handbook of Engineering Formulas - Heat and Mass Transfer, GIECK, 2001	Ignition Heat - Fixed default Variable of the Project (John Zinc)	Ignition Time - Fixed default Variable of the Project (John Zinc)

Table 1 – LPG variables for emission calculation

The LPG volume for only one the Ignition can be resumed in this expression and the follow table:

$$LPG_{Volume} = (F_{TJ/BTU} * 1{,}000 * \Phi * \xi) / (NCV * LPG_{Density}) \ (m3)$$

LPG VOLUME FOR ONLY ONE THE IGNITION						
SYMBOL	LPG_{volume} =	($F_{TJ/BTU}$ * 1,000 *	Φ *	ξ) /	(NCV *	$LPG_{Density}$)
VARIABLES NAME	LPG Volume for only one the ignition (tCO2e)	Units Conversion TJ/BTU	Ignition Heat (BTU/hr)	Ignition Time (hr)	Net Calorific Value (TJ/tonnes)	LPG Density (kg/m3)
VALUE	1.59E-08 =	9.484E-16	50,000	0.033333	0.04731	2.1
SOURCE	N/A	Handbook of Engineering Formulas - Heat and Mass Transfer, GIECK, 2001	Ignition Heat - Fixed default Variable of the Project (John Zinc)	Ignition Time - Fixed default Variable of the Project (John Zinc)	1996 IPCC Guidelines for national Greenhouse Gas Inventories: Reference Manual - Energy	LPG Density - Ultragaz do Brasil (Novagerar LPG Supplier)

Table 2 – LPG variables for Volume Calculation

3. QUALITY ASSURANCE AND QUALITY CONTROL MEASURES

3.1. DOCUMENTED PROCEDURES AND MANAGEMENT PLAN:

3.1.1 Roles and responsibilities:

The following flow-chart represents the procedures and responsibilities on the monitoring of each parameter:

I) METHANE CONCENTRATION:

Equipment:
Methane Analyzer
Location:
Field Analytical Unit
Manufacturer:
Landtec
Model:
FAU
Range:
0-100%
Reading Frequency:
Every 2 minutes
Responsibility:
PLC (continuously) and AEMS _ Automatic Extraction Monitoring System (CES Landtec)

Equipment:
Supervisory System
Reading Frequency:
Every 4 minutes
Responsibility
PLC (continuously) and AEMS _ Automatic Extraction Monitoring System (CES Landtec)

Equipment:
Supervisory System and Envirocomp (Landtec software)
Reading Frequency
Every 2 minutes
Responsibility
Envirocomp (the Software of CES Landtec, and Plant supervisor (monthly)

Methodology :
Calibration Frequency
Every hour for automatic field calibration and every 6 months, with a standard gas certified by Laboratories or Manufacturer

Methodology :
Every day the project engineer will check the calibration readings and the Novagerar procedures.

II) FLOW TO FLARE:

Equipment:
Thermal Mass Flow Meter

Location:
Entrance of the flare

Manufacturer:
Thermal Instrument Co.

Model:
62-9/9500

Range:
0- 3000 Nm3/h

Reading Frequency:
Every 2 minutes

Responsibility:
PLC (continuously) and AEMS _ Automatic Extraction Monitoring System (CES Landtec)

Equipment:
Supervisory System

Reading Frequency
Every 4 minutes

Responsibility
PLC (continuously) and AEMS _ Automatic Extraction Monitoring System (CES Landtec)

Equipment:
Supervisory System and Envirocomp (Landted software)

Reading Frequency
Every 2 minutes

Responsibility
Envirocomp (the Software of CES Landtec, and
Plant supervisor (monthly)

Methodology :
Calibration Frequency
Every 18 months, with a standard gas certified by Laboratories or Manufacturer

Methodology :
Every day the project engineer will check the readings and the Novagerar procedures.

