



**CLEAN DEVELOPMENT MECHANISM
CDM MONITORING REPORT FROM THE
*ESTRE'S PAULÍNIA LANDFILL GAS PROJECT (EPLGP)***

MONITORING PERIOD:
FROM 01 FEBRUARY, 2007 TO 31 JULY, 2007

2ND VERIFICATION – VERSION 1
06 AUGUST 2007

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Initial remark (referring to Decision 17/CP.7, Annex H, paragraph 54, 56, 58 and 60)

The monitoring plan contained in the registered project design document is to be implemented by the project participants and the monitoring report shall be written in accordance with this registered monitoring plan.

The monitoring plan shall be based on a previously approved monitoring methodology or a new methodology.

The implementation of the registered monitoring plan and its revision, as applicable, shall be a condition for verification, certification and issuance of CERs.

SECTION A. General project activity information

A.1 Title of the project activity:

ESTRE's Paulínia Landfill Gas Project (EPLGP)

A.2. CDM registration number:

The ESTRE's Paulínia Landfill Gas Project (EPLGP) was registered in March 3rd, 2006, reference number 0165.

A.3. Short description of the project activity:

A.3.1. Real Project Implementation

EPLGP is a landfill gas collection and flare project in Brazil. The project's core idea is to avoid methane emissions from the landfill managed by ESTRE in Paulínia municipality. This goal will be achieved through installing an active gas recovery with a flaring system in the landfill.

The project aimed to enhance the previous installed passive vent system, in order to increase the efficiency in collecting the gas and flare it systematically, continuously monitoring the operation. For that purpose, an active recovery system was installed in the landfill, as well as a flare facility. This comprises the connection of well heads through pipes, which are connected to a blower, where the gas is sent to the flare system.

A.3.2. Changes against the PDD

No major changes were made.

A.4. Monitoring period:

From February 1st, 2007 to July 31st, 2007.

A.5. Methodology applied to the project activity (incl. version number):

A.5.1. Baseline methodology:

AM0003 ver.3 – Simplified financial analysis for landfill gas capture projects.

A.5.2. Monitoring methodology:

AM0003 ver.3 – Simplified financial analysis for landfill gas capture projects.

A.6. Intended deviations or revisions to the registered PDD:

No deviation to the registered PDD is requested.

A.7. Intended deviations or revisions to the registered monitoring plan (Decision 17/CP.7, Annex H, paragraph 57 to be considered):

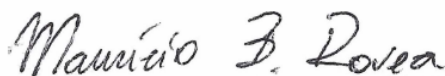
No deviation to the registered PDD is requested.

A.8. Changes since last verification:

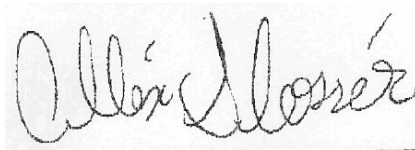
In the period between May 5th and June 29th, 2007, the landfill gas flow was metered by a backup system. During the rest of the verification period no major change were made.

A.9. Person(s) responsible for the preparation and submission of the monitoring report:

This monitoring report was developed and reviewed by:



Mauricio Bencic Rovea
Econergy Brasil Ltda
Avenida Angélica, 2530 – conjunto 111
São Paulo – SP
Brazil
CEP: 01228-200
Phone: + 55 (11) 3555-5700
Fax: + 55 (11) 3555-5735
<http://www.econergy.com>



Alex Schlosser
ESTRE Ambiental S/A
Avenida Pres. Juscelino Kubitscheck,
1803 – 4º andar, sala 11
São Paulo – SP
Brazil
CEP: 04543-900
Phone: + 55 (11) 3706-8833
Fax: + 55 (11) 3078-3355
<http://www.estre.com.br>

SECTION B. Key monitoring activities according to the monitoring plan for the monitoring period stated in A.4. (referring to Decision 17/CP.7, Annex H, paragraph 53 (a) – (d) on data collection and archiving)

B.1. Monitoring equipment:

The monitoring equipments of the EPLGP and their location are presented in Annex I below. In the morning of May 5th, 2007, the flow meter stopped making measures. After the check up suggested by the manufacturer, a problem was detected with the main flow meter. While the flow meter was under maintenance (period between May 5th and June 27th, 2007) the flow measurements were made by calibrated backup flow meters (items 2, 4 and 6 in Figure 2), showed in the Figure 1 below.

It's important to emphasis that all monitoring equipments (except the main flow meter) were running properly during this period, and the methane flow continued to be flared, evidenced by the flare operation.

According to the biogas facility builder, these backups flow meters are less precise and this is the reason why it's installed another meter. However, after the main flow meter was reinstalled, we made a comparison between the measurements of these 3 backup flow meters and the main flow meter, during a month. The difference is around 12.00% with a minimum difference of 7.94% and a maximum difference of 14.24%. In order to have a conservative approach, for this period (between May 5th and June 27th, 2007) it was used the backup flow meter readings discounting the maximum difference (in percentage) between backup flow meters and the main flow meter. The other periods (from February 1st to May 4th, 2007 and June 30th to July 31st, 2007) the main flow meter was collecting the flow data normally.



Figure 1. Backup flow meters

The temperature data, pressure data, electricity consumption data, flow data and methane (CH₄) content data is measured on-line and hourly compiled in an Excel data sheet. All the data transmission and compilation is made electronically to the calculation spreadsheet.

The flare efficiency is measured at least quarterly by an independent company specialized in gas analysis.

B.1.2. Table providing information on the equipment used (including type, manufacturer, model, serial number, location, information to specific uncertainty and range):

Type	Manufacturer	Model	Serial Number	Location	Error / Uncertainty	Range
Flow Meter	RMG Messtechnik	TRZ-03	32392	Container – main pipeline	Error: 0.22% Uncertainty: 0.33%	0-6500m ³
Electricity meter from the grid	Yokogawa	UPD200-2480M	40962200099	Primary cabins' electric panel	Error: 0.3% Uncertainty: 0.4%	300V 5A
Electricity meter from the diesel generation	Yokogawa	UPD200-2480M	40962200082	Generator's electric panel	Error: 0.2% Uncertainty: 0.4%	300V 5A
Methane content analyser	SIEMENS	ULTRAMAT23	7MB2335 Made in 2006	Container – analysis room	Error: 0.2079% Uncertainty: 0.0346%	O ₂ - 0-50% CH ₄ 0-100%
Pressure meter	ABB	264HS	6406013005 Made in 2006	Container – main pipeline	Error: 0.075%	0-250 mbar
Temperature meter	PT100	Y1-SEM 203/P	06-06829	Container – main pipeline	Error: 0.07% Uncertainty: 0.04%	0-250°C
Flow meter line “A”	ABB	264DSE	6406013218	Container – line “A”	Error: 0.075%	0-16kPa
Flow meter line “B”	ABB	264DSE	6406013216	Container – line “B”	Error: 0.075%	0-16kPa
Flow meter line “C”	ABB	264DSE	6406013217	Container – line “C”	Error: 0.075%	0-16kPa



