

ARGIBEM, SÃO SEBASTIÃO AND VULCÃO CERAMICS FUEL SWITCHING PROJECT

Document Prepared By BUREAU VERITAS CERTIFICATION

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Summary:

BUREAU VERITAS CERTIFICATION has made the 2nd periodic verification of Argibem, São Sebastião and Vulcão Ceramics Fuel Switching Project. This project activity was developed by Sustainable Carbon – Projetos Ambientais Ltda.

The project activity is the project of Argibem, São Sebastião and Vulcão Ceramics, which are companies that produce structural ceramic devices such as bricks. The grouped project is located in the State of Rio de Janeiro, in Brazil, in the municipalities of Três Rios (Argibem), Barra do Pirai (São Sebastião) and Queimados (Vulcão).

Before the project activity implementation, Argibem, São Sebastião and Vulcão Ceramics used to consume an average quantity of 4,757,000 liters of heavy oil per year to provide thermal energy to the ceramics' kilns and maintain the temperature of 900°C to produce around 37,800,000 ceramic devices per year.

The purpose of this project activity is to utilize renewable biomass available in the region for effective generation of thermal energy for captive consumption. The project activity helps to reduce the Brazilian deforestation rates, the main source of greenhouse gas emissions in Brazil.

The verification scope is defined as a periodic independent and objective review and an ex-post determination of the monitored reductions in GHG emissions during defined verification period and consisted of the following four phases: i) desk review of the project design, baseline and monitoring plan and monitoring report; ii) follow-up interviews with project stakeholders during site visit; iii) resolution of outstanding issues and iv) the issuance of the final verification report and opinion. The overall verification, from Contract Review to verification Report & Opinion, was conducted using BUREAU VERITAS CERTIFICATION internal procedures.

The first output of the verification process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in the Verification Report. Taking into account this output, the project proponent revised its Monitoring Report Document (Version 03). In summary, it is BUREAU VERITAS CERTIFICATION's opinion that the project correctly applies the baseline and monitoring methodology AMS-I.C. (Thermal energy for the user with or without electricity) Version 13 and meets the relevant VCS requirements and local legislation. In the course of the verification, 12 CARs and 6 CLs were raised. All but one CAR were successfully closed. A Forward Action Request (FAR) had to be raised, since CAR08 – regarding the internal auditing and non-conformities handling procedures – was not successfully addressed in the course of this verification. So FAR01 was raised, replacing CAR08, thus closed.

As the result of the 2nd periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. BUREAU VERITAS CERTIFICATION herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

ER _y (reporting period: October 01 st , 2008 to June 30 th , 2011)			
Period	PR _y (thousands of ceramic units)	Q _{oil} (liters)	ER _y (tCO ₂ e)
Total 2008	8,304.55	1,103,440.85	3,369
Total 2009	36,681.66	5,017,753.76	15,329
Total 2010	36,889.98	5,091,390.80	15,552
Total 2011	17,144.00	2,405,519.00	7,347
Total period	99,020.19	13,618,104.41	41,597

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1 INTRODUCTION

1.1 Objective

Sustainable Carbon – Projetos Ambientais LTDA has commissioned BUREAU VERITAS CERTIFICATION to verify the emission reductions of its VCS “Argibem, São Sebastião and Vulcão Ceramics Fuel Switching Project”.

This report summarizes the findings of the second periodic verification of the project, performed on the basis of VCS – Verified Carbon Standard version 3 criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

Verification is the periodic independent review and ex-post determination of the monitored reductions in GHG emissions during defined verification period.

The objective of the periodic verification is to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan; furthermore, the periodic verification evaluates the GHG emission reductions data and express a conclusion with a high, but not absolute, level of assurance about whether the reported GHG emission data is free of material misstatements; and verifies that the reported GHG emission reductions data is sufficiently supported by evidence, i.e. monitoring records.