III) FLARE EFFICIENCY:

Methodology :
The gas analysis and calculation the flare efficiency was make by TASQA Laboratories. For assure the quality in the project, the Novagerar confirm the TASQA calculations following the steps of calculation of the Annex 13 – UNFCC - "Tool to determine project emissions from flaring gases containing methane" in the EB 28 Meeting Report

Reading Frequency
Every 6 months

Responsibility
Specialized company on gas analysis

Methodology :
Reports and MS Excel spreadsheet

Reading Frequency
NA

Responsibility
Project manager

Methodology :
Reports and MS Excel spreadsheet

Reading Frequency
NA

Responsibility
Project manager

Methodology :
NA

Reading Frequency
NA

Responsibility
NA

Methodology :
The project manager is responsible for checking and developing the Monitoring Report of the flare efficiency.

3.2. TRAININGS:

All training was performed before project's implementation and certified at the initial verification. Also, if the procedures have any revision, the training are conducted again by Novagerar Project.

3.3. COLLECT DATA:

The data collected in the monitoring process is summarized in table below as per the monitoring procedure AM0003 approved by the CDM executive board.

Data Variable	*Data Unit*	*Measured (M), Calculated (C); Estimated (E)*	*Recording Frequency*	*Proportion of data to be monitored*	*How will the data be archived? (electronic/paper)*	*For how long is archived data to be kept?*	*Comments*
Flow of LFG to flare	Nm3	M	Continuous	100%	Electronic (spreadsheet)	2 years and duration of the project crediting period in files	Data will be aggregated monthly and yearly
Electricity Imported the Grid	KWh	M&C	Continuous	100%	Electronic (spreadsheet)	2 years and duration of the project crediting period in files	Data will be aggregated monthly and yearly
Flare efficiency	%	M&C	Semi-annual determination of flare efficiency (if significant variation, monthly)	Semi-annual determination of flare efficiency (if significant variation, monthly)	Electronic (spreadsheet)	2 years and duration of the project crediting period in files	Data will be used to test and, if necessary correct the generators standard heat rate plate ratings
Methane Fraction of LFG	%	M&C	Continuous	100%	Electronic (spreadsheet)	2 years and duration of the project crediting period in files	Data will be aggregated monthly and yearly
LPG for ignitions	m3	M&C	Continuous	100%	Electronic (spreadsheet)	2 years and duration of the project crediting period in files	Data will be aggregated monthly and yearly

Table 3 – Collect data

3.4. DIAGRAM FOR THE PROJECT SITE

For easy reference, below is a diagram for the project site, indicating where each piece of monitoring equipment is placed

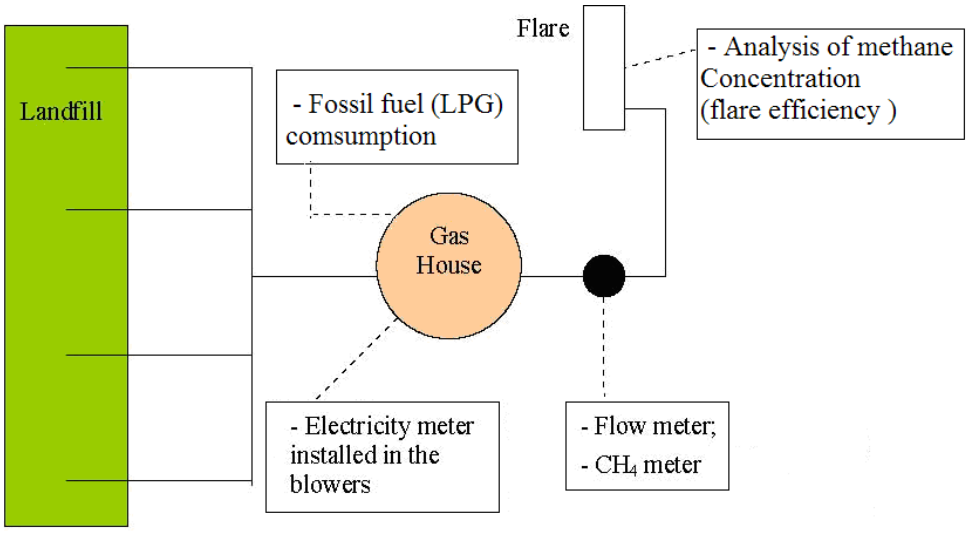


FIGURE 5 – Diagram for the project site

4. CALCULATION OF GHG EMISSION REDUCTIONS

4.1. CALCULATION METHOD OF ERs

This method can be summarized in these following flowcharts:

[A] - Volume of landfill gas channeled to flares (Nm3)

⇩

[B] - Multiplied by methane fraction (%) of landfill gas (gas analyzer)

⇩

Volume of methane combusted in flare (Nm3)

⇩

[D] - Multiplied by flare efficiency (%)

⇩

Net volume of methane combusted in flare (Nm3)

⇩

[E] - Multiplied by volume: mass conversion factor (0.00067899 t CH4 = 1 Nm3 CH4)

(tonnes of methane)

⇩

[F] - Multiplied by Global Warming Potential of methane (21)

(tonnes of CO2 e)

⇩

Annual gross emission reductions due to methane combustion in flares

(tonnes of CO2 e)

⇩

[G] - Total Gross ERs generated by the project (tCO2e)

Other way to determine the emission reductions calculations can be demonstrated in the expression:

G = A * B* C* D* E* F (tCO2e)

NOTE: For Marambaia site this result is further discounted by a factor of 20%
(Emission Adjustment Factor - EAF = 0.2)

For conservative calculation, if the flare temperature is lower that 1,400 °F, the value of the Emission Reduction will be calculated with value zero(ER = 0).

4.2. CALCULATION OF PROJECT EMISSIONS

ELECTRIC ENERGY

An official calculation was developed by the Brazilian DNA (Inter-ministerial Commission on Climate Change) and Novagerar Project are using this method. The methodology and calculations are detailed and follows the ACM0002, that considers the determination of the emissions factor for the grid to which the project activity is connected as the core data to be determined in the baseline scenario.

In the meeting of the April 29, 2008 the Brazilian DNA decided by the information note (http://www.mct.gov.br/upd_blob/0024/24562.pdf), to use a unique national system (SIN) for entire Brazilian grid and to develop the calculation for emission factors on a daily and monthly basis for the Operating Margin (OP) and Build Margin (BM) emission factor, as well as will be periodically published the data by the website of the DNA.

The electricity baseline emission factor is calculated through a weighted-average formula, considering both the OM and the BM, being the weights 50% and 50% by default. That gives:

$$EF_{electricity,} = (0.5*OM) + (0.5*BM) \ [tCO2/MWh]$$

Finally, to calculate the emission of the consumed electrical energy for the Novagerar project activities, it is only necessary to multiply the monthly consumption (MWh) of the project for the emission factor of electricity. That gives:

$$\text{Total Electricity Emission} = (EF_{electricity})*(\text{Monthly Consumption}) \ (tCO2e)$$

The follow tables shows the values for Adrianopolis and Marambaia site

novagerar	Electrical Energy Emission in Adrianopolis Site Reference Year - 2009				
Reference Month / Year	MWh used in the project	Operating Margin (tCO2/MWh)	Build Margin (tCO2/MWh)	Total EAF (tCO2/MWh)	Electrical Energy Emission (tCO2e)
January / 2009	3,46	0,2813	0,0775	0,1794	0,62
February / 2009	2,64	0,2531	0,0775	0,1653	0,44
March / 2009	3,46	0,2639	0,0775	0,1707	0,59
April / 2009	6,44	0,2451	0,0775	0,1613	1,04
May / 2009	8,95	0,4051	0,0775	0,2413	2,16
June / 2009	8,54	0,3664	0,0775	0,2220	1,90
July / 2009	9,89	0,2407	0,0775	0,1591	1,57
August / 2009	7,30	0,1988	0,0775	0,1382	1,01
September / 2009	5,32	0,1622	0,0775	0,1199	0,64
October / 2009	7,55	0,1792	0,0775	0,1284	0,97
November / 2009	6,69	0,1810	0,0775	0,1293	0,86
December / 2009	6,38	0,2524	0,0775	0,1650	1,05