B.1.3. Calibration procedures:

According to CGR Paulínia's Environmental Management, the calibration frequency is as presented below:

Type	Calibration Frequency	Date of the last external calibration	Date of the next external calibration
Flow Meter	7 years	30-June-2007	30-June-2014
Electricity meter from the grid	Annual	14-September-2006	14-September-2007
Electricity meter from the diesel generation	Annual	14-September-2006	14-September-2007
Methane content analyser	Annual	09-January-2007	09-January-2008
Pressure meter	2 years	09-May-2006	09-May-2008
Temperature meter	Annual	13-November-2006	13-November-2007
Flow meter line "A"	2 years	10-May-2006	10-May-2008
Flow meter line "B"	2 years	12-May-2006	12-May-2008
Flow meter line "C"	2 years	11-May-2006	11-May-2008



B.1.4. Involvement of Third Parties:

EPLGP has one third party involved: Bioagri, a company hired to make the analysis of methane content in the exhaust gas periodically. The last collection was made on May 30th, 2007.

B.2. Data collection (accumulated data for the whole monitoring period):

B.2.1. List of fixed default values:

Global Warming Potential of CH₄ (GWP_{CH_4}) = 21 tCO₂e/tCH₄;

Emission Factor of the S-SE-CO Brazilian Grid (EF) = 0.2677 tCO₂e/MWh;

Emission factor from the diesel (EF_{diesel}) = 0.8 tCO₂e/MWh;

Methane Destruction in the Baseline = 20% of total gas collected;

Density of Methane, at STP (D_{CH_4}) = 0.0007168 tons/m³;

Decay constant (k) = 0.12/year;

Methane generation potential (L_0) = 0.057 tCH₄/t_{waste}.

B.2.2. List of variables:

$Q_{biogas, flares}$ = amount of biogas collected and sent to flares (Nm³);

$\%_{CH_4}$ = percentage of methane in the biogas (% volume);

EG_y = amount of electricity imported from the grid (MWh);

EG_{diesel} = Electricity consumption from the diesel generation by the project activity (kWh);

FE = Flare Efficiency (calculated using data from methane sent to flares and methane content in the exhaust gas).

B.2.3. Data concerning GHG emissions by sources of the project activity (referring to paragraph 53(a)):

According to AM0003 – version 03, no project emissions need do be addressed.

B.2.4. Data concerning GHG emissions by sources of the baseline (referring to paragraph 53(b)):

The following table presents the collected data from the period between 01/02/2007 and 31/07/2007.



Date (dd/mm/yyyy)	Temperature (K)	Absolute pressure (bar)	Collected biogas (Nm ³)	Methane (%)	Flare Efficiency (%)
1/2/2007	339.5570	0.9726	68,712.8291	55.6	99.99%
2/2/2007	339.1680	0.9690	67,358.9227	55.1	99.99%
3/2/2007	339.5410	0.9693	67,775.0819	55.2	99.99%
4/2/2007	339.8160	0.9692	66,145.1351	55.0	99.99%
5/2/2007	339.9790	0.9713	68,019.9241	54.4	99.99%
6/2/2007	338.8420	0.9757	67,075.0543	55.2	99.99%
7/2/2007	339.1670	0.9690	66,866.3248	55.3	99.99%
8/2/2007	337.4750	0.9690	67,851.6110	56.1	99.99%
9/2/2007	337.7520	0.9692	68,529.2003	56.7	99.99%
10/2/2007	339.1100	0.9693	68,793.3607	56.6	99.99%
11/2/2007	337.4830	0.9690	68,298.8279	56.0	99.99%
12/2/2007	336.7020	0.9730	67,501.4951	56.7	99.99%
13/2/2007	336.7630	0.9696	68,091.4863	56.6	99.99%
14/2/2007	338.1080	0.9734	68,164.0070	56.0	99.99%
15/2/2007	338.5750	0.9714	66,785.7155	55.4	99.99%
16/2/2007	339.4000	0.9702	66,741.3825	55.8	99.99%
17/2/2007	340.0610	0.9708	68,114.7012	56.3	99.99%
18/2/2007	340.2660	0.9692	66,019.2753	56.0	99.99%
19/2/2007	339.2900	0.9694	50,829.8865	55.8	99.99%
20/2/2007	338.1490	0.9690	67,492.3982	56.1	99.99%
21/2/2007	339.6010	0.9691	67,218.4536	55.9	99.99%
22/2/2007	339.3740	0.9695	56,389.0831	56.3	99.99%
23/2/2007	340.5420	0.9694	65,994.7249	57.5	99.99%
24/2/2007	340.4380	0.9750	67,855.0722	57.8	99.99%
25/2/2007	339.7300	0.9769	70,089.7023	57.8	99.99%
26/2/2007	338.8670	0.9699	67,681.9345	57.0	99.99%
27/2/2007	337.6920	0.9697	68,019.5163	57.0	99.99%
28/2/2007	337.3520	0.9695	68,933.7623	57.4	99.99%
1/3/2007	339.1120	0.9747	65,465.6314	57.8	99.99%
2/3/2007	339.6310	0.9728	68,503.5557	58.0	99.99%
3/3/2007	339.8790	0.9690	68,547.3131	58.0	99.99%
4/3/2007	339.5890	0.9690	67,967.5494	57.5	99.99%
5/3/2007	340.3600	0.9728	67,532.6054	56.5	99.99%
6/3/2007	340.6360	0.9716	68,440.1238	57.2	99.99%
7/3/2007	340.6830	0.9801	67,998.1303	57.4	99.99%
8/3/2007	340.7880	0.9721	68,329.4849	57.1	99.99%
9/3/2007	340.1590	0.9706	68,280.9930	57.5	99.99%



