MONITORING REPORT FORM (CDM-MR)
Version 01 - in effect as of: 03/08/2010

CONTENTS

MONITORING REPORT
Version 01 – 03/08/2010

SÃO JOÃO LANDFILL GAS TO ENERGY PROJECT (SJ)
0373
12th Monitoring Period - From 01/01/2010 to 31/07/2010

SECTION A. General description of the project activity

A.1. Brief description of the project activity:

São João Landfill Gas to Energy is a project designed to explore the landfill gas produced in São João landfill, one of the biggest landfills in Brazil. This landfill is located in the metropolitan region of São Paulo, Brazil's biggest city and financial center of the country. With an estimated population of around 10 million citizens in 2000, São Paulo generates nearly 15,000 tons of waste daily. São João Landfill Gas to Energy's goal is to explore the gas produced in São João landfill, using it to generate electricity.

The installation of the SJ Project was executed in three phases, in the period 2007/2008.Firstly, the LFG collecting system was implemented independently to start up flaring LFG as soon as possible. The CH4 flaring would be enough to avoid GHG emission as prescribed by the UNFCCC. As a result, the Biogas Plant operation was started on May 22nd, 2007. From that date up to March 2008, the SJ Project activity was limited exclusively to the LFG flaring, as properly verified by the monitoring and verification reports issued for that period particularly.

The LFG degassing system includes more than 30 Km of high density polyethylene pipes connected to the about 160 landfill wells; 4 blowers to provide suction for extracting the gas from the landfill; facilities for gas treatment, such as heat exchangers, chillers; and 3 flares with capacity to destroy up to 15,000 Nm3 per hour of LFG that is not used to generate electricity.

The second implementation phase of the São João LFGE Project was launched later on in June 2007, after the start up of the gas plant, once the engineering for the Power Plant was properly developed to provide information for the procurement of all equipments and services.

Finally, once the Power Plant was already operational as described above, the PP invested in the acquisition of two additional engines Model CAT 3516, completing so the current existent power capacity of 24.64 MW which is given by the installation of 16 engines Model CAT 3516. That final configuration became effective only by the end of October 2008 and since then the output of the São João LFGE project is planned as follows:

- Model CAT 3520 Capacity at SJ site conditions: 1.54 MWe
- Number of Engine Units: 16
- Installed Capacity: 16 X 1.54 MWe: 24.64 MWe
- Final Energy Output delivered to the grid: 21.89 – 0.99 = 20.90 MWe[1]

[1] The Caterpillar dealer (SOTREQ) assumes 88% of the installed capacity of 24.64 MW or 21.70 MW as the average energy output of the Power Plant before discounting the losses in the transmission system. For sake of conservatism, the investment analysis in Section E.1- step 2 is based on the output of 21.70 MW SOTREQ) instead of 20.90 MW as calculated herein.

This Monitoring Report refers to the 12th Monitoring Period that complains the period from January 1st until July 31st. The total emission reductions achieved in this Monitoring Period is given on the table below:

Total CO_2e from methane destroyed	292,387
Total CO_2e from electricity dispatched	16,570
Total CO2e from electricity consumed	47
TOTAL CO_2e	**308,910**

A.2. Project Participants:

- Public entity: Prefeitura Municipal de São Paulo – municipality of São Paulo
- Private entity: Biogás Energia Ambiental S.A.
- KfW Bankengruppe
- Mercuria Energy Trading SA

A.3. Location of the project activity:

The São João project is located at Av. Sapopemba, km 33, Bairro Jardim Rodolfo Pirane, São Paulo. GPS coordinates from the location of the power house are the followings: Latitude -23°38'26.17", Longitude -46º24'59.18".

A.4. Technical description of the project

The SJ includes high density polyethylene pipes connected to the landfill wells; blowers to extract the gas from the landfill; facilities for gas treatment, such as heat exchangers, chillers; and the flares, which destroys the methane previously released to the atmosphere. The project had in the monitoring period under consideration a total installed capacity of 24.64 MW[2].

The degassing station is responsible for extracting the landfill gas from the landfill and transports it to the flares and to the gas engines in the power plant. During the transportation, the gas goes through a treatment to allow its use as fuel for energy generation. Other functions of the degassing station are: drying landfill gas by gas coolers; and measuring and analyzing the quantity and quality of the landfill gas for safety, process and operating purposes.

The landfill gas is cooled down when transported from the landfill, resulting in a condensate. This is be drained to condensate shafts, to be placed nearby the gas pipes. Once in the degassing station, the gas is measured and sent to a flaring system. Biogás has chillers installed in order to remove moisture. This is a very important step in the gas treatment process, since the condensate, which contains silicium components, could block the gas pipes and also damage the gas engines, due to the silicium. After this step, the gas is heated again through a second heat exchanger, or economizer, to a temperature of around 25ºC, far enough from the dew point of 4ºC to avoid further condensation.

Blowers are used for transportation of the landfill gas from the landfill to the flares. These blowers are equipped with all the necessary safety equipment, including a noise reducing housing.

[2] The efficiency of the engines is 93%, according to Caterpillar's representative in Brazil - Sotreq. This makes that the real capacity installed is 22.91 MW. If we discount the internal consumption of the plant, somewhere around 1.02 MW, the actual power capacity to be exported is 21.89 MW. From this value we have to discount the power loss in the transmission up to connection point of 4.5%. So we can consider that the Final Energy Delivered to the grid is 20.90 MW. After 18 months of operation, since the Plant start-up in April 2008 up to September 2009, São João LFGE Project has not yet performed to the point of Delivering more than 20 MWh / h in 24 hour daily average into the Brazilian Electric Grid Operating System.

The figure below presents the installation of all collecting equipment from SJ, the location of the degassing station and the location of the power house.

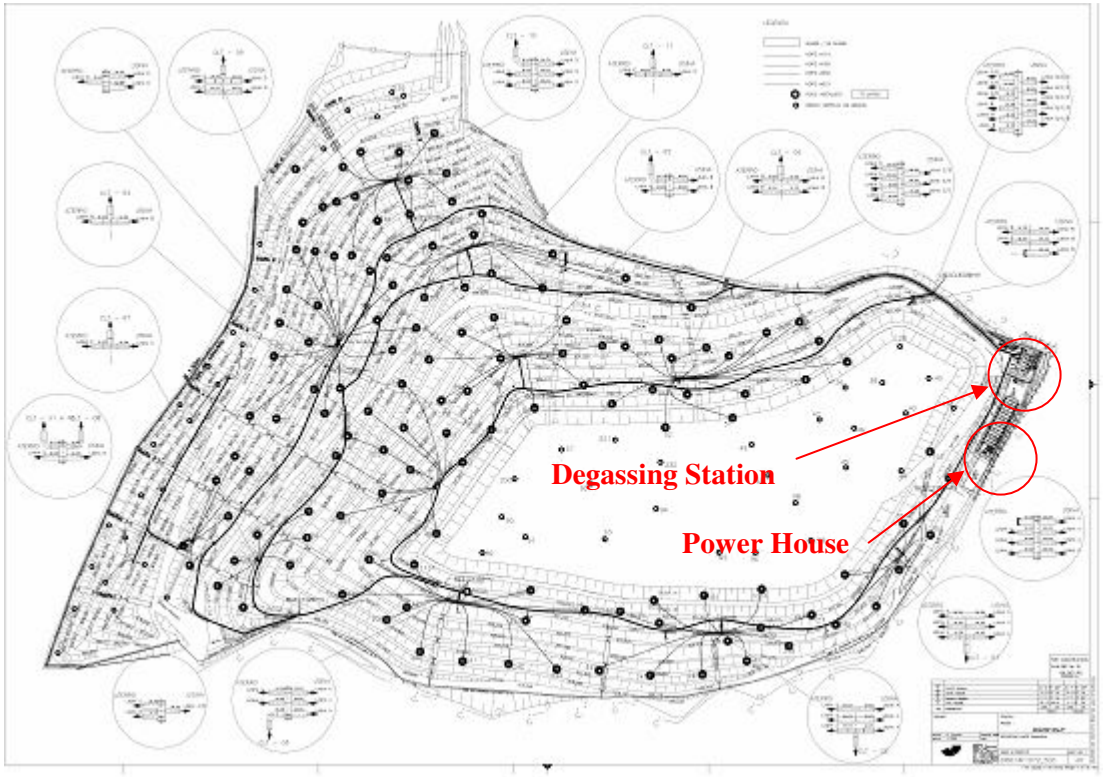

Figure -1: SJ Layout

Figure -2: Degassing Station (1) and Power House (2)

The pictures below illustrate the collecting system of the SJ project.

Figure -3: Wellhead

Figure -4: Wellhead and Collection Pipeline

Figure -5: Transmission Pipeline

Figure -6: Gas entrance in the Degassing Station

On the pressure side of the degassing station, all kinds of gas analyzing and gas measuring instruments are present. These instruments are very important for safety, process and operating purposes. SJ counts, actually, with three turbine flow-meters: one measures the total gas collected (tag FIR600) and the other two measures the gas sent to the flaring system and to the power house (tags: FIR500 and FIR800, respectively).

While the power house was not installed, SJ generated electricity through a diesel engine installed in the degassing station. The electricity produced was registered continuously by the PLC and the diesel consumed was registered via the contract between Biogás and the diesel supplier. This equipment was in stand-by in the time of the Monitoring Period, as the electricity consumed by the Degassing Station was supplied by the Power House; however, during electricity black-outs the generator is turned on in order to supply electricity to the Station (this source of project emissions was considered in the calculation of ERs).

The pictures below present the above mentioned installed equipment. The layouts of the degassing station and power house, locating of the measuring equipment.

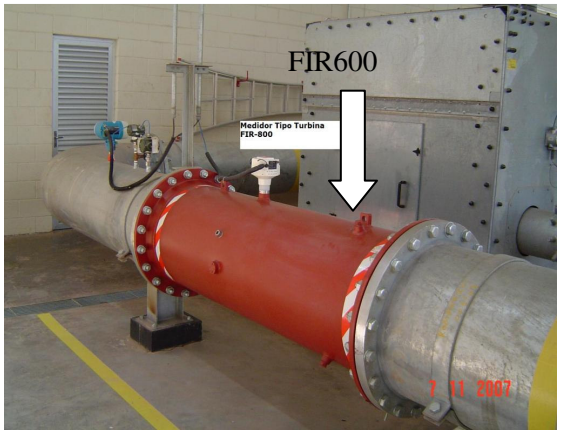

Figure -7: FIR600

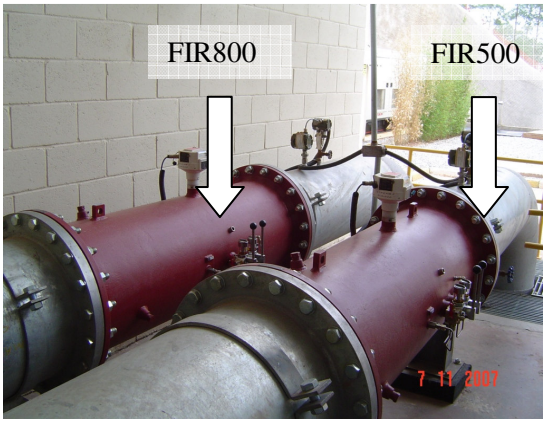

Figure -8: FIR500 and FIR800

Figure -9: Flares F520, F540 and F560

Figure -10: Blower

Figure -11: Detail of the blower

Figure -12: Chiller

Figure -13: Methane Analyzer A400

The Power House's construction was finished in January 2008. 14 gas engines were installed in February and March 2008 with a nominal capacity of 1.54 MW each, achieving a total installed capacity of 21.56 MW – 1.54 MW (or 1 engine) in stand-by. On October 23, 2008, 2 new engines were installed and total capacity installed was up graded to 24.64 MW – 1.54 MW (or 1 engine) in standby, what was equivalent to the implementation status during the whole given monitoring period. The electricity produced is sent to the substation located next to the power house and transported via two transmissions lines – 14 and 16 km[3], respectively - until the connection to the Brazilian Electric Grid. Two electricity-meters are installed to measure the net quantity of electricity exported to the grid, one for each bar, and there is another measuring point at the substation connected to the grid – this substation measures the electricity which is indeed exported, discounting the transmission losses. The monitoring system of net electricity export data is fully operational.

The pictures below presents the gas engines installed in the Power House, the substation, the electricity-meter and the transmission line from São João Landfill to the connection to the Brazilian Electric Grid.

Figure -14: Gas engine

Figure -15: Substation

[3] The 1st transmission line (14 km) is fully operational and the 2nd line with 16 km is scheduled to be operational in 2011

Figure -16: Electricity-meter

Figure -17: Transmission Line 1 (14 km) which is fully operational (green colored)

A.5. Title, reference and version of the baseline and monitoring methodology applied to the project activity:

The project has name "São João Landfill Gas to Energy" (SJ).

The methodology applied to SJ is **ACM0001 – version 02**, called "Consolidated baseline methodology for landfill gas project activities". The applicability conditions for ACM0001 have already been considered under the baseline section of the PDD. In fact, SJ is a project activity undertaken with the purpose of capturing and flaring methane from landfill operations, and also using this methane as fuel for a power plant, generating electricity that will avoid fossil fuelled plants at the margin of the Brazilian electricity system, therefore causing a reduction in GHG emissions. ACM0001 is therefore fully applicable to São João Landfill Gas to Energy Project.

The Monitoring Plan was developed based on **ACM0001 - version 02** of the **"Consolidated monitoring methodology for landfill gas project activities"**.

A.6. Registration date of the project activity:

The date of registration of the project is 02/07/2006.

A.7. Crediting period of the project activity and related information (start date and choice of crediting period):

SJ is in the first crediting period that had started on 22/05/2007. This period will finish on 21/05/2013, because the project proponent has chosen a renewable crediting period of 7 years.

A.8. Name of responsible person(s)/entity (ies):

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SECTION B. Implementation of the project activity

B.1. Implementation status of the project activity

1) The starting date of operation of the project activity: the degassing station had started on 01/06/2007 and the power plant had started on 01/04/2008.

2) The events that occurred during this monitoring period are described on the table below:

Event	Description	How the event was considered
01	From April 19th to April 21st, 2010, maintenance in the grid solicited by AES Eletropaulo was realized.	The event was registered by the operators in the daily occurrence book.