The verification shall consider both, quantitative and qualitative information on emission reductions. Quantitative data comprises the monitoring reports submitted to the verifier by the project entity. Qualitative data comprises information on internal management controls, calculation procedures and procedures for transfer, frequency of emissions reports and review of calculations/data transfers.

The verification is based on criteria set by VCS – Verified Carbon Standard version 3.

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of the project description, the project’s baseline study and monitoring plan and other relevant documents.

The information in these documents is reviewed against VCS – Verified Carbon Standard version 3.

The verification is not meant to provide any consulting towards the client. However, stated requests for forward actions and/or corrective actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.

1.3 Level of assurance

During the verification process, the GHG team assessed the monitoring report, the calculation spreadsheets and supporting documents.

Based on this assessment, the verification team can express a reasonable level of assurance, stating that the GHG emission reductions:

- Are materially correct and are a fair representation of the GHG data, and
- Are prepared in accordance with the relevant International Standard on GHG quantification, monitoring and reporting, and with relevant national standards.

1.4 Summary Description of the Project

This project activity was developed by *Carbono Social Serviços Ambientais LTDA*. (Social Carbon Company), which has recently changed its company name to Sustainable Carbon – Projetos Ambientais LTDA.

The project activity promotes a fuel switch at Argibem, São Sebastião and Vulcão ceramics, located in the municipalities of Três Rios, Barra do Piraí and Queimados, in the State of Rio de Janeiro, Brazil. The three ceramic industries produce structural ceramic devices like bricks, which are mainly used in the construction sector.

The purpose of this project activity is to utilize renewable biomass available in the region for effective generation of thermal energy for captive consumption. The project activity helps to reduce the Brazilian deforestation rates, the main source of greenhouse gas emissions in Brazil.

In the baseline scenario, the ceramic companies utilized heavy oil. By diverging significantly from the identified baseline scenario, with the implementation of this project, the ceramics now generate thermal energy minimizing the damages pertaining to the use of fossil fuels.

The main difficulties for the ceramics due to the fuel-switch were the lack of experience to operate with renewable biomasses, as well as the internal logistic modification involved in the project.

The emission reductions due to the switching of non-renewable fuel (heavy oil) to renewable biomasses resulted in **41,597 tCO₂e** during the monitoring period, from 01/10/2008 to 30/06/2011. The contribution to sustainability will be monitored applying the SOCIALCARBON® Standard, which is based in six main pointers: Technology; Natural; Financial; Human; Social and Carbon Resources.

2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

2.1 Validation Process

The purpose of the validation was to have an independent third party assessment on the project design. In particular the project's baseline, the monitoring plan (MP), and the project's compliance with the requirements of:

- VCS 2007.1 Standard (the validation was based on VCS 2007.1)
- Other relevant rules, including the host country (Brazil)
- Legislation and sustainability criteria

The validation is an independent and objective review of the project design, the project's baseline study and monitoring plan (based on AMS-I.C: Thermal energy for the user with or without electricity - Version 13), which are included in the VCS PD and other relevant supporting documents.

The items covered in the validation are described below:

- Project Description
- Project Baseline
- Monitoring Plan
- Calculation of GHG Emissions
- Environmental Impacts
- Stakeholder Consultation

The project activity consists of switching from heavy oil to renewable biomass fuel for end-user thermal energy generation. A risk-based approach has been followed to perform the validation.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of

comments by parties, stakeholders and NGOs have provided the DOE with sufficient evidence to validate the fulfillment of the stated criteria.

In detail the conclusions can be summarized as follows:

- The project is in line with all relevant host country criteria (Brazil) and all relevant VCS 2007.1 Standard criteria.
- The project additionality is sufficiently justified in the VCS PD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 208,144 tCO₂e is most likely to be achieved within the 10 years (renewable) crediting period.