10/3/2007	339.9580	0.9708	67,989.1088	57.3	99.99%
11/3/2007	339.5040	0.9697	67,933.6056	57.2	99.99%
12/3/2007	339.6840	0.9786	68,318.9039	56.9	99.99%
13/3/2007	340.0900	0.9702	67,897.6502	57.0	99.99%
14/3/2007	338.8440	0.9901	67,875.5861	57.3	99.99%
15/3/2007	338.9750	0.9721	69,181.8677	57.8	99.99%
16/3/2007	337.4250	0.9701	69,899.0676	58.1	99.99%
17/3/2007	338.1550	0.9718	70,443.5504	58.3	99.99%
18/3/2007	336.8470	0.9708	70,706.4574	58.1	99.99%
19/3/2007	335.0660	0.9706	70,747.5550	58.4	99.99%
20/3/2007	336.6760	0.9712	70,375.0168	58.0	99.99%
21/3/2007	337.4470	0.9755	69,481.0898	57.4	99.99%
22/3/2007	337.0290	0.9702	72,727.1216	57.8	99.99%
23/3/2007	338.1890	0.9719	74,471.2845	58.2	99.99%
24/3/2007	338.8690	0.9805	75,073.0707	58.1	99.99%
25/3/2007	338.7530	0.9713	74,170.0268	57.8	99.99%
26/3/2007	339.1150	0.9716	75,194.7860	57.5	99.99%
27/3/2007	339.7670	0.9721	74,657.2996	57.6	99.99%
28/3/2007	340.0910	0.9782	74,465.0616	57.7	99.99%
29/3/2007	339.7410	0.9708	74,324.4277	57.8	99.99%
30/3/2007	339.4100	0.9724	74,558.1331	58.1	99.99%
31/3/2007	339.7680	0.9718	74,402.7839	57.9	99.99%
1/4/2007	339.0090	0.9775	76,809.6394	57.2	99.99%
2/4/2007	339.2020	0.9785	77,894.0444	57.0	99.99%
3/4/2007	338.9730	0.9748	78,411.4735	57.0	99.99%
4/4/2007	338.8640	0.9791	76,049.3995	57.1	99.99%
5/4/2007	337.8470	1.0237	76,094.4170	57.4	99.99%
6/4/2007	337.3880	1.0003	76,533.7373	57.2	99.99%
7/4/2007	337.1100	0.9717	78,780.5124	57.0	99.99%
8/4/2007	337.6530	0.9740	78,389.0792	57.0	99.99%
9/4/2007	336.8170	0.9765	77,542.9736	57.1	99.99%
10/4/2007	339.7360	0.9785	77,996.7198	57.2	99.99%
11/4/2007	338.3400	0.9755	78,039.5656	57.0	99.99%
12/4/2007	337.9518	0.9740	78,108.4953	57.1	99.99%
13/4/2007	337.5100	0.9915	77,853.5459	57.9	99.99%
14/4/2007	337.5736	0.9788	78,074.9826	57.3	99.99%
15/4/2007	337.7010	0.9719	78,123.6281	57.0	99.99%
16/4/2007	337.7400	0.9757	78,388.8809	56.9	99.99%
17/4/2007	336.6530	0.9715	78,381.2385	56.8	99.99%
18/4/2007	336.7980	0.9856	78,617.0370	57.4	99.99%
19/4/2007	336.9970	0.9828	78,708.9560	57.9	99.99%



20/4/2007	337.2670	0.9717	78,666.1906	57.8	99.99%
21/4/2007	337.1940	0.9822	79,447.1012	57.5	99.99%
22/4/2007	337.3540	0.9807	78,739.7125	57.1	99.99%
23/4/2007	337.7640	0.9729	78,585.3393	57.5	99.99%
24/4/2007	337.6970	0.9767	78,619.5223	57.5	99.99%
25/4/2007	337.4520	0.9766	78,707.5459	57.3	99.99%
26/4/2007	332.0479	0.9917	74,995.1404	56.7	99.99%
27/4/2007	333.8770	1.0251	66,438.3197	56.2	99.99%
28/4/2007	333.6860	1.0409	73,596.1365	57.2	99.99%
29/4/2007	334.1670	0.9725	77,045.5653	55.5	99.99%
30/4/2007	334.8330	0.9788	77,571.6429	56.4	99.99%
1/5/2007	334.6390	0.9770	78,662.0307	56.3	99.99%
2/5/2007	334.6180	0.9721	78,405.5278	56.1	99.99%
3/5/2007	334.8700	0.9873	68,931.8334	55.9	99.99%
4/5/2007	335.2000	0.9713	77,595.8354	57.4	99.99%
5/5/2007	333.9473	0.9711	41,746.0000	57.4	99.99%
6/5/2007	336.0200	0.9734	50,998.0000	58.7	99.99%
7/5/2007	335.9679	0.9722	41,233.0000	58.3	99.99%
8/5/2007	335.8398	0.9700	45,613.0000	58.3	99.99%
9/5/2007	332.9150	0.9690	44,747.0000	58.2	99.99%
10/5/2007	332.1210	0.9690	45,813.0000	58.1	99.99%
11/5/2007	333.7523	0.9690	49,592.0000	58.4	99.99%
12/5/2007	335.8420	0.9690	45,428.0000	58.3	99.99%
13/5/2007	336.6190	0.9690	44,688.0000	57.6	99.99%
14/5/2007	336.1470	0.9690	43,557.0000	57.9	99.99%
15/5/2007	335.5100	0.9708	54,179.0000	57.7	99.99%
16/5/2007	334.8630	0.9709	74,249.0000	55.8	99.99%
17/5/2007	336.4150	0.9710	73,304.0000	55.5	99.99%
18/5/2007	336.4900	0.9704	72,798.0000	55.8	99.99%
19/5/2007	334.3110	0.9887	72,687.0000	54.7	99.99%
20/5/2007	334.9380	0.9691	70,257.0000	53.6	99.99%
21/5/2007	335.4070	0.9741	57,853.0000	55.5	99.99%
22/5/2007	331.6498	0.9699	71,949.0000	55.1	99.99%
23/5/2007	330.7990	0.9696	70,355.0000	56.5	99.99%
24/5/2007	330.4350	0.9699	71,568.0000	56.2	99.99%
25/5/2007	330.0420	0.9970	70,480.0000	56.7	99.99%
26/5/2007	331.1340	0.9698	73,045.0000	56.9	99.99%
27/5/2007	330.1910	0.9696	72,447.0000	56.5	99.99%
28/5/2007	331.7250	0.9703	70,457.0000	56.5	99.99%
29/5/2007	331.5800	0.9710	71,913.0000	56.3	99.99%
30/5/2007	329.6400	0.9812	61,551.0000	57.0	99.98%



