VERIFICATION AND CERTIFICATION REPORT

ASJA Ambiente Italia Spa – Aria.biz

Puente Gallego Landfill gas recovery project, Gallego, Rosario, Argentina

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Project Title:	Organisational Unit:
Puente Gallego Landfill gas recovery project, Gallego, Rosario, Argentina	SGS United Kingdom Limited
Revision Number	Client:
01	ASJA Ambiente Italia Spa – Aria.biz

Summary:

SGS United Kingdom Ltd has performed the second periodic verification of the CDM project Puente Gallego Landfill gas recovery project, Gallego, Rosario, Argentina (UNFCCC reference number 0431). The verification includes confirming the implementation of the monitoring plan of the registered PDD with reference number 0431 and the application of the monitoring methodology as per AM0011 version 2. A site visit was conducted to verify the data submitted in the monitoring report.

The project activity is located near the northern suburbs of Buenos Aires, and consists of the capture of methane produced by waste decomposition and its complete destruction by combustion at high temperatures.

SGS confirms that the project is implemented in accordance with the validated and registered Project Design Document. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the project's GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 26,539 tCO2e during the period 26/02/2007 to 22/11/2007.

Subject:		
CDM Project Verification		**Indexing Terms**
Team Members:		
Fabian Gonçalves – Lead Assessor Claudia Ottaggio – Local Assessor Jose Abella – Local Assessor		
Technical Review:		
Name: Irma Lubrecht Date: 17-02-2008 and 18-03-2008		☒ No Distribution (without permission from the Client or responsible organisational unit)
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Abbreviations

AM	Approved Methodology
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
DNA	Designated National Authority
EF	Emission Factor
EU	European Union
GHG	Greenhouse Gas
LFG	Landfill Gas
MP	Monitoring Plan
MWh	Mega Watt Hour
NIR	New Information Request
PDD	Project Design Document
SGS	Société Générale de Surveillance
UNFCCC	United Nations Framework Convention on Climate Change

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1. Introduction

1.1 Objective

SGS United Kingdom Ltd has been contracted by Aria.Biz to perform an independent verification of its CDM project Puente Gallego Landfill gas recovery project, Gallego, Rosario, Argentina. CDM projects must undergo periodic audits and verification of emission reductions as the basis for issuance of Certified Emission Reductions (CERs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The emissions report conforms with the requirements of the monitoring plan in the registered PDD and the approved methodology; and
- The data reported are complete and transparent.

1.2 Scope

The scope of the verification is the independent and objective review and ex post determination of the monitored reductions in GHG emission by the project activity. The verification is based on the validated and registered project design document and the monitoring report. The project is assessed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

SGS has, based on the recommendations in the Validation and Verification Manual, employed a risk-based approach in the verification, focusing on the identification of significant reporting risks and the reliability of project monitoring.

The verification is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 Project Activity and Period Covered

This engagement covers emissions and emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of the following project and period.

Title of Project Activity:	Puente Gallego Landfill gas recovery project, Gallego, Rosario, Argentina
UNFCCC Registration No:	UNFCCC registration No. 0431
Monitoring Period Covered in this Report	26/02/2007 to 22/11/2007
Project Participants	Aria.biz SA Asja.biz S.p.A Impsa SA Asja Ambiente Italia S.pA
Location of the Project Activity:	Puente Gallego, Province of Santa Fe, Rosario, Argentina.

The project involved the installation of a landfill gas recovery system at the site, using a proven technology according to the EU and Argentinian requirements.

The biogas collection consists of a network of wells and connected pipes, creating a suction pressure for biogas extraction. The biogas extracted is flared in low emission, high temperature flares. The plant is equipped with a monitoring system for CH4, O2, flow, pressure and temperature. The plant is connected to the public grid and is also equipped with a biogas-fuelled generator to satisfy the energy demand of the plant itself.

Asja Ambiente Italia SpA built the plant and trained local operators for maintenance and control activities.

