VERIFICATION AND CERTIFICATION REPORT

RIMA INDUSTRIAL S/A

RIMA Fuel Switch in Bocaiúva

SGS Climate Change Programme
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Date of Issue:	**Project Number:**
24-07-2008	CDM.VER 0453
Project Title:	
RIMA Fuel Switch in Bocaiúva	
Organisation:	**Client:**
SGS United Kingdom Limited	RIMA INDUSTRIAL S/A
Publication of Monitoring Report:	
Monitoring Period:	10th March 2007 to 31st March 2008
First Monitoring Version and Date:	Version 1, 15th April 2008
Final Monitoring Version and Date:	Version 2, 30th May 2008

Summary:

SGS United Kingdom Ltd has performed the initial and the first periodic verification of the CDM project RIMA Fuel Switch in Bocaiúva, UNFCCC Reference Number 0889. The verification includes confirming the implementation of the monitoring plan of the registered PDD nº 0889 and the application of the monitoring methodology as per AMS IC, version 8, 3rd March 2006. A site visit was conducted to verify the data submitted in the monitoring report.

The project activity consists in the replacement of fossil fuel by renewable biomass at Rima Industrial located in Bocaiúva/MG, Brazil.

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 projects 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 30,250 tCO2e during period 10/03/2007 up to 31/03/2008.

Subject:		
CDM Verification		
Verification Team:		
Fabian Gonçalves – Lead Assessor		☒ No Distribution (without permission from the Client or responsible organisational unit)
Technical Review:	**Trainee Technical Reviewer:**	
Date: 12/06/2008 Name: Aurea Nardelli	Name: N/A	☐ Limited Distribution
Authorised Signatory:		
Name: Siddharth Yadav Date: 25.07.2008		☐ Unrestricted Distribution

Revision Number:	**Date:**	**Number of Pages:**
0	11-06-2008	16
1	18-06-2008	14
2	24-07-2008	14

Abbreviations

AM	Approved Methodology
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CETEC	Fundação Centro Tecnológico de Minas Gerais
EB	Executive Board
ER	Emission Reduction
GHG	Greenhouse Gas
MP	Monitoring Plan
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 RIMA INDUSTRIAL S/A to perform an independent verification of its CDM project RIMA Fuel Switch in Bocaiúva. 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:	RIMA Fuel Switch in Bocaiúva
UNFCCC Registration Number:	0889
Monitoring Period Covered in this Report	10/03/2007 to 31/03/2008
Project Participants	RIMA INDUSTRIAL S/A
Location of the Project Activity:	Bocaiúva- Minas Gerais State, Brazil

The project activity consists in the replacement of fossil fuel by renewable biomass at Rima Industrial located in Bocaiúva/MG, Brazil.

The Rima plant produces magnesium metal and its alloys, in the form of ingots, powder and parts; the main consumers are the steel, aluminium and car industries.

The fuel switch project uses charcoal fines to replace fuel oil used in the calcination oven. The changes in the burner to allow the use of charcoal fines were developed by Rima technical team.

The project displaced fuel oil burned in a dolomite kiln with renewable biomass– charcoal fines. The kiln was designed for a thermal capacity equivalent to 12.5 MW which is less than the small-scale limit. Project boundary is the Rima's plant site in Bocaiúva. Monitoring consists in the measuring of the energy produced achieved by monitoring the biomass consumed multiplied by its net calorific value. The old oil burner system has been deactivated but remains in place. The project also includes storage facilities, feeding system for the fines and the hot gas recycling to dry the charcoal fines at the mill.

The charcoal fines used is a renewable biomass. The charcoal fines used is in accordance with registered PDD version 02, 18th August 2006 and methodology AMS IC version 08.

Rima operates two plants in the region that produce ferroalloys and metallic silicon. The plants have reduction furnaces that use charcoal as reducing agent. Part of the charcoal consumed in these plants is produced in Rima's sustainably managed forests.

Rima also has eucalyptus and pines plantations where charcoal is produced. The charcoal passes through sieves in order to separate the fines from material with the proper size for the production of metallic silicon and ferroalloys. The fuel switch project is using the fines, left over from sieving.

2. Methodology

2.1 General Approach

SGS' 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

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: Bocaiúva-MG	
Date: 17th and 18th April 2008	
Coverage:	**Source of Information / Persons Interviewed**
Review of performance records, collection of measurements, observations of established practices and testing of the accuracy of monitoring equipment.	Anderson Reis/Financial Director – RIMA
Project monitoring	José Teixeira/Manager – RIMA
Quality procedures, calibration procedure, ISO 9001	Valdivino Gomes/Quality Manager – RIMA
Calibration procedure and certificates	Adriano Santana/Maintenance Department – RIMA
Project data, monitoring report	Omar Lima/Cost Analyst – RIMA
Project operation, data collection	João Renato Rosa/Chemical Analyst - RIMA
Equipments, project boundary	Eurico Neto/Calcination Manager - RIMA

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 change was observed in the monitoring plan against methodology AMS ID version 08. The project follows the registered monitoring plan and methodology. The only difference is that RIMA has monitored the NCV of charcoal fines monthly instead of annually, as previously defined in the registered monitoring plan. RIMA is doing the analysis more frequently, and it is considered conservative. Project boundaries were verified during site visit: it consists of Rima plant where the facility is located. This is consistent with registered PDD. No additional source attributable to the project needs to be included in the monitoring plan.