No other events or rule/policy changes have taken place that could have affected the normal operation of the project and the applicability of the methodology

B.2. Revision of the monitoring plan

The application of a new monitoring plan, as approved by the EB in 18/02/2008, including, among others:

- The use of a diesel generator to supply the project's electric needs from the beginning of the project's operation until January/2008, when the power house entered into operation. This source of project emission was considered in the calculation of emission reduction. However, this project emission source is in stand-by now as the electricity generated in the power house is used to supply the project's internal needs – the diesel generator is only turned on during black-outs of electricity generation;

- differently from Annex 4 – Monitoring Plan, 3 (three) flow-meters were installed instead of the 2 (two) mentioned: the first to measure the total flow, the second to measure the gas sent to the flares and the third to measure the methane sent to the power house, according with the revised Monitoring Plan approved by the EB;

No notification or request of approval of changes to this 12th Monitoring Period.

B.3. Request for deviation applied to this monitoring period

During this monitoring period, no request for deviation has taken place.

B.4. Notification or request of approval of changes

From the registered PDD, the following changes were presented:

- The Project started its operation on June 1st, 2007 only burning the biogas in the three flares installed. The project began to generate electricity only on March 18th, 2008, however CERs due to electricity generation have been claimed only from April 01st, 2008;

- The application of a new monitoring plan, as approved by the EB in 18/02/2008, including, among others:
  - The use of a diesel generator to supply the project's electric needs from the beginning of the project's operation until January/2008, when the power house entered into operation. This source of project emission was considered in the calculation of emission reduction. However, this project emission source is in stand-by now as the electricity generated in the power house is used to supply the project's internal needs – the diesel generator is only turned on during black-outs of electricity generation;
  - Differently from Annex 4 – Monitoring Plan, 3 (three) flow-meters were installed instead of the 2 (two) mentioned: the first to measure the total flow, the second to measure the gas sent to the flares and the third to measure the methane sent to the power house, according with the revised Monitoring Plan approved by the EB;

- Starting date of the project activity was moved from 30/06/2006 to 22/05/2007 due to the bureaucratic process of Environmental Licensing and due to the negotiation aiming the electricity sale (PPA), which delayed the start of the project's civil works.

- The project was implemented with a total installed capacity of 24.64MW for electricity generation (16 engines of 1.54 MW each). This was equivalent to the total installed capacity for the Monitoring Period under consideration and two transmissions lines of around 14 and 16 km length respectively, however the latter one is not operational yet. Due to losses in the transmission line, the electricity which is indeed exported to the grid is below 20 MW, which is in accordance with the PDD's premises.

- São João Project had its PDD revised according to the EB48, Annex 66/67. The changes do neither affect the additionality or scale of the project nor applicability of neither the methodology nor its contribution to the Brazilian sustainable development as described further on in the revised PDD. The SJ PDD version 03, dated on December, 29th, 2009, was approved on 28/05/2010.

SECTION C. Description of the monitoring system

Monitoring Equipments:

The following equipments were installed in the Degassing Station, as per the revised Monitoring Plan:

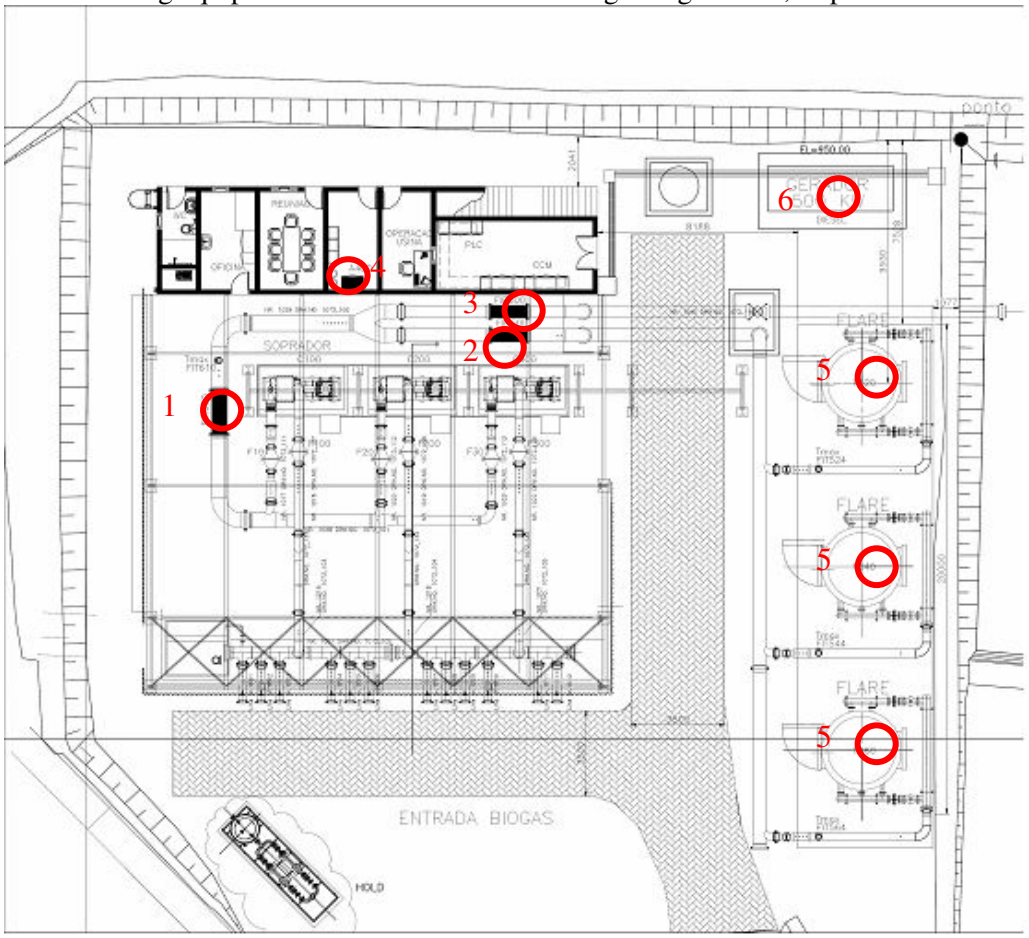

Figure -18. Lay-out of the Degassing Station

Figure -19. Lay-out of the Power House

Methodology ID	Equipment Number	Equipment	Location	TAG	Manufacturer	Model	Range	Serial Number	Error (%)
$LFG_{Total, y}$	1	Turbine Flow-meter [4]	Main Line	FIR600	Instromet	SM-RI-X-K	1,300–25,000 m^3/h	10508423	0.4800
$LFG_{Flare, y}$	2	Turbine Flow-meters[5]	Line to Flares	FIR500	Instromet	SM-RI-X-K	800–16,000 m^3/h	10508421	0.9800
$LFG_{Electricity, y}$	3	Turbine Flow-meter[5]	Line to the Power House	FIR800	Instromet	SM-RI-X-K	800–16,000 m^3/h	10508422	1.2800
FE	5	(1) Temperature transmitters (thermocouples) (2) Chromatographer – analysis made by a Third Party	Flares F520, F540 and F560	(1) TAC520, TAC540 and TAC560 (2) N/A	(1) Jumo (all thermocouples) (2) N/A	(1) type "S" L750 (all thermocouples) (2) N/A	(1) 0-1500°C (all thermocouples) (2) N/A	N/A	N/A
$w_{CH4, y}$	4	Methane Analyzer	Analysis Room	A100	NUK-Emerson-Rosemount	Binos 100	0-100%	120171639018	1.0000
EG_y [5]	7	Electricity Meters	Substation	N/A	Merlin Gerin	Power Logic - CM 4000	240V/300V - 96mA MAX.	0032004234	1.0
EC_y	6	Electricity Meter	Diesel Generator	N/A	Siemens	MMG 144	0-100 MWh	00400243415	0.5000

[4] The Turbine flow-meters installed are connected to a pressure and temperature transmitters, which allows the device to use those variables to make the conversion automatically to Nm^3. Thus, readings from pressure and temperature were not monitored; however the errors from the transmitters were discounted from the final calculation (refer to E.1).

[5] There are two electricity-meters installed at SJ – one in each bar. The electricity-meters are from the same manufacturer and are the same model.

Depending on the parameter the, the frequency of the PLC's routine may vary, as presented in the table below:

Methodology ID	Equipment TAG	Reading Frequency	Transmition Frequency	Registration Frequency	Comments
$LFG_{Total, y}$	FIR600	Continuously	Continuously	Every 5 minutes (instant gas-flow) Every 1 hour (accumulated gas-flow)	– Data of instant gas-flow is registered every 5 minutes in the Supervisory System's hard disk, in Nm^3/h, using the readings from the pressure and temperature transmitters; – Data accumulated every 1 hour is registered in the Supervisory System's hard disk, in Nm^3, using the readings from the pressure and temperature transmitters; – Every 00:00, the PLC's counter is reseted; – The flow-computer installed in the flow-meter keeps registering the accumulated flow; – Every 3 hours, the accumulated flow (in Nm^3) is manually registered by the operators; – Every 1 hour, the operators perform a "Print-Screen" of the PLC Controlling System Panel, which presents the operational variables. – Responsibilities of the routine: PLC (continuously) and plant supervisor (monthly)
$LFG_{Flare, y}$	FIR500	Continuously	Continuously	Every 5 minutes (instant gas-flow) Every 1 hour (accumulated gas-flow)	
$LFG_{Electricity, y}$	FIR800	Continuously	Continuously	Every 5 minutes (instant gas-flow) Every 1 hour (accumulated gas-flow)	
FE	(1) TAC520, TAC540 and TAC560 (2) N/A	(1) Continuously (2) Every 3 months, by a specialized company on gas analysis	(1) Continuously (2) Every 3 months, by a specialized company on gas analysis	(1) Every 5 minutes (2) Every 3 months, by a specialized company on gas analysis	– Temperatures below 900°C indicates that the flare is running out of the specified combustion temperature range; – A sudden decrease of temperature indicates that the main valve of the flare is closed and no gas is being sent to the flare (please, refer to item 3.1.1) – The flare efficiency analysis is made according with internal procedures from the hired company
$w_{CH4, y}$	A100	Continuously	Continuously	Every 5 minutes	– By the end of the day, an average of CH_4 concentration (registered every 5 minutes) is calculated.

Methodology ID	Equipment TAG	Reading Frequency	Transmition Frequency	Registration Frequency	Comments
					– Responsibilities of the routine: PLC (continuously) and plant supervisor (monthly)
EG_y	EM100	Continuously	Continuously	Every 1 hour	– Data accumulated every 1 hour in the Power House's Supervisory System's hard disk, in MWh; – Every 00:00, the PLC's counter is reseted; – Responsibilities of the routine: PLC (continuously) and power plant supervisor (monthly)
EC_y	N/A	Continuously	Continuously	Every 1 hour (accumulated electricity consumption)	– The electricity-meter keeps accumulating the electricity consumed; – When the meter reaches 100 MWh, the count is reseted. – Responsibilities of the routine: PLC (continuously) and plant supervisor (monthly)

Involvement of Third Parties

SJ has four third parties involved (directly and indirectly):

- Specialized company on gas analysis, to perform the analysis of methane concentration in the exhaust gas. For this monitoring period, Biogás hired CORPLAB, a national certified laboratory.

- NEXT Automation, the company responsible for the automation of the system;

- Van der Wiel, one of Biogas's shareholders, is the only company who has external access to the data registered from the PLC.

- ARCADIS Tetraplan is the company responsible to develop the Monitoring Report and is part of the quality assurance/quality control procedures.

Quality assurance and quality control measures

Internal Procedures and ISO14001

Biogás counts with the internal procedure PO-005 which objective is to specify the monitoring procedures made inside the Degassing Station, as gas flows, temperature, pressure, electricity generation and methane concentration.

As presented above all parameters monitored inside the Degassing Station has the same reading / transmitting / registration routine and all routines have one person responsible: the plant supervisor.

Every week, the plant supervisor downloads all data registered from the PLC and makes a complete check to identify unconformities, such as unread registrations or troubles with the PLC (this unconformities happens mainly due to electricity black-outs). All unconformities raised are promptly compared with operational events, registered by the operators in the Operation Diary. The event is informed to the Production Manager of Biogás, which is responsible for taking the necessary actions to avoid it to happen again.

In order to avoid data loss, the operators are oriented to register all gas flow data manually in proper sheets every 3 hours, which are verified by the production manager weekly for legibility. Manual records are transferred to an Excel sheet (which is double-checked with a sheet developed by ARCADIS Tetraplan). Additionally, the operators are oriented to perform a "Print-Screen" of the PLC Controlling System Panel every hour. The picture printed presents all monitoring parameters and is saved in the computer's hard disk.

Also, the SJ count with a third-party, non-responsible for the project's monitoring: ARCADIS Tetraplan, which is the responsible for the development of the Monitoring Report. ARCADIS Tetraplan' role in the Project is to assure the quality of the registered data, through a double-check process, and to assure the quality of the calculation of ERs and is in constant contact with the Production Manager of Biogás.

Biogás has, until now, no intention to implement EMS such as ISO 14001 in SJ.