2. Methodology

2.1 General Approach

SGS's approach to the verification is a two-stage process.

In the first stage, SGS completed a strategic review and risk assessment of the projects activities and processes in order to gain a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant;
- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;
- Means of verifying reported data; and
- Compilation of the monitoring report.

At the end of this stage, SGS produced a Periodic Verification Checklist which, based on the risk assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

Using the Periodic Verification checklist, SGS verified the implementation of the monitoring plan and the data presented in the Monitoring Report for the period in question. This involved a site visit and a desk review of the monitoring report. This verification report describes the findings of this assessment.

2.2 Verification Team for this Assessment

Name	*Role*	*SGS Office*
Fabian Gonçalves	Lead Assessor	SGS Brazil
Claudia Ottaggio	Local Assessor	SGS Argentina
Jose Abella	Local Assessor	SGS Argentina

2.3 Means of Verification

2.3.1 Review of Documentation

The validated PDD, the monitoring report submitted by the client and additional background documents related to the project performance were reviewed. A complete list of all documents reviewed is attached in section 8 of this report.

2.3.2 Site Visits

As part of the verification, the following on-site inspections have been performed

Location: *Puente Gallego Landfill gas recovery project, Gallego, Rosario, Argentina*	***Date:*** *05/12/2007*
Coverage	***Source of Information / Persons Interviewed***
Confirmation of data reported in monitoring report. Sampling of internal system. Procedures. Electricity consumption records. Social programs. Training. Internal audit.	Maria del Mar Garcia/General manager Cavalli Emilio /Plant manager Miguel Cinquantiti /Technical coordinator
Equipments installed; operation. Sampling of internal system data.	Carlo Vigna/ President

2.4 Reporting of Findings

As an outcome of the verification process, the team can raise different types of findings

In general, where insufficient or inaccurate information is available and clarification or new information is required the team shall raise a New Information Request (NIR) specifying what additional information is required.

Where a non-conformance arises the team shall raise a Corrective Action Request (CAR). A CAR is issued, where:

I. the verification is not able to obtain sufficient evidence for the reported emission reductions or part of the reported emission reductions. In this case these emission reductions shall not be verified and certified;

II. the verification has identified misstatements in the reported emission reductions. Emission reductions with misstatements shall be discounted based on the verifiers ex-post determination of the achieved emission reductions

The verification process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a NIR may result in a CAR. Information or clarifications provided as a result of an NIR may also lead to a CAR.

Observations may be raised which are for the benefit of future projects and future verification actors. These have no impact upon the completion of the verification activity.

Corrective Action Requests and New Information Requests are detailed in Periodic Verification Checklist. The Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

2.5 Internal Quality Control

Following the completion of the assessment process and a recommendation by the Assessment Team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team.

3. Verification Findings

3.1 Project Documentation and Compliance with the Registered PDD

No mistakes or changes related to the crediting period date were verified. Monitoring report is consistent with registered PDD. The parameters mentioned in the monitoring plan are in line with the monitoring methodology and are discussed in the monitoring report.

The quality assurance of data is guaranteed by the calibrated meters, automatic data provided in the project and procedures presented to SGS. Puente Gallego landfill implemented all procedures and has an Operational Manual with a complete set of procedures. The verification team verified that internal audit have been performed. All procedures were found to be consistent with the registered PDD.

The project boundary, being the physical site where the gas is captured and destroyed, is in compliance with the registered PDD (Ref. 1).

3.2 Monitoring Results

It was verified during the site visit that the project has established specific procedures for the project activity.

It has been verified that QA/QC procedures and internal checks have been implemented, and that staff is trained and understand the procedures..

Monitored parameters:

- Amount of landfill gas collected from the project wells and amount of flared methane: The data is automatically and continuously measured in Nm3 by the flow meter and sent to the register inside of the PLC (inviolable). There is no manual register or transfers. Verified monthly normal sampling days. Sampling days verified during site visit: 26/27&28 FEB, 3/7/23/29 MARCH, 08/27 APRIL, 10/19 MAY, 02/14 JUNE, 08/21 JULY, 05/27 AUGUST, 04/16 SEPTEMBER, 09/19 OCTOBER, 02/22 NOVEMBER.