31/5/2007	330.2290	0.9694	69,552.0000	56.6	99.98%
1/6/2007	331.9030	0.9708	69,008.0000	57.2	99.98%
2/6/2007	330.8400	0.9756	28,319.0000	56.8	99.98%
3/6/2007	331.9030	0.9708	70,991.0000	57.2	99.98%
4/6/2007	329.5170	0.9696	71,269.0000	57.3	99.98%
5/6/2007	330.1900	0.9701	70,128.0000	57.2	99.98%
6/6/2007	330.0000	0.9748	67,098.0000	57.2	99.98%
7/6/2007	332.2090	0.9712	70,024.0000	57.3	99.98%
8/6/2007	333.5160	0.9703	70,187.0000	57.1	99.98%
9/6/2007	333.4280	0.9711	70,134.0000	56.8	99.98%
10/6/2007	333.8200	0.9700	67,567.0000	55.8	99.98%
11/6/2007	333.8320	0.9697	65,271.0000	56.4	99.98%
12/6/2007	333.1510	0.9701	67,253.0000	57.2	99.98%
13/6/2007	332.9720	0.9727	66,957.0000	57.2	99.98%
14/6/2007	332.1025	0.9753	55,219.0000	57.1	99.98%
15/6/2007	333.0430	0.9710	66,716.0000	56.4	99.98%
16/6/2007	333.6700	0.9710	63,223.0000	56.7	99.98%
17/6/2007	333.6290	0.9710	62,091.0000	56.9	99.98%
18/6/2007	334.0318	0.9711	65,063.0000	56.6	99.98%
19/6/2007	333.9070	0.9848	66,758.0000	56.6	99.98%
20/6/2007	332.9480	0.9721	64,374.0000	56.7	99.98%
21/6/2007	333.1660	0.9710	68,333.0000	57.6	99.98%
22/6/2007	332.6280	0.9710	70,582.0000	57.6	99.98%
23/6/2007	332.7640	0.9710		57.7	99.98%
24/6/2007	333.3560	0.9710		57.2	99.98%
25/6/2007	332.2140	0.9710		57.3	99.98%
26/6/2007	332.5840	0.9710	69,400.0000	57.6	99.98%
27/6/2007	333.4290	0.9710	68,434.0000	57.4	99.98%
28/6/2007	333.6800	0.9775	66,777.0000	57.5	99.98%
29/6/2007	332.6230	0.9741	28,978.0000	56.4	99.98%
30/6/2007	331.2972	0.9781	78,518.5165	56.0	99.98%
1/7/2007	331.1782	0.9717	75,775.9296	55.9	99.98%
2/7/2007	330.5930	0.9791	76,930.3610	55.6	99.98%
3/7/2007	331.1740	0.9731	79,484.5307	55.9	99.98%
4/7/2007	331.6210	0.9750	79,056.9426	56.2	99.98%
5/7/2007	332.0170	0.9768	79,798.2578	56.5	99.98%
6/7/2007	332.6400	0.9754	79,329.1721	56.5	99.98%
7/7/2007	332.8260	0.9849	80,025.1395	56.7	99.98%
8/7/2007	332.2800	0.9765	79,211.6253	55.9	99.98%
9/7/2007	332.7750	0.9749	79,153.6983	56.1	99.98%
10/7/2007	332.4800	0.9841	78,567.5653	56.7	99.98%



11/7/2007	332.4000	1.0136	76,068.7683	56.8	99.98%
12/7/2007	331.3760	0.9845	80,150.4930	56.4	99.98%
13/7/2007	332.7810	0.9717	79,443.3328	56.5	99.98%
14/7/2007	333.3740	0.9745	79,428.1161	56.9	99.98%
15/7/2007	333.8410	0.9861	79,417.3110	56.3	99.98%
16/7/2007	329.9800	0.9728	72,032.6032	56.4	99.98%
17/7/2007	328.4840	0.9795	78,476.5530	57.5	99.98%
18/7/2007	328.8630	1.0253	70,060.8312	58.1	99.98%
19/7/2007	328.7290	0.9719	80,877.3769	57.6	99.98%
20/7/2007	329.5170	0.9717	80,269.9889	57.7	99.98%
21/7/2007	330.8660	0.9734	80,360.0883	57.4	99.98%
22/7/2007	331.7870	0.9713	79,798.4442	57.2	99.98%
23/7/2007	329.4980	0.9731	80,223.1270	57.5	99.98%
24/7/2007	329.5970	0.9725	80,674.4221	58.0	99.98%
25/7/2007	327.5700	0.9729	81,559.2262	58.0	99.98%
26/7/2007	327.5320	0.9744	81,429.8588	57.7	99.98%
27/7/2007	327.5360	0.9724	81,757.8118	57.9	99.98%
28/7/2007	326.3500	0.9965	72,336.9199	58.4	99.98%
29/7/2007	326.0610	0.9710	70,604.5058	58.2	99.98%
30/7/2007	327.1480	0.9783	77,378.7492	58.1	99.98%
31/7/2007	328.9800	0.9734	76,155.7446	57.9	99.98%

B.2.5. Data concerning leakage (referring to paragraph 53(c)):

The following data was registered according with the table below:

Date (dd/mm/yyyy)	Grid electricity consumption (MWh)	Electricity consumption from the diesel generators (MWh)
1/2/2007	1.6940	0.0000
2/2/2007	1.6630	0.0000
3/2/2007	1.6510	0.0000
4/2/2007	1.6120	0.0000
5/2/2007	1.6370	0.0000
6/2/2007	1.3900	0.1410
7/2/2007	1.6350	0.0000
8/2/2007	1.6630	0.0000
9/2/2007	1.7080	0.0000
10/2/2007	1.6650	0.0000
11/2/2007	1.6560	0.0000
12/2/2007	1.6360	0.0000
13/2/2007	1.6960	0.0000
14/2/2007	1.6980	0.0000
15/2/2007	1.6850	0.0000
16/2/2007	1.6800	0.0000
17/2/2007	1.6950	0.0000
18/2/2007	1.6660	0.0000
19/2/2007	1.2880	0.0000
20/2/2007	1.7110	0.0000
21/2/2007	1.7080	0.0000
22/2/2007	1.5180	0.0000
23/2/2007	1.6750	0.0010
24/2/2007	1.7220	0.0000
25/2/2007	1.7660	0.0000
26/2/2007	1.7070	0.0000
27/2/2007	1.7370	0.1020
28/2/2007	1.7500	0.0000
1/3/2007	0.0450	0.0230
2/3/2007	1.7190	0.0000
3/3/2007	1.7370	0.0000
4/3/2007	1.7020	0.0000
5/3/2007	1.6910	0.0000