Other procedures developed at SJ are:

PO-001: Procedure about re-starting the plant after an electricity breakdown

PO-002: Calibration of methane analyzer

PO-003: Calibration of valve (flare)

PO-004: Service orders and maintenance

PO-005: Procedure of monitoring parameters (including calibration plan)

PO-006: Procedure about internal monitoring of São João

PO-007: Procedure about workers control

PO-008: Procedure for the elaboration of the monthly operational report

PO-009: Procedure in emergency situations

PO-010: Procedure for data back-up of the supervisory system

PO-011: Procedure for manual data collection

PO-012: Instruction for Refueling the Diesel Device

PO-013: Identification of legal and other requirements

PO-014: Administrative Procedure

Organizational Structure, responsibilities and competencies

Positions and roles for this CDM project activity are well defined. From the point of view of the plant operation, positions and roles are defined. Duties, personnel replacement in the case of non-availability of the supervisor of monitoring and/or the electrical supervisor and hiring requirements for job positions are determined in documented procedures, as presented in the figures below:

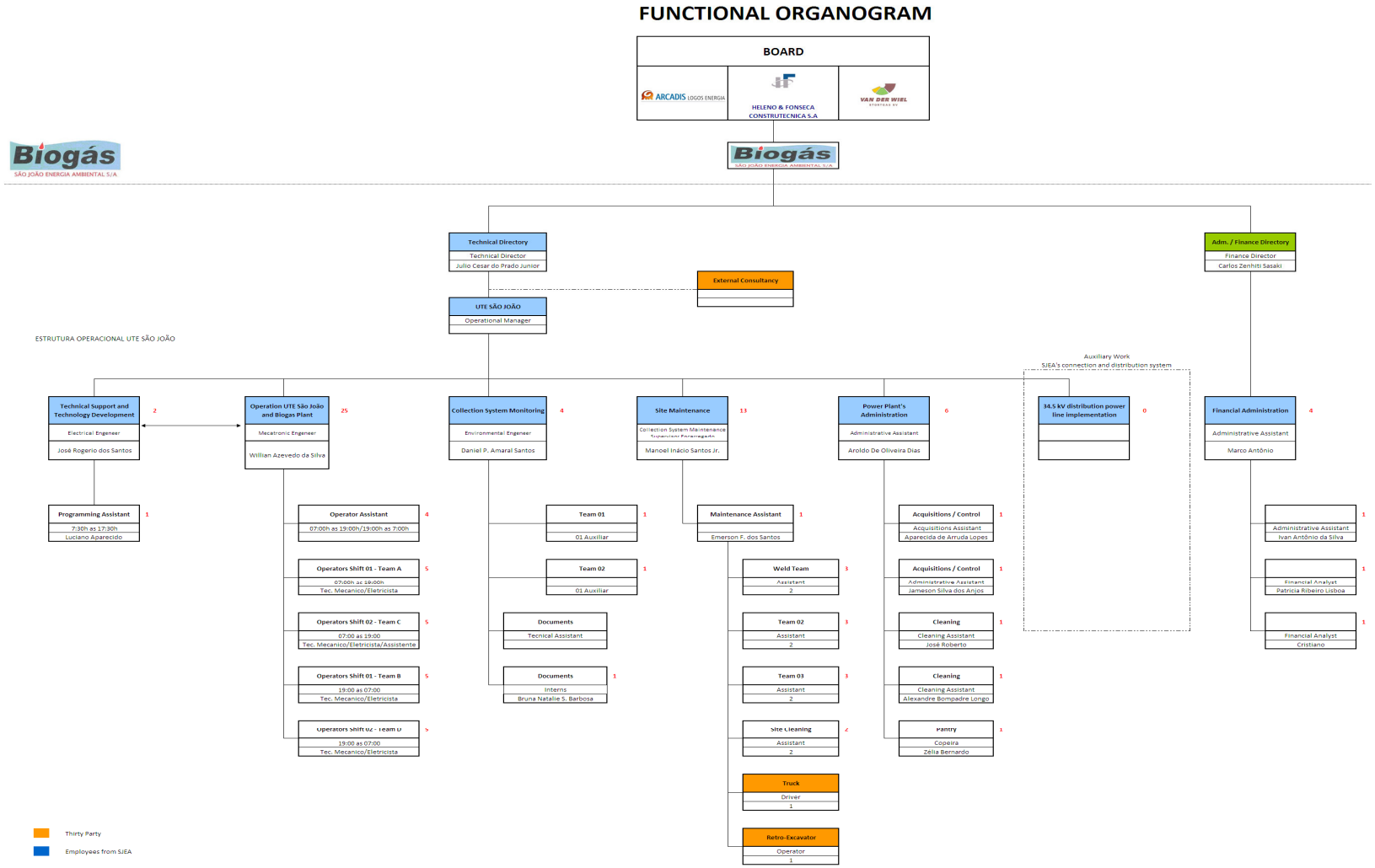

Figure -20. General Organogram of SJ

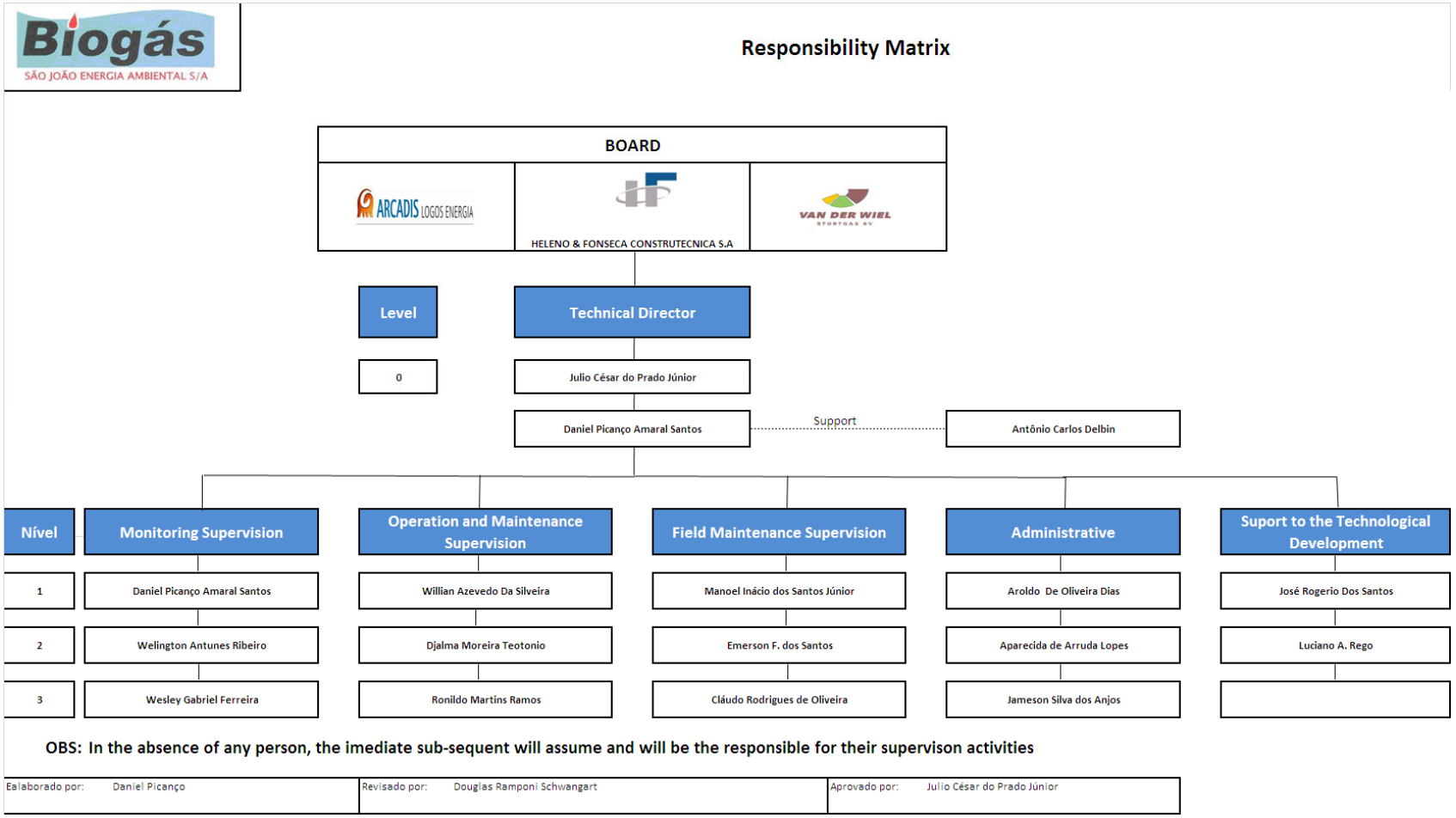

Figure -21. Responsibility Matrix of SJ

Trainings

All training was supplied to operators and technical assistants before the project's implementation. The training certificates were presented to the Verification Team.

For this monitoring period, ten new employees were hired: Bruno Raphael Palomares, Fágner Geraldo da Silva, José Antonio de Castro, Bruno Rodrigues, Francisco de Assis Alves, José Geraldo dos Santos, Luciano Eulálio, Paulo Sena da Silva, Paulo Rogério Dias Aragão and Willian Azevedo da Silva – all of them to work in the Power plant. Douglas Ramponi was transferred from São João to Bandeirantes as Technical Assistant.
The new operator realized training in the following period: 05/10/2009 to 14/10/2009). The training was composed by:

- How to operate and start the plant;
- Reading instruments and recording of reports;
- Verification and calibration of gas analyzer;
- Maintenance of equipment.
- Data Protection Measures.

As all data registered in the Supervisory System's hard disk is subjected to sabotage and technical failure, Biogás developed the following actions to protect the monitoring system:

- The PLC is not connected to the Internet, thus the risk of virus is minimized;
- Only defined persons have access to the data base of the system;
- Antivirus programs are installed at the system;
- Data backup:
  - A weekly CD backup of the Supervisory System's hard disk;
  - A weekly backup of the Supervisory System's hard disk is made by the server of Heleno & Fonseca (one of Biogás shareholders);
  - Van der Wiel (another Biogás shareholder) has radio access to the Supervisory System;
  - ARCADIS Tetraplan downloads regularly the primary data for the elaboration of the monitoring report.

SECTION D. Data and parameters

D.1. Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors

Data / Parameter:	**GWP_{CH4}**
Data unit:	tCO_2e/tCH_4
Description:	Global Warming Potential value for methane
Source of data used:	1996 IPCC Guideline for National Greenhouse Gas Inventory
Value(s) :	21
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline calculation
Additional comment:	N/A

Data / Parameter:	$\rho_{CH4,n,h}$
Data unit:	tCH_4/m^3CH_4
Description:	Density of methane gas at normal conditions
Source of data used:	1996 IPCC Guideline for National Greenhouse Gas Inventory
Value(s) :	0.0007168
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline calculation
Additional comment:	N/A

Data / Parameter:	**Rx**
Data unit:	t
Description:	the amount of waste disposed in year x
Source of data used:	Records from landfill operator
Value(s) :	See table below
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline calculation
Additional comment:	N/A

Year	Waste Deposition (tonnes)	Year	Waste Deposition (tonnes)
1992	5.500	2000	2.034.546
1993	768.591	2001	2.157.783
1994	862.211	2002	2.292.821
1995	1.516.727	2003	2.120.943
1996	1.841.783	2004	2.008.528
1997	1.971.480	2005	2.200.000
1998	2.046.081	2006	2.200.000
1999	2.126.986	2007-on	0

Data / Parameter:	**X**
Data unit:	year
Description:	the year of waste input
Source of data used:	1996 IPCC Guideline for National Greenhouse Gas Inventory
Value(s) :	N/A
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline calculation
Additional comment:	N/A

Data / Parameter:	**R**
Data unit:	t/year
Description:	average annual waste acceptance rate during active life
Source of data used:	N/A
Value(s) :	N/A

Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline calculation
Additional comment:	N/A

Data / Parameter:	**L_0**
Data unit:	(t/t of refuse)
Description:	methane generation potential
Source of data used:	Municipality of São Paulo data
Value(s) :	0.065
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline calculation
Additional comment:	N/A

Data / Parameter:	**k**
Data unit:	t/year
Description:	methane generation rate constant
Source of data used:	Based on Van der Wiel's field experience
Value(s) :	0.105
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline calculation
Additional comment:	N/A

Data / Parameter:	**c**
Data unit:	year
Description:	time since solid waste disposal site (SWDS) closure
Source of data used:	Municipality of São Paulo data
Value(s) :	2006
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline calculation
Additional comment:	N/A

Data / Parameter:	**t**
Data unit:	year
Description:	Time since SWDS opened
Source of data used:	Municipality of São Paulo data
Value(s) :	1992
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline calculation

Additional comment:	N/A

Data / Parameter:	**EF_y**
Data unit:	**tCO2e/MWh**
Description:	Emission Factor of Diesel Engines
Source of data used:	Project participant
Value(s) :	1.3 tCO_2e/MWh
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline calculation
Additional comment:	N/A

Data / Parameter:	**CEF_y**
Data unit:	**tCO2e/MWh**
Description:	S – SE – CO *Grid Emission Factor (EF)*
Source of data used:	Project participant
Value(s) :	0.2677 tCO_2e/MWh
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline calculation
Additional comment:	N/A

Data / Parameter:	**AF**
Data unit:	**%**
Description:	Adjustment Factor
Source of data used:	Calculated by the Project participant
Value(s) :	20%
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline calculation
Additional comment:	N/A

D.2. Data and parameters monitored

Data / Parameter:	**$LFG_{Total, y}$**
Data unit:	Nm^3/h
Description:	Total amount of landfill gas captured from the landfill site at Normal Temperature and Pressure in year $_y$
Measured /Calculated /Default:	Measured
Source of data:	Project participant
Value(s) of monitored parameter:	This value is indicated on table in item E.1.
Indicate what the data are used for (Baseline/ Project/	Baseline emission calculation

Leakage emission calculations)	
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Manufacturer: Instromet Type: SM-RI-X-K TAG: FIR600 Accuracy class: 0.4800% (error) Serial number: 10508423 Calibration frequency: 5 years Date of last calibration: 23/05/2007 Validity: 23/05/2012
Measuring/ Reading/ Recording frequency:	Data is measured by a continuous flow meter. Measurements of the flow are recorded electronically by PLC at least each five minutes and once per hour, and aggregated. The data is archived electronically.
Calculation method (if applicable):	N/A
QA/QC procedures applied:	Flow meters will be subject to a regular maintenance and testing regime to ensure accuracy, in compliance with national laws (example in Germany and in Italy, for turbine meters of this size, calibration is never required; in Brazil there are no requirements concerning the device's calibration). The calibration will be undertaken according with the manufacturer's recommendation.

Data / Parameter:	**$LFG_{Flare, y}$**
Data unit:	Nm^3/h
Description:	Total amount of landfill gas captured from the landfill site at Normal Temperature and Pressure in year $_y$
Measured /Calculated /Default:	Measured
Source of data:	Project participant
Value(s) of monitored parameter:	This value is indicated on table in item E.1.
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Manufacturer: Instromet Type: SM-RI-X-K TAG: FIR500 Accuracy class: 0.9800% (error) Serial number: 10508421 Calibration frequency: 5 years Date of last calibration: 23/05/2007 Validity: 23/05/2012
Measuring/ Reading/ Recording frequency:	Data is measured by a continuous flow meter. Measurements of the flow are recorded electronically by PLC at least each five minutes and once per hour, and aggregated. The data is archived electronically.
Calculation method (if applicable):	N/A
QA/QC procedures applied:	Flow meters should be subject to a regular maintenance and testing

	regime to ensure accuracy, in compliance with national laws (example in Germany and in Italy, for turbine meters of this size, calibration is never required; in Brazil there are no requirements concerning the device's calibration). The calibration will be undertaken according with the manufacturer's recommendation.