- Methane fraction in LFG: The methane fraction in landfill gas is measured by a methane analyzer. The analyzer measures the LFG on-line, continuously and stored in the data logger of the plant. Sampling days verified during site visit: 26/27&28 FEB, 3/7/23/29 MARCH, 08/27 APRIL, 10/19 MAY, 02/14 JUNE, 08/21 JULY, 05/27 AUGUST, 04/16 SEPTEMBER, 09/19 OCTOBER, 02/22 NOVEMBER.

- Flare combustion efficiency: Flare combustion efficiency is determined by a third part company, through the methane content in the exhaust gas. The analysis is made semi-annual according methodology and registered monitoring plan. Flare efficiency for the monitored period is 100%.

- Temperature of the landfill gas: Temperature of LFG: the flow meter used measure automatically the temperature expressing LFG volumes in normalized cubic meters.

- Pressure of the landfill gas: Pressure of LFG: the flow meter used measure automatically the pressure expressing LFG volumes in normalized cubic meters.

- Electricity consumption: The electricity consumption is being monitored as project emissions. The electricity consumption is controlled by the electricity company (EPE) through electricity invoices. Verified all electricity invoices for the monitored period with total of 47,610 kWh consumed.

- Emission factor (electricity): The "*Secretaría de la Energía*" and "*Secretaría de Ambiente y Desarrollo Sustentable*" have published in the "Cálculo del Factor de Emisión de CO_2 de la Red Argentina de Energía Eléctrica Año 2006" official document, a value of 0.425 tCO_2/MWh for the emission factor of the grid that provides energy to Puente Gallego Landfill site.

- Flare combustion temperature: Flare temperature is monitored for operational purposes. This parameter is not used for CERs calculation. Sampling days: 26/27&28 FEB - 3/7/23/29 MARCH- 08/27 APRIL- 10/19 MAY- 02/14 JUNE- 08/21 JULY- 05/27 AUGUST – 04/16 SEPTEMBER- 09/19 OCTOBER- 02/22 NOVEMBER.
- Flare working hours: Flares working hours is measured directly using an hour counter, but this data are not used for CER calculation. Sampling days: 26/27&28 FEB - 3/7/23/29 MARCH- 08/27 APRIL- 10/19 MAY- 02/14 JUNE- 08/21 JULY- 05/27 AUGUST – 04/16 SEPTEMBER- 09/19 OCTOBER- 02/22 NOVEMBER.

Regarding regulatory requirements, there is no change in local regulatory requirements. This information was confirmed by the legislation control prepared by Aria Biz and checked by local assessor.

3.3 Remaining Issues, CAR's, FAR's from Previous Validation or Verification

Not applicable.

3.4 Project Implementation

Project has been implemented and equipment has been installed as described in the registered PDD;

Puente Gallego project consists of the installation of a landfill gas capture system (wells, pipelines, manifolds, dryer and blower) and destruction through flare equipments.

3.5 Completeness of Monitoring

The reporting procedures reflect the content of the monitoring plan. The monitoring mechanism is effective and reliable.

3.6 Accuracy of Emission Reduction Calculations

Based on the information provided by project participant in the Monitoring Report and interviews the emissions reductions calculations are correct. The details of the reported and the verified values for all parameters are listed in section 4.

3.7 Quality of Evidence to Determine Emission Reductions

Critical parameters used for the determination of the Emission Reductions are discussed above in section 3.2 above. All the data recorded is in compliance with the monitoring report.

3.8 Management System and Quality Assurance

The companies involved in the project have a plant maintenance manual (Biogas combustion plant manual), this manual/procedure describes the operation of the plant, installation, operation of equipment, calibration, training, responsibilities, maintenance; therefore we can affirm that the management system of the CDM project is in place; with the responsibilities properly identified and in place.