6/3/2007	1.7360	0.0000
7/3/2007	1.7630	0.0000
8/3/2007	1.7330	0.0000
9/3/2007	1.6560	0.0000
10/3/2007	1.6650	0.0000
11/3/2007	1.6440	0.0000
12/3/2007	1.6250	0.0000
13/3/2007	1.6660	0.0000
14/3/2007	1.6260	0.1140
15/3/2007	1.7010	0.0000
16/3/2007	1.6920	0.0000
17/3/2007	1.7030	0.0000
18/3/2007	1.6950	0.0000
19/3/2007	1.7810	0.0000
20/3/2007	1.7010	0.0000
21/3/2007	1.6610	0.0000
22/3/2007	1.6990	0.0000
23/3/2007	1.7830	0.0000
24/3/2007	1.8000	0.0000
25/3/2007	1.7850	0.0000
26/3/2007	1.7970	0.0000
27/3/2007	1.7800	0.0000
28/3/2007	1.7780	0.0000
29/3/2007	1.7820	0.0000
30/3/2007	1.7750	0.0000
31/3/2007	1.7580	0.0000
1/4/2007	1.7990	0.0000
2/4/2007	1.7830	0.0000
3/4/2007	1.8000	0.0000
4/4/2007	1.8040	0.0000
5/4/2007	1.8020	0.0000
6/4/2007	1.8320	0.0000
7/4/2007	1.8440	0.0000
8/4/2007	1.8460	0.0000
9/4/2007	1.8480	0.0000
10/4/2007	1.8150	0.0000
11/4/2007	1.8390	0.0000
12/4/2007	1.8220	0.0000
13/4/2007	1.8100	0.0000
14/4/2007	1.8140	0.0380
15/4/2007	1.8200	0.0000



16/4/2007	1.8020	0.0000
17/4/2007	1.8130	0.0000
18/4/2007	1.8300	0.0000
19/4/2007	1.8200	0.0000
20/4/2007	1.8300	0.0000
21/4/2007	1.8630	0.0000
22/4/2007	1.8440	0.0000
23/4/2007	1.8480	0.0000
24/4/2007	1.8400	0.0000
25/4/2007	1.8700	0.0000
26/4/2007	1.7500	0.0000
27/4/2007	1.7660	0.0000
28/4/2007	1.7800	0.0000
29/4/2007	1.8100	0.0000
30/4/2007	1.7900	0.0000
1/5/2007	1.7920	0.0000
2/5/2007	1.7650	0.0000
3/5/2007	1.7380	0.0000
4/5/2007	1.7700	0.0000
5/5/2007	1.0250	0.0000
6/5/2007	1.3970	0.0000
7/5/2007	1.1080	0.0000
8/5/2007	1.3270	0.0000
9/5/2007	1.3320	0.0000
10/5/2007	1.3400	0.0000
11/5/2007	1.2900	0.0000
12/5/2007	1.3200	0.0000
13/5/2007	1.3200	0.0000
14/5/2007	1.3200	0.0000
15/5/2007	1.4430	0.0000
16/5/2007	1.7350	0.0000
17/5/2007	1.7270	0.0000
18/5/2007	1.7310	0.0000
19/5/2007	1.7190	0.0000
20/5/2007	1.6900	0.0000
21/5/2007	1.3730	0.0000
22/5/2007	1.6750	0.0000
23/5/2007	1.7200	0.0000
24/5/2007	1.7110	0.0000
25/5/2007	1.7200	0.0000
26/5/2007	1.7100	0.0000



27/5/2007	1.7300	0.0000
28/5/2007	1.7050	0.0000
29/5/2007	1.7110	0.0000
30/5/2007	1.5100	0.0000
31/5/2007	1.6760	0.0000
1/6/2007	1.6990	0.0000
2/6/2007	1.6570	0.0000
3/6/2007	1.6990	0.0000
4/6/2007	1.7110	0.0000
5/6/2007	1.6960	0.0000
6/6/2007	1.5880	0.0000
7/6/2007	1.7110	0.0000
8/6/2007	1.7090	0.0000
9/6/2007	1.7500	0.0000
10/6/2007	1.6700	0.0000
11/6/2007	1.6100	0.0000
12/6/2007	1.6500	0.0000
13/6/2007	1.6330	0.0000
14/6/2007	1.5020	0.0000
15/6/2007	1.8100	0.0000
16/6/2007	1.7720	0.0000
17/6/2007	1.7460	0.0000
18/6/2007	1.7870	0.0000
19/6/2007	1.8200	0.0000
20/6/2007	1.7700	0.0000
21/6/2007	1.6140	0.0000
22/6/2007	1.5760	0.0000
23/6/2007	1.5700	0.0000
24/6/2007	1.5670	0.0000
25/6/2007	1.5780	0.0000
26/6/2007	1.5900	0.0000
27/6/2007	1.5760	0.0000
28/6/2007	1.5200	0.0000
29/6/2007	1.8000	0.0000
30/6/2007	1.7600	0.0000
1/7/2007	1.7050	0.0000
2/7/2007	1.7340	0.0000
3/7/2007	1.7920	0.0000
4/7/2007	1.7600	0.0000
5/7/2007	1.7860	0.0000
6/7/2007	1.7910	0.0000

7/7/2007	1.7940	0.0000
8/7/2007	1.7820	0.0000
9/7/2007	1.7820	0.0000
10/7/2007	1.7670	0.0000
11/7/2007	1.7410	0.0000
12/7/2007	1.8100	0.0000
13/7/2007	1.8110	0.0000
14/7/2007	1.8000	0.0000
15/7/2007	1.8110	0.0000
16/7/2007	1.6940	0.0000
17/7/2007	1.8320	0.0000
18/7/2007	1.8100	0.0000
19/7/2007	1.8790	0.0000
20/7/2007	1.7930	0.0000
21/7/2007	1.7840	0.0000
22/7/2007	1.7430	0.0000
23/7/2007	1.7590	0.0000
24/7/2007	1.7880	0.0000
25/7/2007	1.8070	0.0000
26/7/2007	1.8320	0.0000
27/7/2007	1.8340	0.0000
28/7/2007	1.6500	0.0000
29/7/2007	1.6230	0.0000
30/7/2007	1.7170	0.0000
31/7/2007	1.7010	0.0000

B.2.6. Data concerning environmental impacts (referring to paragraph 53(d)):

According to the Operational License, issued on September 4th, 2006 by CETESB, the project must only present, at January 31st of each year, a report containing information about the gas purity, amount of biogas flared and reports about eventual problems or accidents.