3.2 Monitoring Results

Net Calorific value of charcoal fines: The net calorific value is analysed externally by an accredited laboratory (CETEC- Fundação Centro Tecnológico de Minas Gerais) and a monthly certificate is issued for each analysis. The value is informed in kcal/kg and inserted directly in the ER spreadsheet. The certificate is received and archived by RIMA and the NCV value is recorded in the ER spreadsheet. The values are converted from kcal/kg to MJ/t using the factor 4.1868 kJ/kcal before be considered for emission reduction calculation.

During the verification exercise, it was verified that the net calorific values (NCV) for March 2007, April 2007 and May 2007 reported in the monitoring report did not match with the values documented in the NCV analysis certificates, so CAR 1 was raised. To close out CAR 1, RIMA identified that the values were typed wrongly and revised the monitoring report. The monitoring report version 2 and the revised ER spreadsheet were provided and verified by the auditor. Correct values were found in the revised versions; hence CAR 1 was closed out.

Charcoal fines consumption: The total charcoal fines consumed at the kiln is measured directly in tonnes. The meter used is a Simplex scale (BAD 103), installed in the kiln entrance. The charcoal fines Simplex scale is calibrated every month according to RIMA internal procedure. Records of calibration were provided. Data of charcoal fines consumption are recorded manually (using the form “Boletim Diário de Produção FCIII”). The data are used for preparing an internal report (“Razão do Estoque”), which is the document used internally to record and control the quantity of biomass consumed in the project activity.

Output of the dolomite kiln: These monitored data are not used in the ER calculation, they are just a reference to check charcoal fines consumption versus production of the kiln. The total production of dolomite kiln is measured directly using a scale, installed in the exit of the kiln. Data are recorded manually (form “Boletim Diário de Produção FCIII”) and inserted in a worksheet. Using these data, RIMA prepares internal reports of production that are the source of data for the monitoring report.

The requirement of monitoring plan for daily recording was met. In fact the recording is more frequent than required, charcoal fine consumed in the kiln and the output of the dolomite kiln is recorded hourly and than consolidated daily as required. The monitoring report presents on section B.3 the correct monitoring frequency and the summary of monthly data on section D.2.
During verification assessment was verified the daily data records.

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

There are no pending issues from the validation process. The project activity was registered on 10th March 2007 by the CDM EB as reference number 0889.

3.4 Project Implementation

Project was implemented and equipment installed as described in the registered PDD. The project is implemented since April 2006, but the monitoring period started on 10 March 2007 (registration date of CDM project).

The equipment included in the project activity as described in the PDD version 2, 18 August 2006 was installed and properly working:

- Type Rotary Kiln, Manufacturer F.L. Smith, Fuel (original) Heavy Fuel Oil and now charcoal fines, Production capacity 180 t/day.
- Scales: BAD-103 (Simplex scale used for measuring consumption of charcoal fines) and BAI-101 (scale used for measuring the dolomite kiln production).

During the verification assessment, it was verified that the project activity is operational in the same condition as established in the registered PDD. There is no project emissions associated with drying of charcoal fines. The project emissions in the registered PDD are zero.

The second phase explained in the PDD and monitoring report started on November 2006 and comprises a drying charcoal fines using hot air from the kiln. The energy used to dry the charcoal fines comes from the same kiln where charcoal fines are used as fuel. There is no additional source of fuel or electricity to be considered in this project activity as project emissions.

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

The calculation of emission reductions is found to be correct after CAR01 was closed out; as the net calorific value changed consequently the CER changed too, the response to CAR01 was satisfactory and these were closed. 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 company involved in the project has ISO 9001 quality assurance system implemented, (ISO 9001 certificate issued by RINA, certificate 14073/06/IS, 10/01/2006) therefore we can affirm that the management system the CDM project is in place; with the responsibilities properly identified and in place.

In order to verify data quality, the company involved in the project works in accordance with a quality assurance procedure, which establishes the operational and management structure implemented.

3.9 Data from External Sources

Additional data used:

- CO2 emission factor from fuel oil combustion: 77.4 tCO2/TJ (IPCC 2006, Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy – Table 2.3).