The conclusion of the Validation Report is that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

The persons who have been interviewed and/or provided additional information to that provided in the project description and supporting documents during the Validation Process were:

- Marcelo de Oliveira do Vale from Argibem Ceramic; Maria Delmina Oliveira Gonçalves from São Sebastião Ceramic; and Claudio Pelegrini from Vulcão Ceramic;
- Flávia Takeuchi, Raquel Linares Couto and Rafael Kupper, from Carbono Social Serviços Ambientais Ltda. (currently, Sustainable Carbon – Projetos Ambientais Ltda.)

On 22/09/2008 (Argibem), 23/09/2008 (São Sebastião) and 15/09/2008 (Vulcão), site visits were made by the DOE, who performed interviews with project participants to confirm selected information and to resolve issues identified in the document review.

The main topics of the interviews were:

- Desk review findings
- General aspects of the project
- Project design, Commissioning and implementation
- Technical equipment and operation of the project
- Performance of the project
- Involved personnel and responsibilities
- Training and practice of the operational personnel
- Implementation of the monitoring plan
- Monitoring and measurement equipment
- QA/QC Testing and calibration procedures
- Monitored data management
- Data quality, archiving and reporting procedures
- Data uncertainty and residual risks
- GHG calculation
- Procedural aspects of the verification

In the course of the validation 7 CARs and 15 CLs were raised and successfully closed.

2.2 Validation Findings

2.2.1 Gap Validation

There is no additional project description. All the supporting documents have been listed in Section 5. References, of the Validation Report.

2.2.2 Methodology Deviations

There have been no methodology deviations.

2.2.3 New Project Activity Instances

Despite the fact this is a grouped project, no new project activity instances have been added subsequent to project validation.

2.3 Validation Conclusion

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided the DOE with sufficient evidence to validate the fulfillment of the stated criteria.

In detail the conclusions can be summarized as follows:

- The project is in line with all relevant host country criteria (Brazil) and all relevant VCS 2007.1 Standard criteria.
- The project additionality is sufficiently justified in the VCS PD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 208,144 tCO₂e is most likely to be achieved within the 10 years (renewable) crediting period.

In conclusion, the Validation Report shows that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

3 VERIFICATION PROCESS

3.1 Method and Criteria

This is the second verification of the project, which comprises the period from 01/10/2008 to 30/06/2011.

Preparation: 22/07/2011

On-site visit: 27/07/2011 (Vulcão), 28/07/2011 (Argibem) and 29/07/2011 (São Sebastião)

Draft reporting: 04-05/08/2011

Verification reporting version 01: 17-18/11/2011

Project Participants – Sustainable Carbon – Projetos Ambientais LTDA:

Mariana dos Santos Silva and Marcelo Hector Sabbagh

Project Proponents – Ceramics:

Marcelo de Oliveira do Vale (Argibem)

Maria Delmina Oliveira Gonçalves (São Sebastião)

Claudio Pelegrini (Vulcão)

The verification includes:

- A desk review of the VCS PD and supporting documents with the use of the relevant sections of a customized protocol according to the VCS Version 3;

- A desk review of the Monitoring Report (MR) and additional supporting documents which the client submitted. The relevant sections of the above-mentioned customized protocol according to the VCS Version 3 were use;
- On-Site assessment;
- Background investigation and follow-up interviews with personnel of the project developer;
- Verification reporting (Draft Verification Report and Final Verification Report).

The criteria of this verification include the relevant rules and steps as set out in the VCS Version 3.