SECTION C. Quality assurance and quality control measures

C.1. Documented procedures and management plan:

CGR Paulínia has an ISO 14000 certification, emitted on February 2004 and renewed recently. All procedures are detailed in the management plan.

C.2. Involvement of Third Parties:

There is no third party involved.

C.3. Internal audits and control measures:

CGR Paulínia has an ISO 14000 certification, emitted on February 2004 and renewed recently. All procedures are detailed in the management plan.

Also, Econergy Brasil developed an internal procedure to develop the Monitoring Report. To ensure the conservativeness, data related to baseline emission and data related to leakage and project emissions had different treatments.

SECTION D. Calculation of GHG emission reductions (referring to Decision 17/CP.7, Annex H, paragraph 53 (f) and 59)

D.1. Table providing the formulas used:

The calculation of emission reductions will be made using the formulas listed in the following table:

A	Total LFG collected	m ³
B	Methane content on LFG	% _{methane}
C	Pressure of the LFG	bar
D	Temperature of the LFG	K
$E = B \times \frac{C \times A}{D} \times \frac{273}{1.013} \times 0.0007168$	Methane collected	t _{methane}
F	Flow-meter Error	%
G	Flow-meter Uncertainty	%
H	Temperature meter Error	%
I	Temperature meter Uncertainty	%
J	Pressure meter Error	%
K	Pressure meter Uncertainty	%
$L = \sqrt{(F+G)^2 + (H+I)^2 + (J+K)^2}$	Equivalent error of gas measuring equipment	%
$M = E \cdot (1-L/100)$	Total methane collected corrected	t _{methane}
N	Flare Efficiency	%
$O = M \cdot N$	Total methane destroyed	t _{methane}
$P = O \cdot 21$	Total CO ₂ e destroyed	tCO ₂ e
$Q = P \cdot 0.2$	Total CO ₂ e destroyed in the baseline ¹	tCO ₂ e
$R = P - Q$	CO ₂ e destroyed by EPLGP	tCO ₂ e
S	Total electricity imported	MWh
T	Emission factor of the grid which EPLGP is connected	tCO ₂ e/MWh
U	Grid electricity meter error	%
V	Grid electricity meter uncertainty	%
$W = \sqrt{(U+V)^2}$	Equivalent error of Grid electricity measuring equipment	%
$X = S \cdot T \cdot (1+W/100)$	Emissions due to the import of electricity	tCO ₂ e

¹ During the monitoring period, the Adjustment Factor adopted was 20% (according with AM0003 – version 3) as no obligatory requirement (law/regulation) on LFG destruction was identified in São Paulo State or in Brazil.

Y	Electricity produced by the diesel generators	MWh
Z	Emission factor of the diesel electricity generation	tCO ₂ e/MWh
AA	Grid electricity meter error	%
AB	Grid electricity meter uncertainty	%
$AC = \sqrt{(AA + AB)^2}$	Equivalent error of Grid electricity measuring equipment	%
$AD = Y \cdot Z \cdot (1 + AC/100)$	Emissions due to the production of electricity using diesel	tCO ₂ e
$AE = R - X - AD$	Emissions reductions due to EPLGP	tCO ₂ e

D.2. Description and consideration of measurement uncertainties and error propagation:

The data parameters are measured rounded to four zeros.

The calculus was made with round numbers, using the Microsoft Excel round below tool.

D.3. GHG emission reductions (referring to B.2. of this document):

D.3.1. Project emissions:

According to AM0003 – version 03, project emission does not need to be addressed.

D.3.2. Baseline emissions:

$$BE_{period} = 81,945.4506 \text{ tCO}_2e$$

D.3.3. Leakage:

$$L_{period} = 82.7483 \text{ tCO}_2e$$

D.3.4. Summary of the emissions reductions during the monitoring period:

Parameters	Total
Total methane collected (Nm ³ CH ₄)	7,110,297.7342
Total methane destroyed (Nm ³ CH ₄)	7,109,341.2507
Electricity bought from the grid (MWh)	305.708
Electricity from diesel cogeneration (MWh)	0.419

	TOTAL
Total CO₂e – Baseline Emissions (tCO₂e)	81,945.4506
Total CO₂e – grid electricity consumption (tCO₂e)	82.7483
Total CO₂e - diesel generators consumption (tCO₂e)	0.3373
Total CO₂e – Total emission reductions (tCO₂e)	81,862