Table 4 - Electrical Energy Emission in Adrianopolis Site

novagerar	Electrical Energy Emission in Marambaia Site Reference Year - 2009				
Reference Month / Year	MWh used in the project	Operating Margin (tCO2/MWh)	Build Margin (tCO2/MWh)	Total EF (tCO2/MWh)	Electrical Energy Emission (tCO2e)
January / 2009	0,41	0,2813	0,1458	0,2136	0,088
February / 2009	0,53	0,2531	0,1458	0,1995	0,106
March / 2009	0,79	0,2639	0,1458	0,2049	0,163
April / 2009	1,04	0,2451	0,1458	0,1955	0,203
May / 2009	0,97	0,4051	0,1458	0,2755	0,266
June / 2009	1,00	0,3664	0,1458	0,2561	0,256
July / 2009	0,86	0,2407	0,1458	0,1933	0,166
August / 2009	0,80	0,1988	0,1458	0,1723	0,138
September / 2009	0,93	0,1622	0,1458	0,1540	0,111
October / 2009	0,82	0,1792	0,1458	0,1625	0,132
November / 2009	0,72	0,1810	0,1458	0,1634	0,117
December / 2009	0,41	0,2524	0,1458	0,1991	0,081

Table 5 - Electrical Energy Emission in Marambaia Site

FUEL FOSSIL

The consumption of LPG in the project activities follows the description of the item *"2.3.3 - Data concerning GHG emissions of the project activity"* of this report, and can be summarized in these tables:

novagerar	Emission Calculation from LPG in Adrianopolis Site Reference Year - 2009				
Reference Month / Year	Number of the Ignitions	Total emission for only one Ignition (tCO2e)	LPG Emission (tCO2e)	Volume of the LPG for only one Ignition (m3)	LPG Volume (m3)
January / 2009	2	9,92E-11	1,98E-10	1,59E-08	3,18E-08
February / 2009	7	9,92E-11	6,94E-10	1,59E-08	1,11E-07
March / 2009	3	9,92E-11	2,98E-10	1,59E-08	4,77E-08
April / 2009	19	9,92E-11	1,88E-09	1,59E-08	3,02E-07
May / 2009	6	9,92E-11	5,95E-10	1,59E-08	9,55E-08
June / 2009	21	9,92E-11	2,08E-09	1,59E-08	3,34E-07
July / 2009	16	9,92E-11	1,59E-09	1,59E-08	2,55E-07
August / 2009	91	9,92E-11	9,03E-09	1,59E-08	1,45E-06
September / 2009	14	9,92E-11	1,39E-09	1,59E-08	2,23E-07
October / 2009	10	9,92E-11	9,92E-10	1,59E-08	1,59E-07
November / 2009	3	9,92E-11	2,98E-10	1,59E-08	4,77E-08
December / 2009	10	9,92E-11	9,92E-10	1,59E-08	1,59E-07