3.2 Document Review

The project proponent, as evidences to determine emission reductions, submitted several documents, as follows:

Reference Documents provided by the company that relate directly to the project activity:

- Final VCS Project Description (Version 03); dated May 15th, 2009;
- Monitoring Report (Version 01) completed on July 22nd, 2011;
- Monitoring Report (Version 02) completed on October 25th, 2011;
- Monitoring Report (Version 03) completed on November 09th, 2011;
- Emission Reduction Calculation spreadsheet (Version 01) completed on July 22nd, 2011;
- Emission Reduction Calculation spreadsheet (Version 02) completed on October 25th, 2011;
- Emission Reduction Calculation spreadsheet (Version 03) completed on November 09th, 2011;
- Production documents, covering the 2nd monitoring period;
- Sales data sheets, covering the 2nd monitoring period;
- Renewable biomasses receipts, covering the 2nd monitoring period;
- Validation report, dated May 22nd, 2009;
- 1st periodic verification report, dated May 22nd, 2009;
- Argibem environmental production license LO FE008251, dated March 30th, 2005, valid until March 30th, 2010;
- Argibem request for renewal of environmental production license, dated November 27th, 2009;
- Argibem environmental clay extraction license LO IN015529, dated February 10th, 2011, valid until January 18th, 2016;
- Argibem environmental clay extraction license LO 397/97, dated November 26th, 1997, valid until November 26th, 2002;
- São Sebastião environmental production license LO FE010616, dated March 31st, 2006, valid until March 31st, 2011;
- São Sebastião request for renewal of environmental production license, dated November 19th, 2010;
- São Sebastião environmental clay extraction license LO FE011229, dated June 28th, 2006, valid until June 28th, 2011;
- São Sebastião request for renewal of environmental clay extraction license, dated February 21st, 2011;
- Vulcão environmental production license LO IN016221, dated April 06th, 2011, valid until April 06th, 2019;
- Vulcão environmental production license LO FE010162, dated December 20th, 2005, valid until October 20th, 2010;
- Vulcão request for renewal of environmental production license, dated June 14th, 2010;
- Vulcão environmental clay extraction license LO FE002859, dated August 25th, 2004, valid until August 25th, 2009;
- Vulcão request for renewal of environmental clay extraction license, dated April 18th, 2009.

The evidences have been assessed and considered as of sufficient quantity and appropriate quality by the DOE, since original documents have been presented, they cover the entire monitored period and address all relevant issues pertaining to the registered monitoring plan.

3.3 Interviews

On 27/07/2011 (Vulcão), 28/07/2011 (Argibem) and 29/07/2011 (São Sebastião), site visits were made, when Bureau Veritas Certification performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review. Representatives of Sustainable Carbon – Projetos Ambientais Ltda. and of the two ceramics were interviewed. The main topics of the interviews were:

- Project Design and implementation;
- Technical Equipment and operation;
- Equipment calibration;
- Monitoring Plan;
- Monitored data;
- Data uncertainty and residual risks;
- GHG Calculation;
- Environmental Impacts;
- Compliance with National Laws and regulations;
- Licenses

3.4 Site Inspections

On 27/07/2011 (Vulcão), 28/07/2011 (Argibem) and 29/07/2011 (São Sebastião), site visits were made, when the DOE made observations in the productive process of the ceramic units, including the receiving, storage, control of biomass and clay, kilns and other auxiliary production equipment.

3.5 Resolution of Any Material Discrepancy

As already mentioned, 12 CARs and 6 CLs have been raised in this verification. They are all documented in the protocol, attached to this report. There are no outstanding issues, but one Forward Action Request (FAR), to be verified in the next verification, since CAR08 – regarding the internal auditing and non-conformities handling procedures – was not successfully addressed. So FAR01 was raised, replacing CAR08, thus closed.

FAR01: *PPs are required to better describe their procedures for handling internal auditing and non-conformities. Time is given so that improved procedures can be established. Procedures do not need to be documented, however, it is likely recommended PPs do so, in order to make it easier for everyone involved to follow them correctly.*

The resolution of the material discrepancies (i.e. CARs and CLs) was carried out by the PPs, based on the descriptions presented in the verification protocol. Three rounds of PPs' responses and DOE's analysis were performed, resulting in three versions of the monitoring report and three of the calculation spreadsheets.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The VCS PD project was validated by TÜV Nord CERT GmbH and the present monitoring report was verified by Bureau Veritas Certification (BVC).