Data / Parameter:	**$LFG_{Electricity, y}$**
Data unit:	Nm^3/h
Description:	Total amount of landfill gas captured from the landfill site at Normal Temperature and Pressure in year $_y$
Measured /Calculated /Default:	Measured
Source of data:	Project participant
Value(s) of monitored parameter:	This value is indicated on table in item E.1.
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Manufacturer: Instromet Type: SM-RI-X-K TAG: FIR800 Accuracy class: 1.2800% (error) Serial number: 10508422 Calibration frequency: 5 years Date of last calibration: 23/05/2007 Validity: 23/05/2012
Measuring/ Reading/ Recording frequency:	Data is measured by a continuous flow meter. Measurements of the flow are recorded electronically by PLC at least each five minutes and once per hour, and aggregated. The data is archived electronically.
Calculation method (if applicable):	N/A
QA/QC procedures applied:	Flow meters should be subject to a regular maintenance and testing regime to ensure accuracy, in compliance with national laws (example in Germany and in Italy, for turbine meters of this size, calibration is never required; in Brazil there are no requirements concerning the device's calibration). The calibration will be undertaken according with the manufacturer's recommendation.

Data / Parameter:	**$FE_{F520 / F540 / F560/F580}$**
Data unit:	**°C**
Description:	Temperature of the exhaust gas in the flare F100.
Measured /Calculated /Default:	Measured
Source of data:	Project proponent
Value(s) of monitored parameter:	This value is indicated on table in item E.1.
Indicate what the data are	Baseline emission calculation

used for (Baseline/ Project/ Leakage emission calculations)	
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Manufacturer: Thermocouple Jumo Type: "S" L750 TAG:TAC 520 / TAC 540 /TAC560 Accuracy class: not applicable Serial number: not applicable Calibration frequency: not applicable Date of last calibration: not applicable Validity: not applicable
Measuring/ Reading/ Recording frequency:	Data is measured by a thermometer installed in the flare. Measurements of the temperature of the exhaust gas are recorded electronically by PLC at least each five minutes and once per hour, and aggregated. The data is archived electronically.
Calculation method (if applicable):	N/A
QA/QC procedures applied:	Thermocouples will be replaced or calibrated every year.

Data / Parameter:	**$FE_{F520 - F540 / F560/F580}$**
Data unit:	Not applicable
Description:	Methane content of flare exhaust gas
Measured /Calculated /Default:	Measured/ Calculated
Source of data:	Analysis made by a third party.
Value(s) of monitored parameter:	Explained on item E.1.
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	N/A
Measuring/ Reading/ Recording frequency:	The data is measured with a chromatographer each three months by a specialized lab – CORPLAB, as explained on item E.1.
Calculation method (if applicable):	Flare Efficiency Spreadsheet
QA/QC procedures applied:	Calculated as per the Version 1 of the Tool to deterrmine project emissions from flaring gases containing methane.

Data / Parameter:	**$W_{CH4,y}$**
Data unit:	*%*
Description:	Methane fraction in the landfill gas.
Measured /Calculated /Default:	Measured

Source of data:	To be measured continuously by project participant using qualified gas analyzer.
Value(s) of monitored parameter:	This value is indicated on table in item E.1.
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Manufacturer: Rosemount - NUK Type: Binos 100 TAG: A100 Accuracy class: 1,0000% Serial number: 120171639018 Calibration frequency: weekly, with a standard gas Date of last calibration: not applicable Validity: not applicable
Measuring/ Reading/ Recording frequency:	Measured by continuous gas quality analyzer weekly. Measurements are recorded in a handbook every calibration.
Calculation method (if applicable):	The calibration is made using a standard gas. The cylinders have calibration certificate.
QA/QC procedures applied:	The gas analyzer is recalibrated every week against a standard certified gas cylinder, according with an internal procedure.

Data / Parameter:	**EG_y**
Data unit:	**MWh**
Description:	Net quantity of electricity delivered to the grid which is produced by using LFG under the project activity.
Measured /Calculated /Default:	Measured
Source of data:	Project participant
Value(s) of monitored parameter:	See section E.1.
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Manufacturer: Merlin Gerin Type: Power Logic – CM4000 TAG: Not applicable Accuracy class: 1,0000% Serial number: 0032004234 Calibration frequency: 5 years Date of last calibration: Oct/2007 Validity: Oct/2012
Measuring/ Reading/ Recording frequency:	Directly measured by electricity meter installed at the project site and the connected substation. The data is measured and recorded hourly, and aggregated monthly. The data is monitored and archived electronically. Double-check by electricity sale receipts.
Calculation method (if	N/A

applicable):	
QA/QC procedures applied:	Electricity meters will be subject to regular (in accordance with stipulation of the meter supplier) maintenance and testing to ensure accuracy.

Data / Parameter:	**EC_y**
Data unit:	**MWh**
Description:	Onsite consumption of fossil fuel due to the project activity during the year y - diesel generator
Measured /Calculated /Default:	Measured
Source of data:	Project participant
Value(s) of monitored parameter:	See section E.1.
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Manufacturer: Siemens Type: MMG 144 TAG: Not applicable Accuracy class: 0.5000% MWh Serial number: 00400243415 Calibration frequency: 5 years Date of last calibration: 23/05/2007 Validity: 23/05/2012
Measuring/ Reading/ Recording frequency:	Directly measured by electricity meter installed at the project site and the connected substation. The data is measured and recorded hourly, and aggregated monthly. The data is monitored and archived electronically. Double-check by electricity sale receipts.
Calculation method (if applicable):	N/A
QA/QC procedures applied:	Cross check measurement results with records for sold electricity where relevant.

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

According with baseline methodology ACM0001 – version 02, Emission Reductions are calculated as follows:

$$ER_y = (MD_{project,\,y} - MD_{reg,\,y}) \times GWP_{CH4} + EG_y \times CEF + ET_y \times CEF_{thermal,\,y} \quad (1)$$

Where:

ER_y = Emission reduction achieved by the project activity during a given year y (tCO_2e);
$MD_{project,\,y}$ = Amount of methane actually destroyed/combusted during the year y (tCH_4);
$MD_{reg,\,y}$ = Amount of methane that would have been destroyed/combusted during the year y in the absence of the project activity (tCH_4);

GWP_{CH4} = Global Warming Potential value for methane (tCO_2e/tCH_4);
EG_y = Net quantity of electricity displaced during the year *y* (MWh)
$CEF_{electricity, y}$ = CO_2 emissions intensity of the electricity displaced (tCO_2e/MWh)
ET_y = Quantity of thermal energy displaced during the year *y* (TJ)
$CEF_{thermal, y}$ = CO_2 emissions intensity of the thermal energy displaced (tCO_2e/TJ).

$MD_{project, y}$ is calculated as the sum of methane flow destroyed in the flares, in the power house and in the heat generation, as follows:

$$MD_{project,\ y} = MD_{flared,\ y} + MD_{electricity,\ y} + MD_{thermal,\ y} \quad (2)$$

Where:

$MD_{flared, y}$ = quantity of methane destroyed in the flares in year *y* (tCH_4)
$MD_{electricity, y}$ = quantity of methane destroyed by the generation of electricity *y* (tCH_4);
$MD_{thermal, y}$ = quantity of methane destroyed for the generation of thermal energy in year *y* (tCH_4)

As SJ does not use the methane to generate thermal energy, $MD_{thermal, y} = 0$.

$MD_{flared, y}$ is calculated as follows:

$$MD_{flared,\ y} = LFG_{flared, y} \times w_{CH4} \times D_{CH4} \times FE \quad (3)$$

Where:

$MD_{flared,y}$ = Quantity of methane destroyed by flaring (tCH_4);
$LFG_{flare,y}$ = Quantity of landfill gas flared during the year measured in cubic meters (Nm^3);
$w_{CH4,y}$ = Average methane fraction of the landfill gas as measured during the year and expressed as a fraction (m^3_{CH4}/m^3LFG)
FE = Flare efficiency (%);
D_{CH4} = Methane density expressed in tonnes of methane per cubic meter of methane (tCH_4/m^3_{CH4});

$MD_{electricity, y}$ is calculated as follows:

$$MD_{electricity,\ y} = LFG_{electricity, y} \times w_{CH4} \times D_{CH4} \quad (4)$$

Where:

$MD_{electricity,y}$ = Quantity of methane destroyed by generation of electricity (tCH_4);
$LFG_{flare,y}$ = quantity of landfill gas fed into electricity generator (Nm^3);
$w_{CH4,y}$ = Average methane fraction of the landfill gas as measured during the year and expressed as a fraction (m^3_{CH4}/m^3LFG)
D_{CH4} = Methane density expressed in tonnes of methane per cubic meter of methane (tCH_4/m^3_{CH4});

Thus, $MD_{project, y}$ is equal to:

$$MD_{project,\ y} = \left(LFG_{flared, y} \times w_{CH4} \times D_{CH4} \times FE\right) + \left(LFG_{electricity, y} \times w_{CH4} \times D_{CH4}\right) \quad (5.1)$$

$$MD_{project,\ y} = w_{CH4} \times D_{CH4} \times \left(LFG_{flared, y} \times FE + LFG_{electricity, y}\right) \quad (5.2)$$

The amount of methane that would have been destroyed/combusted during the year *y* in the absence of the project activity ($MD_{reg, y}$) is calculated adopting an "Adjustment Factor" (AF), as no regulatory or contractual requirements specifying a quantity of methane destruction exists. As will be presented

below, the *AF* adopted for the 1st Crediting Period is equal to 20% of total gas collected. Thus, equation (1) is updated to:

$$ER_y = (MD_{project,y} - 0.2 \times MD_{project,y}) \times GWP_{CH4} + EG_y \times CEF + ET_y \times CEF_{thermal,y} \quad (6.1)$$

As SJ does not displace thermal energy, $ET_y = 0$ and equation 6.1 is updated to:

$$ER_y = (0.8 \times MD_{project,y}) \times GWP_{CH4} + EG_y \times CEF \quad (6.2)$$

Additionally, electricity consumption from the diesel generator times a conservative diesel CO_2 emission factor was subtracted from equation 6.2, resulting in:

$$ER_y = (0.8 \times MD_{project,y}) \times GWP_{CH4} + EG_y \times CEF - EC_y \times EF \quad (6.3)$$

Where:

EC_y = Electricity consumed from the diesel generator (MWh);
EF = Diesel CO_2 emission factor, based on a conservative value (tCO_2/MWh);

A detailed step-by-step of the calculation is presented in item 0.

Calculation of FE – Flare Efficiency

To calculate the Flare Efficiency, the following formulae were applied, based on the mass-balance (an Excel spreadsheet was evidenced to the Verification Team):

Calculate the volume of CH_4 sent to flares F_i ($Flow_{methane}$), measured by FIR500:

$$Flow_{methane} = Flow_{FIR500} \times \frac{\%_{methane}}{100}$$, where:

- $Flow_{methane}$ = methane flow sent to the flare Fi (Nm^3/h);
- $Flow_{FIRi}$ = total flow measured by the flow-meter FIR500 sent to the flare F_i (Nm^3/h);
- % methane = methane measured by the gas analyzer (%);

Calculate the volume of other gases (residual gases) sent to flares ($Flow_{remaining}$):

$$Flow_{remaining} = Flow_{FIR500} - Flow_{methane}$$, where:

- $Flow_{remaining}$ = flow of residual gases sent to the flare F_i (Nm^3/h);

Calculate the total flow entering the flare F_i ($Flow_{Total}$):

$$Flow_{Total} = Flow_{methane} + (Flow_{methane} \times air_{ratio}) + Flow_{remaining},$$

where:

- $Flow_{total}$ = total gas sent to the flare F_i (Nm^3/h);

- air_{ratio} = theoretical air ratio[6];

Calculate the mass of methane in the exhaust gas ($M_{methane}$):

$$M_{methane} = Flow_{Total} \times \frac{CH_{4,eg}}{1000}$$, where:

- $M_{methane}$ = amount of methane remaining in the exhaust gas (g), calculated using the result of the analysis;
- $CH_{4,eg}$ = methane concentration in the exhaust gas (mg/Nm^3) – data acquired from the analysis form the specialized company;

Calculate the Flare Efficiency (FE):

$$FE = \frac{\left(Flow_{methane} \times 0.7168\right) - \frac{M_{methane}}{1000}}{\left(Flow_{methane} \times 0.7168\right)} \times 100$$, where:

- FE = Flare Efficiency (%);
- 0.7168 = density of methane, at STP (kg/Nm^3).

For this monitoring period, Biogás decided to perform 2 analysis of the methane content in the exhaust gas of all flares, all performed by CORPLAB[7]: between 03/08/2009 and 04/08/2009; and between 04/11/2009 and 06/11/2009. The table below presents the methane concentration results.

Flare	November/2009 (Report 2241109)	February/2010 (Report 8472010)	May/2010 (Report 25412010)
F520	1.9 mg/Nm^3	0.5 mg/Nm^3	0.6 mg/Nm^3
F540	0.9 mg/Nm^3	0.2 mg/Nm^3	1.1 mg/Nm^3
F560	1.0 mg/Nm^3	0.7 mg/Nm^3	1.0 mg/Nm^3

Other parameters used to calculate the flare efficiency were:

[6] Air_{ratio} is equal to 5, as recommended by Hoffstetter, the flare manufacturer.

[7] Due to time constrains Corplab could not perform the exhaust gas analysis for all flares in one day .

Measurement	$Flow_{FIR500}$			$\%_{methane}$		
	F520	F540	F560	F520	F540	F560
November/2009	5,211.30 Nm^3/h	4,370.30 Nm^3/h	4,449.60 Nm^3/h	46.20%	45.30%	45.50%
February/2010	5,163.10 Nm^3/h	4,055.00 Nm^3/h	4,329.10 Nm^3/h	47.22%	47.02%	45.32%
May/2010	5,053.55 Nm^3/h	4,217.72 Nm^3/h	4,401.17 Nm^3/h	47.60%	45.80%	47.00%

The results were:

Measurement	Flare Efficiency Calculated		
	F520	F540	F560
November/2009	99.99810%	99.99910%	99.9990%
February/2010	99.99950%	99.99980%	99.99930%
May/2010	99.99941%	99.99890%	99.99901%

In order to adopt a conservative approach, the lowest efficiency calculated through the methane content among the three flares was adopted. The table below resumes the period and the flare efficiency considered.