In order to verify data quality, the Companies involves in the project work in accordance with a quality assurance procedure (Plant Maintenance Manual, which establishes the operational and management structure implemented.

3.9 Data from External Sources

Based on the information provided by project participant in the Monitoring Report and interviews, it was possible to identify the emission factor used for energy consumed on project.

The emission factor is defined by the "*Secretaría de la Energía*" and "*Secretaría de Ambiente y Desarrollo Sustentable*". The emission factor was published in the "Cálculo del Factor de Emisión de CO_2 de la Red Argentina de Energía Eléctrica Año 2006" official document, a value of 0.425 tCO_2/MWh for the emission factor of the grid that provides energy to Puente Gallego Landfill site

4. Calculation of Emission Reductions

Parameter	*Reported Value*	*Verified Value*
Amount of landfill gas collected from the project wells	4,148,774 Nm3	4,148,774 Nm3
Methane fraction in LFG	Several data reported.	Sample of data for the reported monitoring period.
Flare combustion efficiency	100%	100%
Temperature of the landfill gas	Temperature of LFG: the flow meter used measure authomatically the temperature expressing LFG volumes in normalized cubic meters	Temperature of LFG: the flow meter used measure authomatically the temperature expressing LFG volumes in normalized cubic meters
Pressure of the landfill gas	Pressure of LFG: the flow meter used measure authomatically the pressure expressing LFG volumes in normalized cubic meters	Pressure of LFG: the flow meter used measure authomatically the pressure expressing LFG volumes in normalized cubic meters
Electricity consumption	47,610 kWh	47,610 kWh
Emission factor (electricity)	0.425 tCO_2/MWh	0.425 tCO_2/MWh
Flare combustion temperature	Several data reported for the monitoring period.	Several data reported for the monitoring period.
Flare working hours	Several data reported for the monitoring period. 6,233 h (one flare)	Several data reported for the monitoring period. 6,233 h (one flare)

Emission reductions:

ERy = MDprojecty x GWP_CH4 – CO2 emissions from electricity consumed from the grid = t CO2 e

Where:

ERy = calculated in tonnes CO2 equivalents (tCO2e).

MDprojecty = measured in tonnes of methane (tCH4).

GWP_CH4 = Global Warming Potential

The approved Global Warming Potential value for methane (GWP_CH4) for the first commitment period is 21 tCO2e/tCH4.

The methane destroyed by the project activity (MDprojecty) is equal to the quantity of methane flared.

MDproject,y = MDflare,y

MDflaredy is the amount of methane destructed by flaring, measured tonnes of methane.

Density: 0.0007168 tCH4/Nm3CH4

CO2 emissions from electricity consumed: 20.2 tCO2

ER= 26,539 tCO2e

Formula is inserted directly in the system spreadsheet. Sample of some days per month were checked and all exception occurred during monitored period.

5. Recommendations for Changes in the Monitoring Plan

Not applicable.

6. Overview of Results

Assessment Against the Provisions of Decision 17/CP.7:

Is the project documentation in accordance with the requirements of the registered PDD and relevant provision of decision 17/CP.7, EB decisions and guidance and the COP/MOP?

Yes. The results of the compliance assessment are recorded in the verification checklist which is used as an internal report only.

Have on-site inspections been performed that may comprise, inter alia, a review of performance records, interviews with project participants and local stakeholders, collection of measurements, observations of established practices and testing of the accuracy of monitoring equipment?

Yes. Claudia Ottaggio and Jose Abella acting as local assessor visited the sites and undertook interviews, collected data, audited the implementation of procedures, checked calibration certificates and checked data, inter alia.

The results of the site visits are recorded in the verification checklist which is used as an internal report only.

The evidences have been checked and collected (Ref 4). The monitoring report is attached with this verification report.

Has data from additional sources been used? If yes, please detail the source and significance.

The project uses additional source for the electricity emission factor.

Ex-post Emission Factor = 0.425 tCO2e/MWh (ex-post).