Annex 1 – Monitoring equipment location

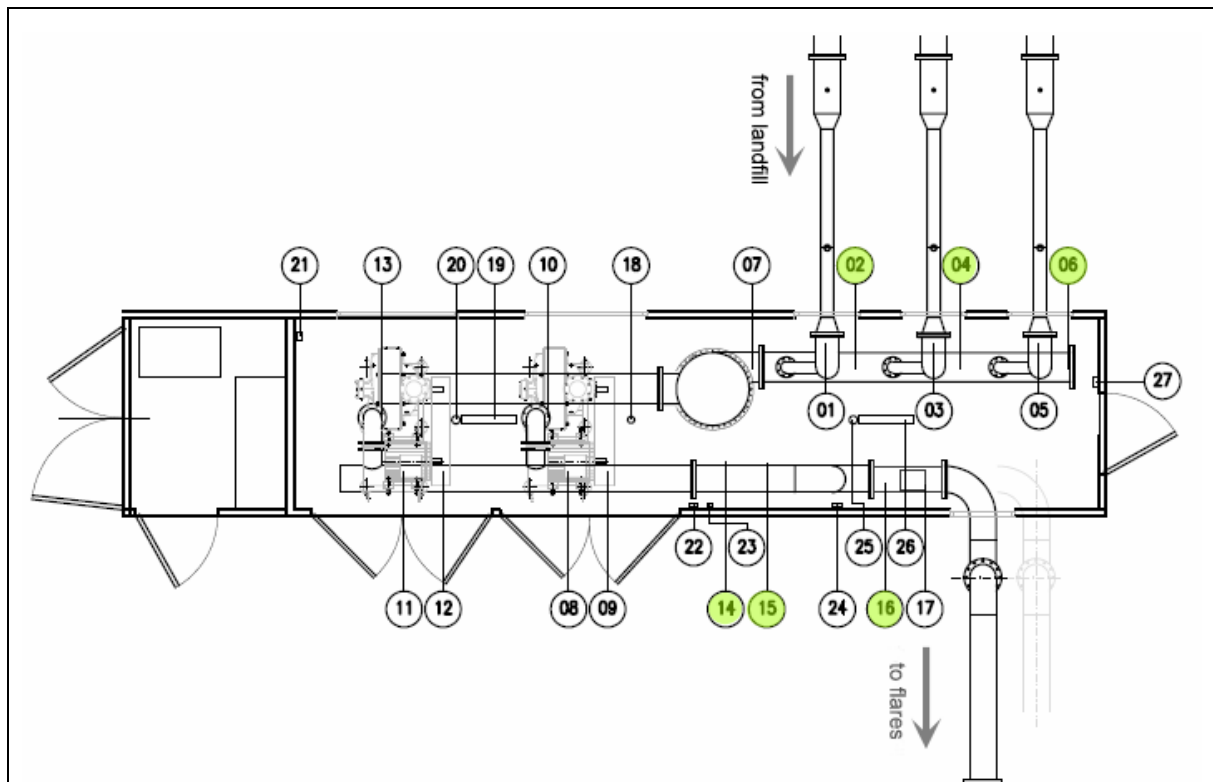


Figure 2. Monitoring equipment location

2	Flow meter
4	Flow meter
6	Flow meter
14	Pressure meter
15	Thermocouple PT100
16	Flow meter TRZ

Annex 2

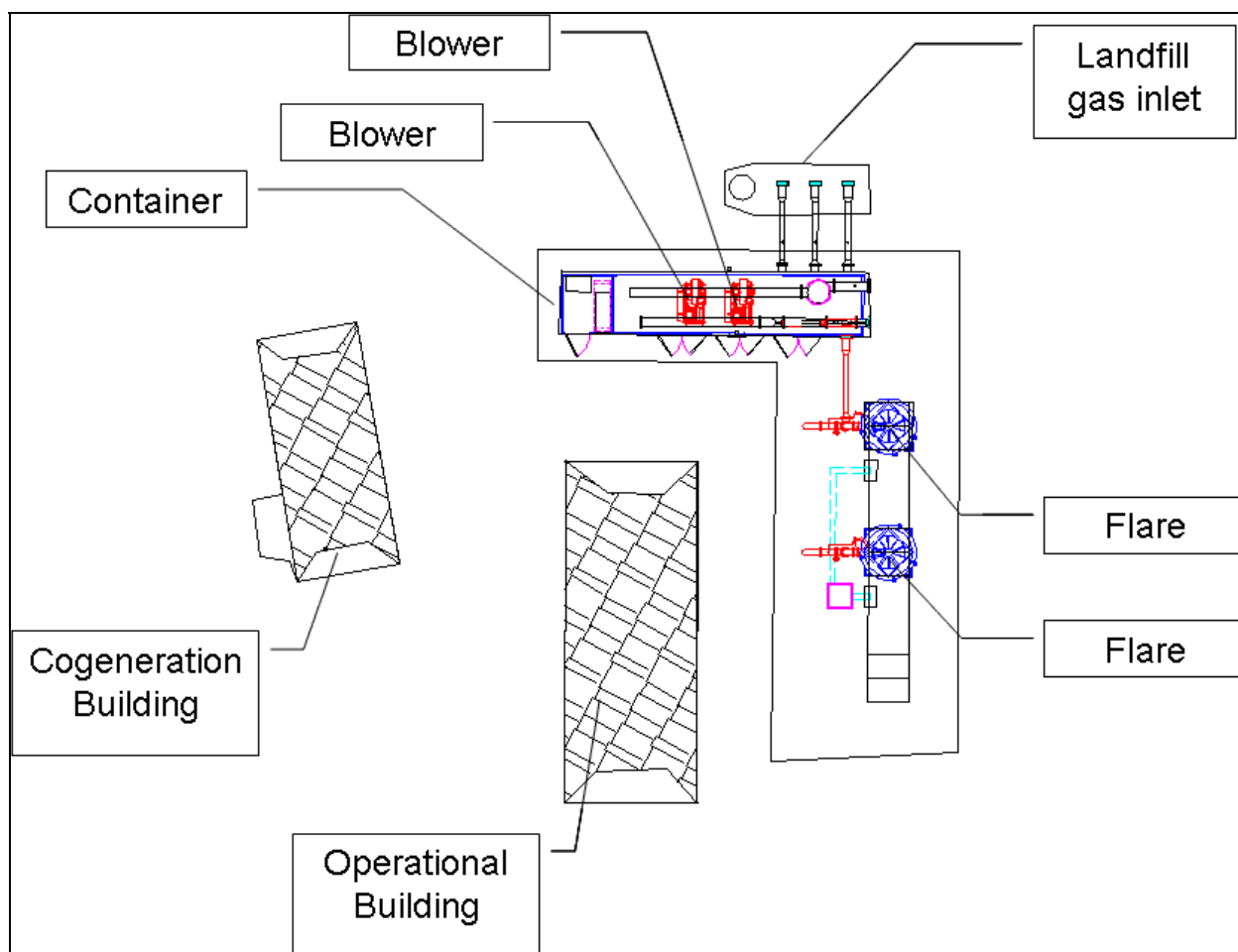


Figure 3.Biogas facility

Annex 3

Analysis of Methane Content in the exhaust gas

The flare efficiency tests were made by BIOAGRI. The analysis is showed below:

Tabela 01 - Chaminé do Flare 01
Determinação da Emissão de Compostos Orgânicos Gasosos

Amostragem	Data	Faixa de Carbono	Concentração nos Gases (ppm v/v)	Concentração nos Gases (mg /Nm ³)
01	22/02/07	CH ₄	< 0,5	< 0,337
02	22/02/07	CH ₄	< 0,5	< 0,337
03	22/02/07	CH ₄	< 0,5	< 0,337

Tabela 02 - Chaminé do Flare 01
Composição dos Gases

Teor de Oxigênio (O ₂) (% v/v)	Teor de Dióxido de Carbono (CO ₂) (% v/v)	Teor de Nitrogênio (N ₂) (% v/v)
5,1	9	85,9
4,8	9,2	86
4,2	9,8	86

Tabela 03 - Chaminé do Flare 01
Determinação da Recuperação do Traçador (Dimetil Éter)

Amostragem	Volume de Traçador adicionado (µL) (*)	Volume de Gas contido na BAG (L) (**)	Concentração Teórica Dimetil Éter (ppm v/v)	Concentração Encontrada Dimetil Éter (ppm v/v)	Recuperação (%)
01	10	18,018	55,5	64,2	116
02	10	19,633	50,9	53,1	104
03	10	19,697	50,8	57,3	113

Cite: Faixa de recuperação aceitável recomendada pelo Método USEPA 18 (70 a 130%).