Period		Flare Efficiency Adopted
From	To	
01/01/2010	03/02/2010	99.99900%
04/02/2010	12/05/2010	99.99930%
13/05/2010	31/07/2010	99.99890%

Monitoring of the operation time of the flares is made continuously by the PLC and every 5 minutes the instantaneously flare temperature is registered by the supervisory system. In order to guarantee the real destruction of the gas, the flares are equipped with an automatic system which can detects the existence of flame. The following operational procedure is applied:

- a signal of gas being collected is sent to the PLC, which sends a signal to a solenoid valve;
- the valve is opened and a small amount of gas is delivered to an ignition burner;
- the ignition burner ignites the gas;
- an UV-sond (part of the ignition burner) verifies the existence of an stable flame – if not, the flare is stopped;
- if the stable flame detection is successful, the UV-sond sends a signal to the PLC, which then opens the main valve, located in the entrance of the flare;
- the main burner is ignited and gas begins to be destroyed;
- after a few seconds, the ignition burner is switched off and UV-sond begins to monitor the existence of flame in the flare – if no flame is detected, the flare will be automatically stopped by a signal sent from the UV-sond to the PLC;

According with the manufacturer, if the temperature of the flare is higher than 1,350°C, the flare will be stopped automatically and if the temperature is below 900°C an alarm is indicating the operator that the flare is running out of the specified combustion temperature range.

If temperature decreases significantly from one registration to another (5 minutes interval), it means that the main valve is closed – the flare is stopped and no gas is being burned. It can be confirmed that no gas is being burned by the instant reading of gas flow from the flow-meter FIR500, installed right before the flares entrances.

However, in some readings it was detected that the flare accepted gas, but with a combustion chamber temperature below 900°C. It happened because between a 5 minutes interval the flare might have stopped and turned on again (e.g. the flare was stopped at 10:01 and turned on on 10:04, not remaining enough time to register a temperature above 900°C). To discount the values below 900°C, the following procedure was applied:

- An hourly average of flares temperature was calculated, considering the temperature registers when the instant gas-flow was above 0 Nm^3/h (flares are accepting gas);
- Gas flow (FIR 500) is considered for the CER calculation only in the case when:
  a) all three flares´ temperature is above 900°C;
  b) one flare´s temperature is above 900°C and the other two flares indicate temperature of 0°C;

Proper Excel sheets applying the above mentioned procedure were presented to the Verification Team.

Moreover, the flares are equipped with an hour-meter, which measures the accumulated operating hours of the flares. Despite of not being registered by SJ's computer supervisory system, Van der Wiel, one of Biogás shareholders, makes the registration of these accumulated operating hours of the flares every 00:01 via a CARS, a system which allows Van der Wiel to have total access to the PLC of SJ.

For the whole monitoring period, the following table presents all measured data and the calculation of methane destroyed.

DATE	COLLECTING SYSTEM				FLARING SYSTEM			ELECTRICITY GENERATION			
	LFG measured FIR600 (Nm^3)	Methane (%)	*Methane measured FIR600 (Nm^3)*	Flares Efficiency (%)	LFG measured FIR500 (Nm^3)	*Methane measured FIR500 (Nm^3)*	*Methne Destroyed in Flares (Nm^3)*	LFG measured FIR800 (Nm^3)	*Methane measured FIR800 (Nm^3)*	Eletricity Exported SJ (MWh)	Eletricity Consumed (MWh)
	A	B	*C = A . B*	D	E	*F = E . B*	*G = F . D*	H	*I = H . B*	J	L
01/01/2010	262,121	48.4371	*126,963.8108*	*99.9989%*	889	430.6058	430.6010	260,968	126,405.3311	436.92	0.0000
02/01/2010	263,808	48.5961	*128,200.3994*	*99.9989%*	2,015	979.2114	979.2006	259,116	125,920.2704	432.20	0.0000
03/01/2010	267,092	48.0722	*128,397.0004*	*99.9989%*	27,494	13,216.9706	13,216.8252	233,513	112,254.8363	382.76	0.0000
04/01/2010	260,017	48.4187	*125,896.8511*	*99.9989%*	25,507	12,350.1578	12,350.0219	228,298	110,538.9237	370.88	0.5170
05/01/2010	246,964	51.3416	*126,795.2690*	*99.9989%*	165,678	85,061.7360	85,060.8003	71,357	36,635.8255	114.61	1.7356
06/01/2010	264,103	48.8256	*128,949.8743*	*99.9989%*	17,026	8,313.0466	8,312.9551	246,083	120,151.5012	410.78	0.0000
07/01/2010	264,027	48.4649	*127,960.4215*	*99.9989%*	3,356	1,626.4820	1,626.4641	258,274	125,172.2358	433.90	0.0000
08/01/2010	266,268	48.4847	*129,099.2409*	*99.9989%*	3,101	1,503.5105	1,503.4939	258,675	125,417.7977	434.36	0.0000
09/01/2010	268,132	48.5114	*130,074.5870*	*99.9989%*	13,564	6,580.0862	6,580.0138	252,665	122,571.3288	421.54	0.0000
10/01/2010	263,728	48.5652	*128,080.0306*	*99.9989%*	52,201	25,351.5200	25,351.2411	210,854	102,401.6668	346.30	0.1584
11/01/2010	274,753	47.5704	*130,701.1011*	*99.9989%*	46,351	22,049.3561	22,049.1135	226,530	107,761.2271	371.85	0.0000
12/01/2010	269,529	47.5065	*128,043.7943*	*99.9989%*	12,504	5,940.2127	5,940.1473	254,647	120,973.8770	416.34	0.0000
13/01/2010	281,186	46.0986	*129,622.8093*	*99.9989%*	19,312	8,902.5616	8,902.4636	256,113	118,064.5074	414.02	0.0000
14/01/2010	273,006	46.2774	*126,340.0786*	*99.9989%*	7,839	3,627.6853	3,627.6453	261,009	120,788.1789	424.75	0.0000
15/01/2010	267,468	47.1500	*126,111.1620*	*99.9989%*	133,979	63,171.0985	63,170.4036	130,205	61,391.6575	211.30	2.5021
16/01/2010	282,385	46.4805	*131,253.9599*	*99.9989%*	18,050	8,389.7302	8,389.6379	257,361	119,622.6796	404.35	0.0000
17/01/2010	282,819	46.6590	*131,960.5172*	*99.9989%*	39,205	18,292.6609	18,292.4596	242,944	113,355.2409	383.72	0.0000
18/01/2010	274,803	46.7593	*128,495.9591*	*99.9989%*	38,871	18,175.8075	18,175.6075	235,351	110,048.4801	382.49	0.0000
19/01/2010	273,952	47.2225	*129,366.9832*	*99.9989%*	47,113	22,247.9364	22,247.6916	225,375	106,427.7093	368.06	0.0000
20/01/2010	274,436	47.2746	*129,738.5212*	*99.9989%*	42,010	19,860.0594	19,859.8409	229,496	108,493.3160	377.42	0.0000

DATE	COLLECTING SYSTEM				FLARING SYSTEM			ELECTRICITY GENERATION			
	LFG measured FIR600 (Nm^3)	Methane (%)	*Methane measured FIR600 (Nm^3)*	Flares Efficiency (%)	LFG measured FIR500 (Nm^3)	*Methane measured FIR500 (Nm^3)*	*Methne Destroyed in Flares (Nm^3)*	LFG measured FIR800 (Nm^3)	*Methane measured FIR800 (Nm^3)*	Eletricity Exported SJ (MWh)	Eletricity Consumed (MWh)
	A	B	*C = A . B*	D	E	*F = E . B*	*G = F . D*	H	*I = H . B*	J	L
21/01/2010	273,123	46.9989	*128,364.8056*	*99.9989%*	32,456	15,253.9629	15,253.7951	238,431	112,059.9472	387.79	0.0000
22/01/2010	268,211	47.4222	*127,191.5568*	*99.9989%*	11,723	5,559.3045	5,559.2433	256,079	121,438.2955	421.61	0.0000
23/01/2010	264,627	47.9177	*126,803.1719*	*99.9989%*	17,057	8,173.3220	8,173.2320	246,110	117,930.2514	405.34	0.0000
24/01/2010	268,304	47.6472	*127,839.3434*	*99.9989%*	20,546	9,789.5937	9,789.4860	243,838	116,181.9795	401.37	0.0000
25/01/2010	267,446	47.8201	*127,892.9446*	*99.9989%*	7,163	3,425.3537	3,425.3160	257,092	122,941.6514	424.45	0.0000
26/01/2010	267,188	47.9586	*128,139.6241*	*99.9989%*	16,003	7,674.8147	7,674.7302	251,081	120,414.9324	414.02	0.0000
27/01/2010	263,464	48.2211	*127,045.2389*	*99.9989%*	4,442	2,141.9812	2,141.9576	256,404	123,640.8292	428.78	0.0000
28/01/2010	262,541	48.2447	*126,662.1178*	*99.9989%*	11,425	5,511.9569	5,511.8962	250,740	120,968.7607	421.90	0.0000
29/01/2010	270,174	47.2468	*127,648.5694*	*99.9989%*	12,626	5,965.3809	5,965.3152	255,680	120,800.6182	421.87	0.0000
30/01/2010	267,469	47.7295	*127,661.6163*	*99.9989%*	2,305	1,100.1649	1,100.1527	263,548	125,790.1426	431.57	0.0000
31/01/2010	275,276	46.6930	*128,534.6226*	*99.9989%*	12,991	6,065.8876	6,065.8208	257,946	120,442.7257	414.53	0.0000
01/02/2010	271,308	46.8965	*127,233.9562*	*99.9989%*	3,929	1,842.5634	1,842.5431	267,283	125,346.3720	431.52	0.0000
02/02/2010	278,045	45.9506	*127,763.3457*	*99.9989%*	23,881	10,973.4627	10,973.3419	252,454	116,004.1277	399.42	0.0000
03/02/2010	272,593	46.3260	*126,281.4331*	*99.9989%*	77,721	36,005.0304	36,004.6343	194,653	90,174.9487	309.39	1.4851
04/02/2010	270,626	99.2222	*268,521.0709*	*99.9993%*	41,714	41,389.5485	41,389.2587	228,579	226,801.1125	367.82	0.0000
05/02/2010	265,988	47.4267	*126,149.3307*	*99.9993%*	24,539	11,638.0379	11,637.9564	241,205	114,395.5717	394.51	0.0000
06/02/2010	271,036	46.0711	*124,869.2665*	*99.9993%*	19,038	8,771.0160	8,770.9546	246,962	113,778.1099	399.20	0.0000
07/02/2010	275,568	45.6628	*125,832.0647*	*99.9993%*	46,506	21,235.9417	21,235.7930	228,539	104,357.3064	362.85	0.0000
08/02/2010	271,907	46.0302	*125,159.3359*	*99.9993%*	36,303	16,710.3435	16,710.2265	235,172	108,250.1419	379.02	0.0000
09/02/2010	263,804	46.3739	*122,336.2031*	*99.9993%*	13,402	6,215.0300	6,214.9864	245,720	113,949.9470	403.26	0.0000
10/02/2010	266,463	45.7680	*121,954.7858*	*99.9993%*	6,113	2,797.7978	2,797.7782	256,073	117,199.4906	411.92	0.0000
11/02/2010	262,157	46.2302	*121,195.7054*	*99.9993%*	0	0.0000	0.0000	262,099	121,168.8918	426.38	0.0000

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	LFG measured FIR600 (Nm^3)	Methane (%)	*Methane measured FIR600 (Nm^3)*	Flares Efficiency (%)	LFG measured FIR500 (Nm^3)	*Methane measured FIR500 (Nm^3)*	*Methne Destroyed in Flares (Nm^3)*	LFG measured FIR800 (Nm^3)	*Methane measured FIR800 (Nm^3)*	Eletricity Exported SJ (MWh)	Eletricity Consumed (MWh)
	A	B	*C = A . B*	D	E	*F = E . B*	*G = F . D*	H	*I = H . B*	J	L
12/02/2010	254,532	47.3031	*120,401.5264*	*99.9993%*	43,207	20,438.2504	20,438.1073	210,905	99,764.6030	345.62	1.0689
13/02/2010	258,045	46.9350	*121,113.4207*	*99.9993%*	0	0.0000	0.0000	258,004	121,094.1774	424.54	0.0000
14/02/2010	258,696	46.5631	*120,456.8771*	*99.9993%*	0	0.0000	0.0000	258,630	120,426.1455	425.31	0.0000
15/02/2010	254,024	46.7027	*118,636.0666*	*99.9993%*	296	138.2399	138.2389	253,589	118,432.9099	418.88	0.0000
16/02/2010	254,587	46.3618	*118,031.1157*	*99.9993%*	3,435	1,592.5278	1,592.5166	247,315	114,659.6856	404.46	0.0000
17/02/2010	259,403	46.5090	*120,645.7412*	*99.9993%*	10,110	4,702.0599	4,702.0269	246,519	114,653.5217	402.18	0.0000
18/02/2010	265,346	47.1795	*125,188.9160*	*99.9993%*	13,060	6,161.6427	6,161.5995	251,558	118,683.8066	407.54	0.0000
19/02/2010	269,950	46.6798	*126,012.1201*	*99.9993%*	12,749	5,951.2077	5,951.1660	255,173	119,114.2460	408.05	0.0000
20/02/2010	263,666	47.7517	*125,904.9973*	*99.9993%*	35,186	16,801.9131	16,801.7954	227,912	108,831.8545	368.98	0.0000
21/02/2010	267,448	47.0503	*125,835.0863*	*99.9993%*	27,596	12,984.0007	12,983.9098	239,275	112,579.6053	384.45	0.0000
22/02/2010	268,853	46.9145	*126,131.0406*	*99.9993%*	117,837	55,282.6393	55,282.2523	150,225	70,477.3076	257.09	1.9495
23/02/2010	271,098	46.9284	*127,221.9538*	*99.9993%*	218,472	102,525.4140	102,524.6963	51,816	24,316.4197	69.26	3.9139
24/02/2010	257,059	47.1027	*121,081.7295*	*99.9993%*	35,977	16,946.1383	16,946.0196	219,179	103,239.2268	367.86	0.0000
25/02/2010	265,408	45.9913	*122,064.5895*	*99.9993%*	17,221	7,920.1617	7,920.1062	245,800	113,046.6154	390.72	0.0000
26/02/2010	262,072	46.6725	*122,315.5542*	*99.9993%*	8,934	4,169.7211	4,169.6919	251,948	117,590.4303	400.46	0.0000
27/02/2010	261,282	46.9100	*122,567.3862*	*99.9993%*	0	0.0000	0.0000	261,262	122,558.0042	416.24	0.0000
28/02/2010	248,686	48.5416	*120,716.1633*	*99.9993%*	4,096	1,988.2639	1,988.2499	243,231	118,068.2190	398.74	0.0000
01/03/2010	264,453	46.9413	*124,137.6760*	*99.9993%*	21,006	9,860.4894	9,860.4203	242,462	113,814.8148	389.39	0.0000
02/03/2010	260,508	47.1836	*122,917.0526*	*99.9993%*	708	334.0598	334.0574	256,905	121,217.0275	418.34	0.0000
03/03/2010	263,275	45.9833	*121,062.5330*	*99.9993%*	7,521	3,458.4039	3,458.3796	255,642	117,552.6277	415.31	0.0000
04/03/2010	259,266	46.7170	*121,121.2972*	*99.9993%*	6,141	2,868.8909	2,868.8708	253,039	118,212.2296	417.47	0.0000
05/03/2010	266,313	46.1208	*122,825.6861*	*99.9993%*	5,789	2,669.9331	2,669.9144	260,152	119,984.1836	426.40	0.0000