4. Calculation of Emission Reductions

Parameter	*Reported Value*	*Verified Value*
Consumption of charcoal fines at the rotary kiln (t)	18,149.070 t (total value for the monitoring period)	18,149.070 t (total value for the monitoring period)
Net calorific value of charcoal fines (kcal/kg)	Mar07 5,290 Apr/07 5,140 May/07 4,940 Jun/07 5,210 Jul/07 5,080 Aug/07 5,230 Sep/07 5,170 Oct/07 5,020 Nov/07 5,150 Dec/07 5,100 Jan/07 5,130 Feb/7 5,200 Mar/07 5,260	Mar07 5,291 Apr/07 5,142 May/07 4,943 Jun/07 5,210 Jul/07 5,080 Aug/07 5,230 Sep/07 5,170 Oct/07 5,020 Nov/07 5,150 Dec/07 5,100 Jan/07 5,130 Feb/7 5,200 Mar/07 5,260
Output of the dolomite kiln (t)	66,672.281 t (total value for the monitored period)	66,672.281 t (total value for the monitored period)

ER = CC* NCV_CC * EF_FO

ER is calculated monthly, see example of one month (December 2007):

ER December 2007 = 1,446.7 * 21,252 * 77.4/1000000 = 2,391tCO2e

Note: it is applied 4.1868 kJ//kcal to convert to MJ/t the net calorific value (NCV) obtained in kcal/kg

Verified the spreadsheet with formulas. The total ERs for the monitored period 10th March 2007 – 31st March 2008 were 30,250tCO2e.

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. Fabian Gonçalves as the lead assessor visited the site 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. The revised monitoring report is attached with this verification report.

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

Yes, CO2 emission factor from fuel oil combustion: 77.4tCO2/TJ. (*IPCC 2006, Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy – Table 2.3).*

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 30,587 tCO2 for the period 10/03/2007 to 31/03/2008 as per the estimation made in the registered PDD. The actual emission reduction has been verified as 30,250 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. 0889 on UNFCCC website:

http://cdm.unfccc.int/Projects/DB/SGS-UKL1169640574.53/view

7. Verification and Certification Statement

SGS United Kingdom Ltd has been contracted by RIMA INDUSTRIAL S.A to perform the verification of the emission reductions reported for the CDM project RIMA Fuel Switch in Bocaiúva, UNFCC nº 0889 in the period 10/03/2007 to 31/03/2008.

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 "CER Monitoring Report, Clean Development Mechanism, Project 0889, RIMA Fuel Switch in Bocaiúva", version 2, 30th May, 2008.

The management of the RIMA INDUSTRIAL S/A 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 2, 30th May 2008. Calculation and determination of GHG emission reductions from the project is the responsibility of the management of the RIMA Fuel Switch in Bocaiúva. 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 10/03/2007 to 31/03/2008 based on the reported emission reductions in the Monitoring Report version 2 dated 30th May 2008 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:

Project Title:	RIMA Fuel Switch in Bocaiúva
UNFCCC Reference Number:	0889
Registered PDD and Approved Used for Verification:	PDD, version 2, 18 August, 2006
Methodology Used for Verification:	AMS IC, version 8, 03rd March 2006
Applicable Period:	10/03/2007 to 31/03/2008
Total GHG Emission Reductions Verified:	30,250 tCO2e

Signed on behalf of the Verification Body by Authorized Signatory

Signature: 

Name: Siddharth Yadav

Date: 25th July 2008

8. Document References

/1/ PDD: RIMA Fuel Switch in Bocaiúva, Version 02, 18th August 2006

/2/ Methodology: AMS ID version 08

/3/ Monitoring report: Version 01, April 2008; version 02, 30th May 2008

/4/ Calibration certificate: Simplex scale, BAD 103 (equipment 371BK1, group 3597); BAI 101.

/5/ Calibration certificate: Standard weights PPB005 – PPB014, certificate number 247/06, 27/04/2006; PPB003, certificate number 248/06, 27/04/2006, Toledo do Brasil.

/6/ Operation licence Nº661, 02/12/2003, valid until 02/12/2007 issued by FEAM.

Operation license Nº372, 20/12/2007, valid until 20/12/2011 issued by SEMAD.

/7/ Daily report (manual data)

/8/ Net calorific value analysis (certificates issued by CETEC)

/9/ ISO 9001 certificate issued by RINA, certificate n° 14073/06/IS, 10/01/2006

/10/ Internal report of the fuel consumption: March 2007 – March 2008.

/11/ Internal report of the fuel consumption: March 2007 – March 2008. The difference between Ref.10 and 11 is that Ref.11 is the final and official internal report.

/12/ Internal report of the dolomite: March 2007 – March 2008.

/13/ Internal report of the dolomite: March 2007 – March 2008. The difference between Ref.12 and 13 is that Ref.13 is the final and official internal report.

/14/ Internal worksheets with charcoal fines consumption data

/15/ Invoices issued by charcoal fines suppliers

/16/ Invoices with State Forest Institute control (to evidence the source of the wood to produce the charcoal and than the charcoal fines).

/17/ State Forest Institute declaration (authorizing RIMA to explore eucalyptus plantations for charcoal production).

/18/ CER spreadsheet

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