(*) = Traçador Dimetil Éter (10% v/v em Nitrogênio)

(**) = O Volume de gas contido na BAG foi medido após a análise cromatográfica através da utilização do equipamento VOST (na tabela acima está descrito o volume acumulado na BAG, ou seja volume da BAG + volume de traçador injetado).

Figure 4 - Flare efficiency report - Flare 1 – Feb/2007

Tabela 01 - Chaminé do Flare 01
Determinação da Emissão de Compostos Orgânicos Gasosos

Amostragem	Data	Paixa de Carbono	Concentração nos Gases (ppm v/v)	Concentração nos Gases (mg /Nm ³)
01	30/05/07	CH ₄	< 0,5	< 0,357
02	30/05/07	CH ₄	< 0,5	< 0,357
03	30/05/07	CH ₄	< 0,5	< 0,357

Tabela 02 - Chaminé do Flare 01
Composição dos Gases

Teor de Oxigênio (O ₂) (% v/v)	Teor de Dióxido de Carbono (CO ₂) (% v/v)	Teor de Nitrogênio (N ₂) (% v/v)
10,9	5,7	83,4
10,9	5,6	83,5
10,6	5,7	83,7

Tabela 03 - Chaminé do Flare 01
Determinação da Recuperação do Traçador (Dimetil Éter)

Amostragem	Volume de Traçador adicionado (mL) (*)	Volume de Gas contido na BAG (L) (**)	Concentração Teórica Dimetil Éter (ppm v/v)	Concentração Encontrada Dimetil Éter (ppm v/v)	Recuperação (%)
01	10	19,369	51,6	39,6	76,7
02	10	17,856	56	51,7	92,3
03	10	19,684	50,8	39,2	77,2

Obs: Paixa de recuperação aceitável recomendada pelo Método USEPA 18 (70 a 130%).

(*) = Traçador Dimetil Éter (10% v/v em Nitrogênio)

(**) = O Volume de gás contido na BAG foi medido após a análise cromatográfica através da utilização do equipamento VOST (na tabela acima está descrito o volume acumulado na BAG, ou seja volume da BAG + volume de traçador injetado).

Figure 4 - Flare efficiency report - Flare 1 – May/2007

Tabela 01 - Chaminé do Flare 02
Determinação da Emissão de Compostos Orgânicos Gasosos

Amostragem	Data	Faixa de Carbono	Concentração nos Gases (ppm v/v)	Concentração nos Gases (mg /Nm ³)
01	22/02/07	CH ₄	< 0,5	< 0,357
02	22/02/07	CH ₄	< 0,5	< 0,357
03	22/02/07	CH ₄	< 0,5	< 0,357

Tabela 02 - Chaminé do Flare 02
Composição dos Gases

Teor de Oxigênio (O ₂) (% v/v)	Teor de Dióxido de Carbono (CO ₂) (% v/v)	Teor de Nitrogênio (N ₂) (% v/v)
7,8	7,5	84,7
7,2	7,2	85,6
6,8	8,2	85

Tabela 03 - Chaminé do Flare 02
Determinação da Recuperação do Traçador (Dimetil Éter)

Amostragem	Volume de Traçador adicionado (μL) (*)	Volume de Gas contido na BAG (L) (**)	Concentração Teórica Dimetil Éter (ppm v/v)	Concentração Encontrada Dimetil Éter (ppm v/v)	Recuperação (%)
01	10	19,021	52,6	58,6	111
02	10	18,954	52,8	53,5	101
03	10	18,645	53,6	67,2	125

Obs: Faixa de recuperação aceitável recomendada pelo Método USEPA 18 (70 a 130%).

(*) = Traçador Dimetil éter (10% v/v em Nitrogênio)

(**) = O Volume de gás contido na BAG foi medido após a análise cromatográfica através da utilização do equipamento VOST (na tabela acima está descrito o volume acumulado na BAG, ou seja volume da BAG + volume de traçador injetado).

Figure 5 - Flare efficiency report - Flare 2 – Feb/2007

Tabela 01 - Chaminé do Flare 02
Determinação da Emissão de Compostos Orgânicos Gasosos

Amostragem	Data	Faixa de Carbono	Concentração nos Gases (ppm v/v)	Concentração nos Gases (mg /Nm ³)
01	30/05/07	CH ₄	< 0,5	< 0,357
02	30/05/07	CH ₄	7,82	5,59
03	30/05/07	CH ₄	2,33	1,66

Tabela 02 - Chaminé do Flare 02
Composição dos Gases

Tecor de Oxigênio (O ₂) (% v/v)	Tecor de Dióxido de Carbono (CO ₂) (% v/v)	Tecor de Nitrogênio (N ₂) (% v/v)
12,6	4,8	82,6
12,2	4,2	83,6
12,4	4,6	83

Tabela 03 - Chaminé do Flare 02
Determinação da Recuperação do Traçador (Dimetil Éter)

Amostragem	Volume de Traçador adicionado (mL) (*)	Volume de Gas contido na BAG (L) (**)	Concentração Teórica Dimetil Éter (ppm v/v)	Concentração Encontrada Dimetil Éter (ppm v/v)	Recuperação (%)
01	10	19,325	51,7	40,9	79,1
02	10	18,325	54,6	47	86,1
03	10	14,326	69,8	79,2	113

Obs: Faixa de recuperação aceitável recomendada pelo Método USEPA 18 (70 a 130%).

(*) – Traçador Dimetil Éter (10% v/v em Nitrogênio)

(**) – O Volume de gás contido na BAG foi medido após a análise cromatográfica através da utilização do equipamento VOST (na tabela acima está descrito o volume acumulado na BAG, ou seja volume da BAG + volume de traçador injetado).

Figure 6 - Flare efficiency report - Flare 2 – May/2007