DATE	COLLECTING SYSTEM				FLARING SYSTEM			ELECTRICITY GENERATION			
	LFG measured FIR600 (Nm^3)	Methane (%)	*Methane measured FIR600 (Nm^3)*	Flares Efficiency (%)	LFG measured FIR500 (Nm^3)	*Methane measured FIR500 (Nm^3)*	*Methne Destroyed in Flares (Nm^3)*	LFG measured FIR800 (Nm^3)	*Methane measured FIR800 (Nm^3)*	Eletricity Exported SJ (MWh)	Eletricity Consumed (MWh)
	A	B	*C = A . B*	D	E	*F = E . B*	*G = F . D*	H	*I = H . B*	J	L
06/03/2010	267,648	46.1145	*123,424.5369*	*99.9993%*	5,729	2,641.8997	2,641.8812	261,503	120,590.8009	428.78	0.0000
07/03/2010	260,244	47.0975	*122,568.4179*	*99.9993%*	17,216	8,108.3056	8,108.2488	242,842	114,372.5109	403.95	0.0000
08/03/2010	265,334	45.9211	*121,844.2914*	*99.9993%*	18,140	8,330.0875	8,330.0291	247,004	113,426.9538	403.26	0.0000
09/03/2010	262,052	46.3031	*121,338.1996*	*99.9993%*	17,422	8,066.9260	8,066.8695	244,240	113,090.6914	399.31	0.0000
10/03/2010	264,259	46.6916	*123,386.7552*	*99.9993%*	36,410	17,000.4115	17,000.2924	225,717	105,390.8787	370.33	0.0000
11/03/2010	255,847	46.9881	*120,217.6442*	*99.9993%*	42,033	19,750.5080	19,750.3697	213,328	100,238.7739	352.59	0.4049
12/03/2010	256,481	46.6545	*119,659.9281*	*99.9993%*	24,659	11,504.5331	11,504.4525	231,414	107,965.0446	382.94	0.0000
13/03/2010	256,301	46.6291	*119,510.8495*	*99.9993%*	12,752	5,946.1428	5,946.1011	238,456	111,189.8866	394.02	0.0000
14/03/2010	213,806	47.6902	*101,964.5090*	*99.9993%*	28,796	13,732.8699	13,732.7737	180,868	86,256.3109	301.97	0.4776
15/03/2010	251,876	45.6423	*114,961.9995*	*99.9993%*	17,099	7,804.3768	7,804.3221	232,167	105,966.3586	372.22	0.0000
16/03/2010	248,450	46.3122	*115,062.6609*	*99.9993%*	23,851	11,045.9228	11,045.8454	223,571	103,540.6486	361.09	0.0000
17/03/2010	248,453	46.2523	*114,915.2269*	*99.9993%*	19,593	9,062.2131	9,062.1496	227,711	105,321.5748	363.55	0.0000
18/03/2010	243,229	46.7688	*113,755.2845*	*99.9993%*	21,910	10,247.0440	10,246.9722	219,408	102,614.4887	355.41	0.0000
19/03/2010	242,081	46.2788	*112,032.1818*	*99.9993%*	22,863	10,580.7220	10,580.6479	217,090	100,466.6469	356.06	0.0000
20/03/2010	243,852	46.4997	*113,390.4484*	*99.9993%*	0	0.0000	0.0000	243,677	113,309.0739	403.49	0.0000
21/03/2010	248,198	46.1370	*114,511.1112*	*99.9993%*	0	0.0000	0.0000	247,996	114,417.9145	407.90	0.0000
22/03/2010	243,122	45.8068	*111,366.4082*	*99.9993%*	1,103	505.2490	505.2454	240,198	110,027.0174	391.52	0.0000
23/03/2010	236,510	46.8145	*110,720.9739*	*99.9993%*	2,265	1,060.3484	1,060.3409	233,829	109,465.8772	387.18	0.0000
24/03/2010	242,200	46.6514	*112,989.6908*	*99.9993%*	858	400.2690	400.2661	241,129	112,490.0543	392.91	0.0000
25/03/2010	239,057	47.0135	*112,389.0626*	*99.9993%*	628	295.2447	295.2426	237,667	111,735.5750	392.24	0.0000
26/03/2010	243,207	47.0800	*114,501.8556*	*99.9993%*	0	0.0000	0.0000	243,022	114,414.7576	402.27	0.0000
27/03/2010	250,470	46.5496	*116,592.7831*	*99.9993%*	157,616	73,369.6175	73,369.1039	83,328	38,788.8506	135.68	2.8949

DATE	COLLECTING SYSTEM				FLARING SYSTEM			ELECTRICITY GENERATION			
	LFG measured FIR600 (Nm^3)	Methane (%)	*Methane measured FIR600 (Nm^3)*	Flares Efficiency (%)	LFG measured FIR500 (Nm^3)	*Methane measured FIR500 (Nm^3)*	*Methne Destroyed in Flares (Nm^3)*	LFG measured FIR800 (Nm^3)	*Methane measured FIR800 (Nm^3)*	Eletricity Exported SJ (MWh)	Eletricity Consumed (MWh)
	A	B	*C = A . B*	D	E	*F = E . B*	*G = F . D*	H	*I = H . B*	J	L
28/03/2010	239,640	47.6622	*114,217.6960*	*99.9993%*	34,268	16,332.8826	16,332.7682	204,749	97,587.8778	338.45	0.0000
29/03/2010	240,330	47.0647	*113,110.5935*	*99.9993%*	21,777	10,249.2797	10,249.2079	216,784	102,028.7392	356.26	0.0000
30/03/2010	244,185	47.1270	*115,077.0649*	*99.9993%*	0	0.0000	0.0000	241,480	113,802.2796	399.73	0.0000
31/03/2010	246,058	47.5593	*117,023.4623*	*99.9993%*	2,621	1,246.5292	1,246.5204	242,544	115,352.2285	404.86	0.0000
01/04/2010	247,216	47.3463	*117,047.6290*	*99.9993%*	6,117	2,896.1731	2,896.1528	240,256	113,752.3265	394.13	0.0000
02/04/2010	246,706	47.5297	*117,258.6216*	*99.9993%*	5,192	*2,467.7420*	*2,467.7247*	241,161	114,623.0998	398.02	0.0000
03/04/2010	247,588	47.5050	*117,616.6794*	*99.9993%*	2,028	*963.4014*	*963.3946*	245,467	116,609.0983	404.77	0.0000
04/04/2010	249,652	47.4206	*118,386.4763*	*99.9993%*	7,326	*3,474.0331*	*3,474.0087*	242,176	114,841.3122	401.20	0.0000
05/04/2010	250,445	47.2040	*118,220.0578*	*99.9993%*	0	*0.0000*	*0.0000*	250,352	118,176.1580	414.00	0.0000
06/04/2010	245,605	47.8626	*117,552.9387*	*99.9993%*	7,360	*3,522.6873*	*3,522.6626*	237,141	113,501.8482	397.90	0.0000
07/04/2010	243,802	48.9156	*119,257.2111*	*99.9993%*	3,456	*1,690.5231*	*1,690.5112*	239,887	117,342.1653	405.33	0.0000
08/04/2010	253,105	47.7618	*120,887.5038*	*99.9993%*	0	*0.0000*	*0.0000*	252,612	120,652.0382	416.88	0.0000
09/04/2010	247,481	48.3314	*119,611.0320*	*99.9993%*	58,629	*28,336.2165*	*28,336.0181*	177,862	85,963.1946	291.50	1.4004
10/04/2010	248,534	48.6136	*120,821.3246*	*99.9993%*	70,299	*34,174.8746*	*34,174.6353*	176,347	85,728.6251	290.38	0.2057
11/04/2010	242,821	49.1089	*119,246.7220*	*99.9993%*	2,678	*1,315.1363*	*1,315.1270*	238,660	117,203.3007	397.60	0.0000
12/04/2010	241,775	49.1466	*118,824.1921*	*99.9993%*	4,554	*2,238.1361*	*2,238.1204*	234,760	115,376.5581	390.64	0.0000
13/04/2010	243,420	48.3679	*117,737.1421*	*99.9993%*	0	*0.0000*	*0.0000*	240,073	116,118.2685	393.62	0.0000
14/04/2010	249,159	47.9421	*119,452.0569*	*99.9993%*	2,511	*1,203.8261*	*1,203.8176*	244,599	117,265.8971	402.19	0.0000
15/04/2010	250,573	47.8939	*120,009.1820*	*99.9993%*	997	*477.5021*	*477.4987*	247,417	118,497.6505	408.30	0.0000
16/04/2010	253,923	46.8197	*118,885.9868*	*99.9993%*	4,464	*2,090.0314*	*2,090.0167*	248,502	116,347.8908	410.14	0.0000
17/04/2010	247,401	47.3412	*117,122.6022*	*99.9993%*	0	*0.0000*	*0.0000*	247,100	116,980.1052	410.10	0.0000
18/04/2010	257,436	45.8934	*118,146.1332*	*99.9993%*	0	*0.0000*	*0.0000*	257,101	117,992.3903	417.20	0.0000

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	LFG measured FIR600 (Nm^3)	Methane (%)	*Methane measured FIR600 (Nm^3)*	Flares Efficiency (%)	LFG measured FIR500 (Nm^3)	*Methane measured FIR500 (Nm^3)*	*Methne Destroyed in Flares (Nm^3)*	LFG measured FIR800 (Nm^3)	*Methane measured FIR800 (Nm^3)*	Eletricity Exported SJ (MWh)	Eletricity Consumed (MWh)
	A	B	*C = A . B*	D	E	*F = E . B*	*G = F . D*	H	*I = H . B*	J	L
19/04/2010	265,104	45.4837	*120,579.1080*	*99.9993%*	183,267	*83,356.6124*	*83,356.0289*	80,601	36,660.3170	129.58	3.8270
20/04/2010	273,088	44.7894	*122,314.4766*	*99.9993%*	272,293	*121,958.4009*	*121,957.5471*	2	0.8957	0.00	5.2226
21/04/2010	252,408	45.8372	*115,696.7597*	*99.9993%*	234,759	*107,606.9523*	*107,606.1990*	6,649	3,047.7154	11.51	4.3107
22/04/2010	238,635	48.1406	*114,880.3208*	*99.9993%*	41,208	*19,837.7784*	*19,837.6395*	196,420	94,557.7665	408.59	0.8375
23/04/2010	247,290	46.6148	*115,273.7389*	*99.9993%*	0	*0.0000*	*0.0000*	247,024	115,149.7435	406.23	0.0000
24/04/2010	246,951	47.2836	*116,767.3230*	*99.9993%*	1,634	*772.6140*	*772.6085*	245,060	115,873.1901	403.99	0.0000
25/04/2010	250,075	47.5854	*118,999.1890*	*99.9993%*	0	*0.0000*	*0.0000*	249,823	118,879.2738	413.90	0.0000
26/04/2010	248,964	47.3215	*117,813.4992*	*99.9993%*	7,855	*3,717.1038*	*3,717.0777*	234,148	110,802.3458	385.76	0.3280
27/04/2010	248,838	46.8175	*116,499.7306*	*99.9993%*	0	*0.0000*	*0.0000*	244,992	114,699.1296	399.97	0.0000
28/04/2010	254,007	46.7443	*118,733.7941*	*99.9993%*	0	*0.0000*	*0.0000*	253,844	118,657.6008	408.76	0.0000
29/04/2010	251,557	47.2844	*118,947.2181*	*99.9993%*	0	*0.0000*	*0.0000*	251,403	118,874.4001	407.27	0.0000
30/04/2010	243,886	47.8116	*116,605.7987*	*99.9993%*	0	*0.0000*	*0.0000*	243,693	116,513.5223	396.61	0.0000
01/05/2010	238,996	48.4157	*115,711.5863*	*99.9993%*	77,134	*37,344.9660*	*37,344.7045*	160,571	77,741.5736	262.31	1.5634
02/05/2010	239,285	48.2619	*115,483.4874*	*99.9993%*	938	*452.6966*	*452.6934*	235,962	113,879.7444	390.35	0.0000
03/05/2010	238,384	48.4683	*115,540.6722*	*99.9993%*	2,933	*1,421.5752*	*1,421.5652*	235,184	113,989.6866	387.49	0.0000
04/05/2010	239,371	48.3570	*115,752.6344*	*99.9993%*	3,900	*1,885.9230*	*1,885.9097*	234,267	113,284.4931	387.30	0.0000
05/05/2010	246,486	46.8049	*115,367.5258*	*99.9993%*	0	*0.0000*	*0.0000*	242,886	113,682.5494	399.96	0.0000
06/05/2010	244,754	46.3439	*113,428.5490*	*99.9993%*	0	*0.0000*	*0.0000*	244,580	113,347.9106	400.50	0.0000
07/05/2010	243,283	46.5355	*113,212.9604*	*99.9993%*	151	*70.2686*	*70.2681*	242,154	112,687.5746	401.06	0.0000
08/05/2010	245,868	46.2874	*113,805.9046*	*99.9993%*	995	*460.5596*	*460.5563*	244,668	113,250.4558	406.33	0.0000
09/05/2010	246,823	46.6939	*115,251.2847*	*99.9993%*	0	*0.0000*	*0.0000*	246,714	115,200.3884	406.74	0.0000
10/05/2010	244,457	47.1080	*115,158.8035*	*99.9993%*	0	*0.0000*	*0.0000*	244,344	115,105.5715	405.54	0.0000