The project has been fully operational since the starting date of the crediting period. This means that the ceramics are operating using exclusively renewable biomass, thus mitigating their baseline emissions.

The implementation status of the project is as follows:

The project has a 10-year crediting period, twice renewable.

The first 10-year crediting period is from April 1st, 2006 to March 31st, 2016. The total Emission Reductions forecasted for that period are 208,144 tCO₂e.

- Project start dates: September 1st, 2003 (Argibem); January 1st, 2004 (São Sebastião); January 1st, 2004 (Vulcão)
- Crediting period start date: April 1st, 2006

The following verifications have already been made:

- First Periodic Verification: From April 1st, 2006 to September 30th, 2008. Emission Reductions of 45,046 tCO₂e.

There are no remaining issues from the validation or previous verification, neither any deviation from the applicable methodology.

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

The monitoring plan is in accordance with the approved methodology applied by the proposed project activity.

The parameters required by the monitoring plan and the way the Verification Team has verified the values in the Monitoring Report (Version 03) are described below:

Data Unit / Parameter:	$Q_{renbiomass}$
Data unit:	Tonnes per month
Description:	Amount of renewable biomasses
Source of data:	Measured by the biomass providers and controlled by the ceramic owner. The registered VCS PD v.03 establishes that the ceramic owner would measure this parameter; however, during the entire monitored period, this parameter was monitored through all the receipts and invoices of biomass received by the ceramic industry.
Description of measurement methods and procedures to be applied:	The amount of biomasses was monitored in accordance to the weight or volume described in the receipts from the providers. Where the values in the receipts are described in m ³ , it is necessary the conversion to tonnes through the specific gravity of each biomass. The specific gravity values of the renewable

	biomasses utilized in this project are: <table><tr><th>Biomass</th><th>Wood from afforestation</th><th>Woody residues</th><th>Sawdust</th></tr><tr><td>Specific gravity (tonne/m³)</td><td>0.510</td><td>0.35</td><td>0.245</td></tr></table> The sources of these data are: Wood from afforestation -IPCC: Intergovernmental Pannel on Climate Change. Orientación del IPCC sobre las buenas prácticas para UTCUTS. Capítulo 3: Orientación sobre las buenas prácticas en el sector de CUTS. Woody Residues (pallets, construction residues wood, city garden residues, among others) - SIMIONI, F. J. Análise diagnóstica e prospectiva da cadeia produtiva de energia de biomassa de origem florestal no planalto sul de Santa Catarina - Curitiba: UFPR, 2007. 132p.: il. - Available at: http://dspace.c3sl.ufpr.br/dspace/handle/1884/10294. It was utilized the specific gravity for wood chips. Sawdust -Masses and Dead Loads of Concrete and Other Materials- http://www.cca.org.nz/pdf/Masses.pdf.	Biomass	Wood from afforestation	Woody residues	Sawdust	Specific gravity (tonne/m³)	0.510	0.35	0.245													
Biomass	Wood from afforestation	Woody residues	Sawdust																			
Specific gravity (tonne/m³)	0.510	0.35	0.245																			
Frequency of monitoring/recording:	Monthly																					
Value monitored:	Total amount during the this monitoring period: <table><tr><th colspan="3">Argibem Ceramic (tonnes)</th></tr><tr><td>Sawdust</td><td>Wood from afforestation</td><td>Woody residues</td></tr><tr><td>19.668,49</td><td>18.64</td><td>799.74</td></tr></table> <table><tr><th colspan="2">São Sebastião Ceramic (tonnes)</th></tr><tr><td>Wood from afforestation</td><td>Woody residues - Industrial and construction residues</td></tr><tr><td>2,042.70</td><td>3,906.40</td></tr></table> <table><tr><th colspan="2">Vulcão Ceramic (tonnes)</th></tr><tr><td>Wood from afforestation</td><td>Woody residues - Industrial and construction residues</td></tr><tr><td>2,910.88</td><td>4,828.70</td></tr></table> More detailed information is available in Section 5 of MR.	Argibem Ceramic (tonnes)			Sawdust	Wood from afforestation	Woody residues	19.668,49	18.64	799.74	São Sebastião Ceramic (tonnes)		Wood from afforestation	Woody residues - Industrial and construction residues	2,042.70	3,906.40	Vulcão Ceramic (tonnes)		Wood from afforestation	Woody residues - Industrial and construction residues	2,910.88	4,828.70
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Vulcão Ceramic (tonnes)																						
Wood from afforestation	Woody residues - Industrial and construction residues																					
2,910.88	4,828.70																					
Monitoring equipment:	No monitoring equipment was used to determine this parameter. The amount of renewable biomasses was monitored in accordance to the weight or volume described in the receipts and invoices from the providers.																					
QA/QC procedures to be applied:	Amount of biomass was checked according to receipts of purchase. The energy balance was verified according to the amount of biomass applied.																					
Calculation method:	Not applicable																					