Table 6 - Emission Calculation from LPG in Adrianopolis Site

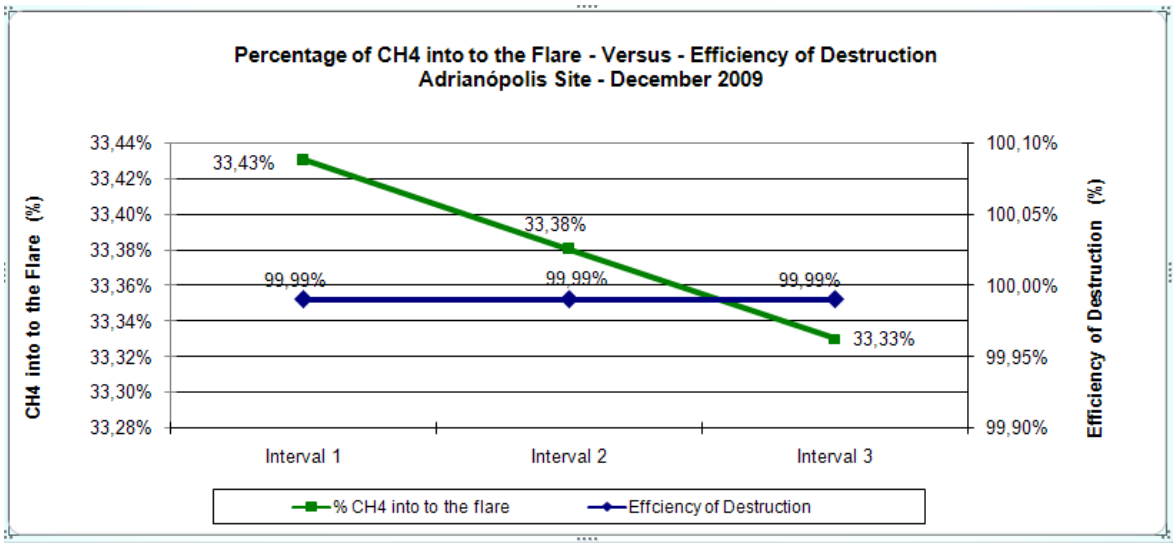
novagerar	Emission Calculation from LPG in Marambaia Site Reference Year - 2009				
Reference Month / Year	Number of the Ignitions	Total emission for only one Ignition (tCO2e)	LPG Emission (tCO2e)	Volume of the LPG for only one Ignition (m3)	LPG Volume (m3)
January / 2009	13	9,92E-11	1,29E-09	1,59E-08	2,07E-07
February / 2009	32	9,92E-11	3,17E-09	1,59E-08	5,09E-07
March / 2009	14	9,92E-11	2,98E-10	1,59E-08	2,23E-07
April / 2009	5	9,92E-11	4,96E-10	1,59E-08	7,95E-08
May / 2009	8	9,92E-11	7,94E-10	1,59E-08	1,27E-07
June / 2009	5	9,92E-11	4,96E-10	1,59E-08	7,95E-08
July / 2009	5	9,92E-11	4,96E-10	1,59E-08	7,95E-08
August / 2009	5	9,92E-11	4,96E-10	1,59E-08	7,95E-08
September / 2009	9	9,92E-11	8,93E-10	1,59E-08	1,43E-07
October / 2009	14	9,92E-11	1,39E-09	1,59E-08	2,23E-07
November / 2009	9	9,92E-11	8,93E-10	1,59E-08	1,43E-07
December / 2009	7	9,92E-11	6,94E-10	1,59E-08	1,11E-07

Table 7 - Emission Calculation from LPG in Marambaia Site

4.3. VARIABLES MONITORED OF THE PROJECT

4.3.1. Flare Efficiency

The flare efficiency from 01st January, 2009 to 30th July, 2009, was calculated using TASQA´s analysis made on July 2009, and the flare efficiency from 1st July 2009 to 31st December 2009 was calculated using TASQA's analysis made on December 2009.



Graphic 1 – Flare efficiency and concentration of methane in exhaust gas – Adrianopolis Site

This graphic shows the flare efficiency (Blue line) and the concentration of methane (Green line) in exhaust gas, measured in the normal conditions of the operation in the Adrianopolis Site, this analysis was made in December of 2009.

The following tables show the collected data, from the period 1st January to 31st December 2009 in the Adrianopolis and Marambaia site.

4.3.2. Data Monitored for Adrianopolis Site

The table below shows the monthly readings for the Adrianopolis Site.