DATE	COLLECTING SYSTEM				FLARING SYSTEM			ELECTRICITY GENERATION			
	LFG measured FIR600 (Nm^3)	Methane (%)	*Methane measured FIR600 (Nm^3)*	Flares Efficiency (%)	LFG measured FIR500 (Nm^3)	*Methane measured FIR500 (Nm^3)*	*Methne Destroyed in Flares (Nm^3)*	LFG measured FIR800 (Nm^3)	*Methane measured FIR800 (Nm^3)*	Eletricity Exported SJ (MWh)	Eletricity Consumed (MWh)
	A	B	*C = A . B*	D	E	*F = E . B*	*G = F . D*	H	*I = H . B*	J	L
11/05/2010	241,323	47.5945	*114,856.4752*	*99.9993%*	2,421	*1,152.2628*	*1,152.2547*	236,716	112,663.7966	395.72	0.0000
12/05/2010	238,203	47.1892	*112,406.0900*	*99.9993%*	18,391	*8,678.5657*	*8,678.5049*	214,556	101,247.2599	354.28	0.0000
13/05/2010	241,452	47.0196	*113,529.7645*	*99.9989%*	10,680	*5,021.6932*	*5,021.6379*	226,094	106,308.4944	371.23	0.0000
14/05/2010	243,639	47.5959	*115,962.1748*	*99.9989%*	8,296	*3,948.5558*	*3,948.5123*	233,750	111,255.4162	388.79	0.0000
15/05/2010	249,163	46.9787	*117,053.5382*	*99.9989%*	12,004	*5,639.3231*	*5,639.2610*	236,201	110,964.1591	389.03	0.0000
16/05/2010	239,358	48.0325	*114,969.6313*	*99.9989%*	15,346	*7,371.0674*	*7,370.9863*	223,144	107,181.6418	374.98	0.0000
17/05/2010	251,630	45.9611	*115,651.9159*	*99.9989%*	36,186	*16,631.4836*	*16,631.3006*	213,182	97,980.7922	344.16	0.0000
18/05/2010	246,401	46.6257	*114,886.1910*	*99.9989%*	28,835	*13,444.5205*	*13,444.3726*	216,150	100,781.4505	352.95	0.0000
19/05/2010	234,140	47.3117	*110,775.6143*	*99.9989%*	18,787	*8,888.4490*	*8,888.3512*	213,496	101,008.5870	359.93	0.0000
20/05/2010	228,888	47.5269	*108,783.3708*	*99.9989%*	19,849	*9,433.6143*	*9,433.5105*	206,496	98,141.1474	348.99	0.0000
21/05/2010	233,014	47.3388	*110,306.0314*	*99.9989%*	20,313	*9,615.9304*	*9,615.8246*	210,332	99,568.6448	354.43	0.0000
22/05/2010	233,277	48.0179	*112,014.7165*	*99.9989%*	24,886	*11,949.7345*	*11,949.6030*	207,833	99,797.0421	354.63	0.0000
23/05/2010	235,908	47.5618	*112,202.0911*	*99.9989%*	22,292	*10,602.4764*	*10,602.3597*	213,037	101,324.2318	361.29	0.0000
24/05/2010	233,316	47.8813	*111,714.7339*	*99.9989%*	19,839	*9,499.1711*	*9,499.0666*	212,923	101,950.3003	360.37	0.0000
25/05/2010	209,188	48.5362	*101,531.9060*	*99.9989%*	27,912	*13,547.4241*	*13,547.2750*	174,596	84,742.2637	293.54	0.3438
26/05/2010	241,594	46.2273	*111,682.3831*	*99.9989%*	18,163	*8,396.2644*	*8,396.1720*	220,249	101,815.1659	364.89	0.0000
27/05/2010	241,843	46.1596	*111,633.7614*	*99.9989%*	29,375	*13,559.3825*	*13,559.2333*	211,636	97,690.3310	347.62	0.0000
28/05/2010	242,998	47.2627	*114,847.4157*	*99.9989%*	32,680	*15,445.4503*	*15,445.2804*	209,622	99,073.0169	350.98	0.0000
29/05/2010	237,065	47.5359	*112,690.9813*	*99.9989%*	33,049	*15,710.1395*	*15,709.9666*	203,211	96,598.1777	345.35	0.0000
30/05/2010	237,371	47.1393	*111,895.0278*	*99.9989%*	50,001	*23,570.1213*	*23,569.8620*	186,404	87,869.5407	316.83	0.0000
31/05/2010	241,888	45.7548	*110,675.3706*	*99.9989%*	66,888	*30,604.4706*	*30,604.1339*	168,191	76,955.4556	277.44	0.4275
01/06/2010	244,549	45.6058	*111,528.5278*	*99.9989%*	78,319	*35,718.0065*	*35,717.6136*	164,747	75,134.1873	265.98	0.0000

DATE	COLLECTING SYSTEM				FLARING SYSTEM			ELECTRICITY GENERATION			
	LFG measured FIR600 (Nm^3)	Methane (%)	*Methane measured FIR600 (Nm^3)*	Flares Efficiency (%)	LFG measured FIR500 (Nm^3)	*Methane measured FIR500 (Nm^3)*	*Methne Destroyed in Flares (Nm^3)*	LFG measured FIR800 (Nm^3)	*Methane measured FIR800 (Nm^3)*	Eletricity Exported SJ (MWh)	Eletricity Consumed (MWh)
	A	B	*C = A . B*	D	E	*F = E . B*	*G = F . D*	H	*I = H . B*	J	L
02/06/2010	241,542	46.6140	*112,592.3878*	*99.9989%*	77,418	*36,087.6265*	*36,087.2295*	162,587	75,788.3041	262.61	0.0000
03/06/2010	241,079	46.6945	*112,570.6336*	*99.9989%*	59,758	*27,903.6993*	*27,903.3923*	179,951	84,027.2196	294.45	0.0000
04/06/2010	241,605	46.9115	*113,340.5295*	*99.9989%*	63,509	*29,793.0245*	*29,792.6967*	176,935	83,002.8625	282.52	0.0000
05/06/2010	241,346	46.7816	*112,905.5203*	*99.9989%*	53,654	*25,100.1996*	*25,099.9234*	186,567	87,279.0276	308.45	0.0000
06/06/2010	237,701	46.6948	*110,994.0065*	*99.9989%*	58,624	*27,374.3595*	*27,374.0583*	176,650	82,486.3642	289.24	0.0000
07/06/2010	241,576	46.2834	*111,809.5863*	*99.9989%*	54,234	*25,101.3391*	*25,101.0629*	186,265	86,209.7750	302.65	0.0000
08/06/2010	243,445	45.8820	*111,697.4349*	*99.9989%*	63,408	*29,092.8585*	*29,092.5384*	178,959	82,109.9683	290.34	0.0000
09/06/2010	242,476	45.9532	*111,425.4812*	*99.9989%*	59,483	*27,334.3419*	*27,334.0412*	181,886	83,582.4373	295.21	0.0000
10/06/2010	243,567	45.6565	*111,204.1673*	*99.9989%*	62,753	*28,650.8234*	*28,650.5082*	179,663	82,027.8375	289.66	0.0000
11/06/2010	241,499	45.6323	*110,201.5481*	*99.9989%*	66,086	*30,156.5617*	*30,156.2299*	174,414	79,589.1197	280.02	0.0000
12/06/2010	242,573	45.4265	*110,192.4238*	*99.9989%*	77,403	*35,161.4737*	*35,161.0869*	164,298	74,634.8309	260.26	0.0000
13/06/2010	238,382	46.1432	*109,997.0830*	*99.9989%*	80,596	*37,189.5734*	*37,189.1643*	156,746	72,327.6202	251.19	0.0000
14/06/2010	238,024	46.3090	*110,226.5341*	*99.9989%*	64,462	*29,851.7075*	*29,851.3791*	172,614	79,935.8172	280.57	0.0000
15/06/2010	236,364	46.3956	*109,662.4959*	*99.9989%*	50,137	*23,261.3619*	*23,261.1060*	185,426	86,029.5052	303.21	0.0000
16/06/2010	237,942	46.2640	*110,081.4868*	*99.9989%*	66,177	*30,616.1272*	*30,615.7904*	170,946	79,086.4574	276.34	0.0000
17/06/2010	229,702	46.3641	*106,499.2649*	*99.9989%*	98,837	*45,824.8855*	*45,824.3814*	130,111	60,324.7941	207.42	0.0000
18/06/2010	234,793	46.1393	*108,331.8466*	*99.9989%*	78,502	*36,220.2732*	*36,219.8747*	155,496	71,744.7659	252.11	0.0000
19/06/2010	242,263	45.1425	*109,363.5747*	*99.9989%*	64,741	*29,225.7059*	*29,225.3844*	176,801	79,812.3914	285.24	0.0000
20/06/2010	239,998	44.9350	*107,843.1013*	*99.9989%*	54,789	*24,619.4371*	*24,619.1662*	184,560	82,932.0360	297.51	0.0000
21/06/2010	235,150	45.3677	*106,682.1465*	*99.9989%*	26,751	*12,136.3134*	*12,136.1799*	205,403	93,186.6168	332.01	0.0000
22/06/2010	235,215	45.4795	*106,974.6059*	*99.9989%*	23,442	*10,661.3043*	*10,661.1870*	204,019	92,786.8211	329.77	0.0000
23/06/2010	239,259	45.2478	*108,259.4338*	*99.9989%*	17,971	*8,131.4821*	*8,131.3926*	209,908	94,978.7520	335.57	0.0000

DATE	COLLECTING SYSTEM				FLARING SYSTEM			ELECTRICITY GENERATION			
	LFG measured FIR600 (Nm^3)	Methane (%)	*Methane measured FIR600 (Nm^3)*	Flares Efficiency (%)	LFG measured FIR500 (Nm^3)	*Methane measured FIR500 (Nm^3)*	*Methne Destroyed in Flares (Nm^3)*	LFG measured FIR800 (Nm^3)	*Methane measured FIR800 (Nm^3)*	Eletricity Exported SJ (MWh)	Eletricity Consumed (MWh)
	A	B	*C = A . B*	D	E	*F = E . B*	*G = F . D*	H	*I = H . B*	J	L
24/06/2010	235,813	45.9338	*108,317.8717*	*99.9989%*	7,684	*3,529.5531*	*3,529.5142*	222,584	102,241.2893	360.50	0.0000
25/06/2010	234,274	46.1484	*108,113.7026*	*99.9989%*	5,901	*2,723.2170*	*2,723.1870*	227,496	104,985.7640	371.65	0.0000
26/06/2010	226,682	47.0990	*106,764.9551*	*99.9989%*	1,987	*935.8571*	*935.8468*	223,354	105,197.5004	372.49	0.0000
27/06/2010	223,735	46.8141	*104,739.5266*	*99.9989%*	1,094	*512.1462*	*512.1405*	221,739	103,805.1171	366.26	0.0000
28/06/2010	223,653	46.2123	*103,355.1953*	*99.9989%*	2,442	*1,128.5043*	*1,128.4918*	213,737	98,772.7836	350.15	0.0000
29/06/2010	228,393	45.6679	*104,302.2868*	*99.9989%*	11,077	*5,058.6332*	*5,058.5775*	215,673	98,493.3299	347.13	0.0000
30/06/2010	238,415	45.8051	*109,206.2291*	*99.9989%*	33,284	*15,245.7694*	*15,245.6016*	204,091	93,484.0866	324.72	0.0000
01/07/2010	238,265	45.7965	*109,117.0307*	*99.9989%*	51,524	*23,596.1886*	*23,595.9290*	185,471	84,939.2265	297.42	0.0000
02/07/2010	238,222	45.6477	*108,742.8638*	*99.9989%*	45,190	*20,628.1956*	*20,627.9686*	191,892	87,594.2844	305.97	0.0000
03/07/2010	236,549	45.7550	*108,232.9949*	*99.9989%*	43,685	*19,988.0717*	*19,987.8518*	191,758	87,738.8729	308.79	0.0000
04/07/2010	235,843	45.8382	*108,106.1860*	*99.9989%*	45,851	*21,017.2730*	*21,017.0418*	188,850	86,565.4407	302.84	0.0000
05/07/2010	239,752	45.3891	*108,821.2750*	*99.9989%*	46,698	*21,195.8019*	*21,195.5687*	191,943	87,121.2002	305.80	0.0000
06/07/2010	242,018	44.9864	*108,875.1855*	*99.9989%*	48,797	*21,952.0136*	*21,951.7721*	192,098	86,417.9746	302.92	0.0000
07/07/2010	237,414	44.9903	*106,813.2708*	*99.9989%*	48,135	*21,656.0809*	*21,655.8426*	188,334	84,732.0316	299.66	0.0000
08/07/2010	234,338	45.1834	*105,881.8758*	*99.9989%*	39,953	*18,052.1238*	*18,051.9252*	193,507	87,433.0418	309.64	0.0000
09/07/2010	233,512	45.1658	*105,467.5628*	*99.9989%*	38,975	*17,603.3705*	*17,603.1768*	193,588	87,435.5689	308.87	0.0000
10/07/2010	232,008	45.2585	*105,003.3406*	*99.9989%*	46,195	*20,907.1640*	*20,906.9340*	184,832	83,652.1907	294.17	0.0000
11/07/2010	231,706	45.8000	*106,121.3480*	*99.9989%*	42,471	*19,451.7180*	*19,451.5040*	188,230	86,209.3400	303.53	0.0000
12/07/2010	238,113	44.7296	*106,506.9924*	*99.9989%*	59,844	*26,767.9818*	*26,767.6873*	177,246	79,281.4268	280.78	0.0000
13/07/2010	231,899	44.5985	*103,423.4755*	*99.9989%*	150,165	*66,971.3375*	*66,970.6008*	68,509	30,553.9863	105.80	2.3638
14/07/2010	230,466	46.6581	*107,531.0567*	*99.9989%*	80,357	*37,493.0494*	*37,492.6369*	149,351	69,684.3389	235.21	0.0000
15/07/2010	233,190	47.2000	*110,065.6800*	*99.9989%*	74,124	*34,986.5280*	*34,986.1431*	158,345	74,738.8400	249.70	0.0000