Any comment:	Data was measured for each purchase/acquisition of biomass and aggregated monthly. Data will be kept for two years after the end of the crediting period or the last issuance of carbon credits for this project activity, whichever occurs later.								
Data Unit / Parameter:	PR _y								
Data unit:	Unity of ceramic devices								
Description:	Production of ceramic devices per month								
Source of data:	Controlled by the project developer.								
Description of measurement methods and procedures to be applied:	Data concerning PR_y measurement points were taken from internal control of ceramic devices that comes out of the kiln in the <i>Argibem</i> ceramic. The ceramic organizes its production per month separated by type of ceramic device. These data are collected by internal software. <i>São Sebastião</i> ceramic controls its production data based on the number of ceramic pieces coming out of the molding machine. In order to adopt conservative production data for the current monitoring period, it was made a comparison between data from molding machine and data of ceramic devices that come out of kilns. The comparison study was made based on data from 21 months. The percentage of loss in the production process between the molding machine stage and the kiln exit stage was 5.2%. So, the parameter PR_y of the monitoring period was calculated discounted 5.2% from the molding machine production data. Please see VCS MR Calculation spreadsheet. Data of production from <i>Vulcão</i> ceramic were taken from sales internal control. The ceramic company has a spreadsheet fed daily with sales numbers, according to data based on the cash flow.								
Frequency of monitoring/recording :	Monthly								
Value monitored:	Total amount during the this monitoring period: <table><tr><th>Argibem Ceramic</th><th>São Sebastião Ceramic</th><th>Vulcão Ceramic</th></tr><tr><td>30,422,388</td><td>26,858,094</td><td>41,739,708</td></tr></table> More detailed information is available in Section 4 of MR.			Argibem Ceramic	São Sebastião Ceramic	Vulcão Ceramic	30,422,388	26,858,094	41,739,708
Argibem Ceramic	São Sebastião Ceramic	Vulcão Ceramic							
30,422,388	26,858,094	41,739,708							
Monitoring equipment:	No monitoring equipment was used to determine this parameter. Production was counted by trained personnel on each ceramic								
QA/QC procedures to be applied:	The ceramics have an internal control of the quantity of ceramic units produced. It was rechecked according to evidences and data provided by the ceramic owner.								
Calculation method:	Not applicable								
Any comment:	Data will be kept for two years after the end of the crediting period or the last issuance of carbon credits for this project activity, whichever occurs later.								