		Variables Monitored for Adrianopolis Site Reference Year - 2009			
Reference Month / Year	Amount of LFG send to Flare (m3)	Methane average fraction (%)	Flare Efficiency (%)	Electric Energy Consumption (kWh)	Amount of LPG used (m3)
January / 2009	1.039.261,92	46,36	99,99%	3.459,00	3,18E-08
February / 2009	804.820,48	43,84	99,99%	2.639,00	1,11E-07
March / 2009	1.134.182,48	43,31	99,99%	3.455,00	4,77E-08
April / 2009	1.281.844,72	45,65	99,99%	6.443,00	3,02E-07
May / 2009	1.374.977,16	43,84	99,99%	8.951,00	9,55E-08
June / 2009	1.337.951,62	41,98	99,99%	8.543,00	3,34E-07
July / 2009	1.294.913,34	42,05	99,99%	9.893,00	2,55E-07
August / 2009	886.414,46	32,46	99,99%	7.298,00	1,45E-06
September / 2009	1.110.325,73	35,39	99,99%	5.324,00	2,23E-07
October / 2009	1.331.360,04	35,64	99,99%	7.548,00	1,59E-07
November / 2009	1.300.327,68	32,74	99,99%	6.691,00	4,77E-08
December / 2009	1.219.879,84	33,56	99,99%	6.384,00	1,59E-07

Table 8 - Data Monitored for Adrianopolis Site in 2009

4.3.3. Data Monitored for Marambaia Site

The table below shows the monthly readings for the Marambaia Site.

Variables Monitored for Marambaia Site – Reference Year - 2009					
Reference Month / Year	Amount of LFG send to Flare (m3)	Methane average fraction (%)	Flare Efficiency (%)	Electric Energy Consumption (kWh)	Amount of LPG used (m3)
January / 2009	93.425,04	20,56	99,99%	413	2,07E-07
February / 2009	30.511,93	15,87	99,99%	531	5,09E-07
March / 2009	87.901,57	18,85	99,99%	794	2,23E-07
April / 2009	125.601,90	20,44	99,99%	1.040	7,95E-08
May / 2009	114.765,26	16,48	99,99%	965	1,27E-07
June / 2009	128.775,40	17,15	99,99%	1.001	7,95E-08
July / 2009	121.743,92	17,08	99,99%	861,00	7,95E-08
August / 2009	129.626,07	17,42	99,99%	800,71	7,95E-08
September / 2009	104.800,01	16,09	99,99%	930,00	1,43E-07
October / 2009	168.542,11	18,65	99,99%	815,08	2,23E-07
November / 2009	121.743,92	20,57	99,99%	715,00	1,43E-07
December / 2009	48.774,96	22,58	99,99%	408,00	1,11E-07

Table 9 - Data Monitored for Marambaia Site in 2009

4.4. SUMMARY OF THE PROJECT VARIABLES

Summary of the Project Variables – Reference Year - 2009					
Local	Amount (m3) of LFG send to Flare in reference year	Average of Methane fraction (%) in Reference year	Average of Flare Efficiency (%) in reference year	Amount (kWh) of Electric Energy Consumption in reference year	Amount (m3) of LPG used in reference year
Marambaia Site	1.276.212,08	18,48%	99,99%	9.273,79	2,00E-06
Adrianópolis Site	14.116.259,48	39,74%	99,99%	76.628,00	3,21E-06

Table 10 - Summary of the project variables

4.5. CALCULATION OF EMISSION REDUCTION FOR ADRIANOPOLIS

The table below shows the values for emission reduction in Adrianopolis site:

novagerar	Calculation ERs - Adrianopolis Site Reference Year - 2009				
Reference Month / Year	Total Gross ERs (tCO2e)	Project Emission		Total Net ERs (tCO2e)	ERs Accumuladed (tCO2e)
		Electrial Energy (tCO2e)	LPG (tCO2e)		
January / 2009	6.860,97	0,62	1,98E-10	6.860,35	6.860,35
February / 2009	5.104,04	0,44	6,94E-10	5.103,60	11.963,95
March / 2009	7.072,60	0,59	2,98E-10	7.072,02	19.035,97
April / 2009	8.273,58	1,04	1,88E-09	8.272,54	27.308,51
May / 2009	8.594,18	2,16	5,95E-10	8.592,02	35.900,53
June / 2009	7.978,67	1,90	2,08E-09	7.976,77	43.877,30
July / 2009	7.769,18	1,57	1,59E-09	7.767,61	51.644,91
August / 2009	4.070,85	1,01	9,03E-09	4.069,84	55.714,75
September / 2009	5.613,36	0,64	1,39E-09	5.612,72	61.327,47
October / 2009	6.761,13	0,97	9,92E-10	6.760,16	68.087,63
November / 2009	6.078,56	0,86	2,98E-10	6.077,70	74.165,33
December / 2009	5.730,89	1,05	9,92E-10	5.729,83	**79.895,16**