DATE	COLLECTING SYSTEM				FLARING SYSTEM			ELECTRICITY GENERATION			
	LFG measured FIR600 (Nm^3)	Methane (%)	*Methane measured FIR600 (Nm^3)*	Flares Efficiency (%)	LFG measured FIR500 (Nm^3)	*Methane measured FIR500 (Nm^3)*	*Methne Destroyed in Flares (Nm^3)*	LFG measured FIR800 (Nm^3)	*Methane measured FIR800 (Nm^3)*	Eletricity Exported SJ (MWh)	Eletricity Consumed (MWh)
	A	B	*C = A . B*	D	E	*F = E . B*	*G = F . D*	H	*I = H . B*	J	L
16/07/2010	236,160	46.8907	*110,737.0771*	*99.9989%*	64,199	*30,103.3604*	*30,103.0292*	171,378	80,360.3438	271.04	0.0000
17/07/2010	232,969	47.7316	*111,199.8312*	*99.9989%*	63,858	*30,480.4451*	*30,480.1098*	168,448	80,402.9255	270.75	0.0000
18/07/2010	230,382	48.3376	*111,361.1296*	*99.9989%*	61,206	*29,585.5114*	*29,585.1859*	168,562	81,478.8253	274.99	0.0000
19/07/2010	232,948	47.7382	*111,205.1821*	*99.9989%*	62,447	*29,811.0737*	*29,810.7457*	169,829	81,073.3076	275.36	0.0000
20/07/2010	236,858	46.0191	*108,999.9198*	*99.9989%*	68,430	*31,490.8701*	*31,490.5237*	167,702	77,174.9510	264.72	0.0000
21/07/2010	234,624	46.2693	*108,558.8824*	*99.9989%*	62,932	*29,118.1958*	*29,117.8754*	170,971	79,107.0849	274.80	0.0000
22/07/2010	236,494	45.3082	*107,151.1745*	*99.9989%*	70,473	*31,930.0477*	*31,929.6964*	165,289	74,889.4706	260.63	0.0000
23/07/2010	234,458	45.1161	*105,778.3057*	*99.9989%*	67,149	*30,295.0099*	*30,294.6766*	166,592	75,159.8133	260.43	0.0000
24/07/2010	231,256	45.7596	*105,821.8205*	*99.9989%*	48,515	*22,200.2699*	*22,200.0256*	182,181	83,365.2968	287.90	0.0000
25/07/2010	230,705	46.1016	*106,358.6962*	*99.9989%*	55,056	*25,381.6968*	*25,381.4176*	175,107	80,727.1287	278.95	0.0000
26/07/2010	231,361	45.4819	*105,227.3786*	*99.9989%*	50,899	*23,149.8322*	*23,149.5775*	180,041	81,886.0675	283.60	0.0000
27/07/2010	232,309	44.8860	*104,274.2177*	*99.9989%*	43,115	*19,352.5989*	*19,352.3860*	188,867	84,774.8416	291.70	0.0000
28/07/2010	225,766	45.7845	*103,365.8342*	*99.9989%*	55,240	*25,291.3578*	*25,291.0795*	170,166	77,909.6522	268.33	0.0000
29/07/2010	222,197	46.6041	*103,552.9120*	*99.9989%*	53,065	*24,730.4656*	*24,730.1935*	168,848	78,690.0907	272.50	0.0000
30/07/2010	225,303	46.0145	*103,672.0489*	*99.9989%*	62,332	*28,681.7581*	*28,681.4426*	162,651	74,843.0443	260.36	0.0000
31/07/2010	223,185	45.8815	*102,400.6257*	*99.9989%*	63,239	*29,015.0017*	*29,014.6825*	159,675	73,261.2851	252.77	0.0000

Obs.: the calculation of *methane measured* and *methane destroyed* was conservatively made, using Excel tool “ROUND DOWN” with four decimal rounds.

A consolidation of methane destroyed and electricity consumed/exported is presented in the table below:

Total Methane Destroyed in Flares (Nm^3), measured by FIR500	**3,312,030.6480**
Total Methane destroyed in the Power House (Nm^3), measured by FIR800	**21,363,576.1887**
Total electricity consumed from the diesel generator (MWh)	**37.9383**
Total Electricity Exported, measured at São João Landfill's substation (MWh)	**74,108.6140**

ERs from the electricity indeed exported are measured at Eletropaulo's substation (based on monthly electricity transaction notes), located around 14 km from São João Landfill. The values measured are lower than the one in the landfill's substation due to losses in the transmission line. The table below presents the electricity measured during the Monitoring Period and the comparison between the one measured in the landfill:

MONTH	Electricity Measured at São João Landfill (MWh)	Electricity Measured at Eletropaulo's Substation (MWh)[8]
January/2010	12,111.7760	11,555.3106
February/2010	10,575.6780	10,076.1784
March/2010	11,724.9040	11,195.9001
April/2010	10,816.0910	10,230.5304
May/2010	11,255.0210	10,752.0059
June/2010	9,065.2380	8,712.9850
July/2010	8,559.9060	-[9]
TOTAL	**74,108.6140**	**62,522.9104**

As mentioned above, follows the description and consideration of measurement uncertainties and error propagation of the equipments. The readings from all equipments are subjected to internal errors from a standard value. These errors are measured and described in the Calibration Certificates, in terms of ± % from the standard adopted.

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All calibrations usually have an expiration date, however the manufacturers of the flow-meters and pressure-temperature transmitters are Europeans and there are no rule in Europe specifying the calibration periodicity. Biogás decided to adopt a 5 years calibration frequency for every equipment. Regarding electricity meter, the manufacturer does not mention a specific calibration frequency of the meter. Besides, there does not exist any standard or norm in Brazil indicating a specific calibration frequency.

The errors and the date of the calibration for each equipment were presented in the tables in item D.2[10] below.

[8] Electricity measured based on monthly transaction notes.

[9] This value will be completed as soon as we receipt the Eletropaulo´s Invoice.

[10] All data referring to the equipments of the FIR700 were excluded because this Flare Auxiliary line was disconnected.

Adopting a conservative approach on Emission Reduction calculation, the equivalent error calculated was discounted from the amount of methane calculated for each flow-meter, according to the equations below:

$$\varepsilon_{FIR500} = \sqrt{\left(\varepsilon_{Gas\ Flow_{FIR500}}\right)^2 + \left(\varepsilon_{Temperature_{FIR500}}\right)^2 + \left(\varepsilon_{Pressure_{FIR500}}\right)^2 + \left(\varepsilon_{Methane\ Analysis}\right)^2}$$

$$\varepsilon_{FIR600} = \sqrt{\left(\varepsilon_{Gas\ Flow_{FIR600}}\right)^2 + \left(\varepsilon_{Temperature_{FIR600}}\right)^2 + \left(\varepsilon_{Pressure_{FIR600}}\right)^2 + \left(\varepsilon_{Methane\ Analysis}\right)^2}$$

$$\varepsilon_{FIR800} = \sqrt{\left(\varepsilon_{Gas\ Flow_{FIR800}}\right)^2 + \left(\varepsilon_{Temperature_{FIR800}}\right)^2 + \left(\varepsilon_{Pressure_{FIR800}}\right)^2 + \left(\varepsilon_{Methane\ Analysis}\right)^2}$$

Calculation of $LFG_{flared, y}$

The calculation of $LFG_{flared, y}$ is the measurement from FIR500 made during the monitoring period, minus the uncertainties of the flow-meters, as follows:

$$LFG_{flared, y, corrected} = FIR_{500} \times \left(1 - \frac{\varepsilon_{FIR500}}{100}\right)$$

Applying the errors from the table below in the equations previously presented:

$$\varepsilon_{FIR500} = \sqrt{0.980^2 + 0.030^2 + 0.010^2 + 1.000^2} = 1.4005\%$$

Calculation of $LFG_{electricity, y}$

The calculation of $LFG_{electricity, y}$ is measurement from FIR800 made during the monitoring period, minus the uncertainties of the flow-meter, as follows:

$$LFG_{electricity, y, corrected} = FIR_{800} \times \left(1 - \frac{\varepsilon_{FIR800}}{100}\right)$$

Applying the errors from the table below in the equations previously presented:

$$\varepsilon_{FIR800} = \sqrt{1.280^2 + 0.100^2 + 0.010^2 + 1.000^2} = 1.6275\%$$

Calculation of $EG_{y, corrected}$

The calculation of EG_y is the sum of all measurements from the electricity-meter made during the monitoring period, minus the uncertainties of the electricity-meter due to conservativeness, as follows:

$$EG_{y,corrected} = \sum EG_y \times \left(1 - \frac{\varepsilon_{EG}}{100}\right)$$

Calculation of $EC_{y, corrected}$

The calculation of EC_y is the sum of all measurements from the electricity-meter made during the monitoring period, plus the uncertainties of the electricity-meter due to conservativeness, as follows:

$$EC_{y,corrected} = \sum EC_y \times \left(1 + \frac{\varepsilon_{EC}}{100}\right)$$

Table providing the formulas used

	Variable	Description
Flaring System	A_{FIR500} (see the table of consolidated methane destroyed and electricity consumed/exported – last table from item 4.1)	Total methane destroyed in flares, measured by FIR500 (Nm^3)
	B_{FIR500}	Total error from FIR500 (%) – see item 4.4
	$C_{FIR500} = A_{FIR500} . (1-B_{FIR500}/100)$	**Total methane corrected destroyed at the flare (Nm^3)**
Power House	A_{FIR800} (see the table of consolidated methane destroyed and electricity consumed/exported – last table from item 4.1)	Methane flow to the power house measured by FIR800 (Nm^3)
	B_{FIR800}	Total measuring error from FIR800 (%) – see item 4.5
	$C_{FIR800} = A_{FIR800} . (1 - B_{FIR800}/100)$	**Total methane corrected destroyed at the power house (Nm^3)**
CO_2e Methane	$A = C_{FIR500} + C_{FIR800}$	Total methane destroyed in the period (Nm^3)
	B = 0.0007168	Density of Methane at the STPC (tCH_4/Nm^3)
	C = A . B	Total weight of methane destroyed (tCH_4)
	D = 21	CO_2 equivalency (tCO_2e/tCH_4)
	E = C . D	Total equivalent carbon (tCO_2e)
	F = 20%	Adjustment Factor (%)
	G = E . (1-F)	**Total Liquid Carbon (tCO_2e)**
CO_2e Electricity Exported	H (see the table of consolidated methane destroyed and electricity consumed/exported – last table from item 4.1)	Total electricity exported (MWh)
	I	Electricity-meter error (%)
	J = H . (1 – I/100)	Total electricity corrected (MWh)
	K = 0.2677	Emission Factor (tCO_2e/MWh)
	L = J . K	**Total CO_2e from the electricity exported (tCO_2e)**
CO_2e Electricity	M (see the table of consolidated methane destroyed and electricity	Total Electricity Consumed from the Diesel Generator (MWh)

Consumed	consumed/exported – last table from item 4.1)	
	N	Electricity-meter error (%)
	O = M . (1 + N/100)	Total electricity corrected (MWh)
	P = 1.3	Conservative Diesel CO_2 Emission Factor (tCO_2e/MWh)
	Q = O . P	**Total CO_2e from the electricity consumed (tCO_2e)**
TOTAL	**R = G + L – Q**	**TOTAL CREDITS DURING THE PERIOD (tCO_2e)**

E.2. Project emissions calculation

SJ have project emissions from the consumption of electricity from an emergency diesel generator during energy supply black-outs, as per stated in the revised monitoring plan. However, as this source of emission will only be accounted during emergency situations and the electricity consumed by SJ will be from the Power Plant, no estimative will be calculated (please, take note that the Revised Monitoring Plan already makes the proper monitoring of electricity consumption from the diesel generator).

E.3. Leakage calculation

No leakages under **ACM0001 – version 02**.

E.4. Emission reductions calculation / table

In accordance with the ACM0001 (version 2) and the registered PDD, emission reductions (ERy, expressed in tCO2) are calculated according to the following formula:

$ER_y = BE_y - PE_y - L_y$

Where:
ER_y = Emission reductions in year $_y$
BE_y = Baseline emissions in year $_y$
PE_y = Project emissions in year $_y$
L_y = Leakage in year $_y$

In SJ Project, there is no leakage calculation. For this reason we considered that:

$ER_y = BE_y - PE_y$

According to the above calculation of baseline emissions and project emissions, the project emission reductions are calculated as shown in the table below. The project totally generated 308,910 tCO2e during this monitoring period.

Period	Baseline Emissions	Project Emissions	Leakage	Emission Reductions
	tCO_2e	tCO_2e	tCO_2e	tCO_2e
01/01/2010 to 31/07/2010	308,957	47	-	308,910

E.5. Comparison of actual emission reductions with estimates in the CDM-PDD

The actual emission reductions during the monitoring period are: 308,910 tCO_2.

According to the registered PDD, the estimated value of emission reduction is averagely 794,288 tCO_2e/year, that is 66,190 tCO_2e per month on average, while the project activity actually generates totally 308,910 tCO2e emission reductions during this monitoring period – from 01/01/2010 to 31/07/2010 – with 212 days when the plants are in operation. That is about 44,130 tCO2e per month which is less than the estimated average value per month.

Furthermore, the estimated value of emission reduction is 794,288 tCO2e in year 2010 in the registered PDD (66,190 tCO_2e per month on average), which is obviously higher than the actual value.

Therefore, the emission reductions in this monitoring period are not higher than the estimation in the PDD even when bearing in mind the monitoring period does not cover a full calendar year.

Item	Values applied in ex-ante calculation of the registered CDM-PDD	Actual values reached during the monitoring period
Emission reductions (tCO_2e)	**794,288 (value in year 2010)**	**308,910**

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

Not applicable to this monitoring period.