Please review the monitoring results and verify that the monitoring methodologies for the estimation of reductions in anthropogenic emissions by sources have been applied correctly and their documentation is complete and transparent.

Yes. The monitoring methodology has been correctly applied and the monitoring report and supporting references are complete and transparent.

Have any recommendations for changes to the monitoring methodology for any future crediting period been issued to the project participant?

No.

Determine the reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the CDM project activity, based on the data and information using calculation procedures consistent with those contained in the registered project design document and the monitoring plan.

*The data used in anthropogenic emission reduction calculation is consistent with those contained in the registered PDD and monitoring plan. The emission reduction was 73,440 tCO2 for the period 26/02/2007 to 22/11/2007 as per the estimation made in the registered PDD. The actual emission reduction has been verified as **26,539** tCO2 for the same period.*

Identify and inform the project participants of any concerns related to the conformity of the actual project activity and its operation with the registered project design document. Project participants shall address the concerns and supply relevant additional information.

No such non-conformity of the actual project activity and its operation with the registered project design document has been observed.

Post monitoring report on UNFCCC website

Yes, the monitoring report is available at ref. 0431 on UNFCCC website
http://cdm.unfccc.int/Projects/DB/DNV-CUK1147181317.04/view

7. Verification and Certification Statement

SGS United Kingdom Ltd has been contracted by Aria Biz SA to perform the verification of the emission reductions reported for the CDM project Puente Gallego Landfill gas recovery project, Gallego, Rosario, Argentina - UNFCCC Reference Number 0431 in the period 26/02/2007 – 22/11/2007.

The verification is based on the validated and registered project design document and the monitoring report for this project. Verification is performed in accordance with section I of Decision 3/CMP.1, and relevant decisions of the CDM EB and CoP/MoP. The scope of this engagement covers the verification and certification of greenhouse gas emission reductions generated by the above project during the above mentioned period, as reported in Puente Gallego Landfill gas recovery project, Gallego, Rosario, Argentina emission reduction monitoring report, 26 November 2007, version 1.

The management of the Aria Biz is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Monitoring Report version 1, 26 November 2007. Calculation and determination of GHG emission reductions from the project is the responsibility of the management of the Puente Gallego Landfill gas recovery project, Gallego, Rosario, Argentina. The development and maintenance of records and reporting procedures are in accordance with the monitoring report.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 26/02/2007 to 22/11/2007 based on the reported emission reductions in the Monitoring Report version 1 dated 26 November 2007 for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, SGS planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

SGS confirms that the project is implemented as described in the validated and registered project design documents. Based on the information we have seen and evaluated, we confirm the following:

Name and Reference Number of Project	Puente Gallego Landfill gas recovery project, Gallego, Rosario, Argentina – number 0431
Registered PDD and Approved Methodology used for Verification	Puente Gallego Landfill gas recovery project, Gallego, Rosario, Argentina, version 2, 26/04/2006. AM0011 version 2.
Applicable Period	26/02/2007 – 22/11/2007
Total GHG Emission Reductions Verified	26,539 tCO2e

Signed on behalf of the Verification Body by Authorized Signatory

Signature: 

Name: Siddharth Yadav

Date: 16th July 2008

8. Document References

1 MONITORING REPORT version 1, 26 November 2007
2 PDD – CDM REGISTRATION 0431 SITE UNFCCC, version 2, 26/04/2006
3 OPERATIVE MANUAL & INTERNAL AUDITS
4 SAMPLING DAYS : 26/27&28 FEB - 3/7/23/29 MARCH- 08/27 APRIL- 10/19 MAY- 02/14 JUNE- 08/21 JULY- 05/27 AUGUST – 04/16 SEPTEMBER- 09/19 OCTOBER- 02/22 NOVEMBER.
5 Calibration certificates
6 Training certificates
7 INDUSER – flare efficiency analysis
8 INVOICES EPE – electricity invoices
9 EFE0607
10 Print screen of the system
11 Spreadsheets with CER data

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