Table 11 - Values for emission reduction in Adrianopolis site in 2009

4.6. CALCULATION OF EMISSION REDUCTION FOR MARAMBAIA SITE

The table below shows the values for emission reduction in Marambaia site:

novagerar	Calculation ERs - Marambaia Site Reference Year - 2009						
Reference Month / Year	Total Gross ERs - without EAF (tCO2e)	EAF = 20% (tCO2e)	Total Gross Ers (tCO2e)	Project Emission (tCO2e)		Total Net ERs (tCO2e)	ERs Acumulated (tCO2e)
				Electrial Energy (tCO2e)	LPG (tCO2e)		
January / 2009	311,19	62,24	248,95	0,088	1,29E-09	248,86	248,86
February / 2009	85,59	17,12	68,47	0,033	3,17E-09	68,43	317,30
March / 2009	255,56	51,11	204,45	0,163	2,98E-10	204,29	521,58
April / 2009	386,04	77,21	308,83	0,203	4,96E-10	308,63	830,21
May / 2009	262,92	52,58	210,34	0,266	7,94E-10	210,07	1.040,29
June / 2009	323,30	64,66	258,64	0,256	4,96E-10	258,39	1.298,67
July / 2009	292,37	58,47	233,90	0,166	4,96E-10	233,73	1.532,40
August / 2009	336,23	67,25	268,99	0,138	4,96E-10	268,85	1.801,25
September / 2009	259,09	51,82	207,27	0,111	8,93E-10	207,16	2.008,41
October / 2009	355,94	71,19	284,75	0,132	1,39E-09	284,62	2.293,03
November / 2009	358,91	71,78	287,13	0,117	8,93E-10	287,01	2.580,04
December / 2009	164,03	32,81	131,22	0,081	6,94E-10	131,14	2.711,18

Table 12 - Values for emission reduction in Marambaia site in 2009

4.7. SUMMARY OF THE EMISSION REDUCTION OF THE PROJECT

Volume required of the Emission Reduction for January to December, 2009 are calculated in **82,606 tCO2e.**

novagerar	Summary ERs of the Project Activity Reference Year: 2009			
Reference Month / Year	*ERs Adrianopolis (tCO2e)*	*ERs Marambaia (tCO2e)*	*Total ERs (tCO2e)*	*ERs Accumuladed (tCO2e)*
January / 2009	6.860,35	248,86	7.109,21	7.109,21
February / 2009	5.103,60	68,36	5.171,96	12.281,18
March / 2009	7.072,02	204,29	7.276,30	19.557,48
April / 2009	8.272,54	308,63	8.581,17	28.138,65
May / 2009	8.592,02	210,07	8.802,09	36.940,74
June / 2009	7.976,77	258,39	8.235,16	45.175,90
July / 2009	7.767,61	233,73	8.001,34	53.177,24
August / 2009	4.069,84	268,85	4.338,68	57.515,92
September / 2009	5.612,72	207,16	5.819,88	63.335,80
October / 2009	6.760,16	284,62	7.044,78	70.380,58
November / 2009	6.077,70	287,01	6.364,71	76.745,29
December / 2009	5.729,83	131,14	5.860,98	82.606
Summary of Emission Reduction (tCO2e) in reference year (2008)				82.606

Table 13– Summary of the emission reduction (tCO2e) in 2009