Data Unit / Parameter:	Origin of renewable biomass
Data unit:	Not applicable
Description:	Renewable origin of the biomass
Source of data:	Controlled by the project developers.
Description of measurement methods and procedures to be applied:	This information was given by the biomasses providers. Information on the invoices was assessed to determine if the renewable biomass complies with UNFCCC definitions of renewable biomass (as per CDM EB 23, Annex 18).
Frequency of monitoring/recording:	Each crediting period
Value monitored:	Not directly applied for the calculation. It was considered that all biomass used were renewable.
Monitoring equipment:	No monitoring equipment was used to determine this parameter.
QA/QC procedures to be applied:	The biomasses was considered renewable as they were in accordance with the definition given by the Annex 18, EB 23 of UNFCCC definition.
Calculation method:	Not applicable
Any comment:	All the renewable biomasses utilized in the monitoring period were already described in the project design document. Data will be kept for two years after the end of the crediting period or the last issuance of carbon credits for this project activity, whichever occurs later.

Data Unit / Parameter:	Renewable biomass surplus			
Data unit:	Tonnes or m ³			
Description:	Amount of renewable biomass available			
Source of data:	Monitored			
Description of measurement methods and procedures to be applied:	The sources of leakages predicted in "General guidance on leakage in biomass project activities" of Indicative Simplified Baseline and Monitoring Methodologies for Selected Small-Scale CDM Project Activity Categories, were monitored. The measurement of the leakage was based in national and international articles and database every monitoring period. The sources provided information about the biomass availability in the project activity's region.			
Frequency of monitoring/recording:	Annually			
Value monitored:		Biomass surplus	Surplus	Year
		Wood from afforestation in m ³	7,776,095	2007
		Woody Residues (sawdust/wood chips) in m ³	5,737,174.08	2007
		Industrial wood residues in tonnes	749,839	2006
		Rice Husk in m ³	131.38 thousands	2007/08

	Elephant Grass	Not measured	-
Monitoring equipment:	No monitoring equipment was used to determine this parameter.		
QA/QC procedures to be applied:	Data available regarding the ceramic industries fuel consumption was employed to monitor the leakage		
Calculation method:	The amount of biomass used by the project activity in each year of the crediting period was compared to total biomass available, as estimated on the VCS PD.		
Any comment:	According to the guidance applied, the project participant shall evaluate ex ante if there is a surplus of the biomass in the region of the project activity, which is not utilized. If it is demonstrated (e.g., using published literature, official reports, surveys etc.) at the beginning of each crediting period that the quantity of available biomass in the region (e.g., 50 km radius), is at least 25% larger than the quantity of biomass that is utilized including the project activity, then this source of leakage can be neglected otherwise this leakage shall be estimated and deducted from the emission reductions. Value monitored, hence, represents the value determined ex ante at the beginning of the current crediting period. Data will be kept for two years after the end of the crediting period or the last issuance of carbon credits for this project activity, whichever occurs later.		

Data Unit / Parameter:	Leakage of fossil fuel
Data unit:	tCO ₂ e
Description:	Leakage resulted from fossil fuel
Source of data:	Monitored
Description of measurement methods and procedures to be applied:	The source of leakage predicted in the methodology applied was monitored.
Frequency of monitoring/recording:	Annually
Value monitored:	0
Monitoring equipment:	No monitoring equipment was used to determine this parameter.
QA/QC procedures to be applied:	Receipts and invoices were used to prove that the new equipments were acquired. The old equipments located in the ceramic prove that no equipment was transferred.
Calculation method:	Not applicable.
Any comment:	Data will be kept for two years after the end of the crediting period or the last issuance of carbon credits for this project activity, whichever occurs later.

The DOE crosschecked all the information above, available on the Monitoring Report (Version 03), with the internal records data related to biomass consumption and ceramic production.

The Monitoring of the project activity is implemented in accordance with the Monitoring Plan described in the VCS PD (Version 06), except for the deviation described under $Q_{renbiomass}$ of this report, and in Section 2.2 of MR v03. It is not a deviation from the applicable methodology, so it has been accepted by the DOE.

Baseline emissions

Baseline emissions are estimated following procedures of the applied methodology: AMS-I.C.: Thermal energy for the user with or without electricity – Version 13. The project activity, in this monitoring period (33 months), generated 514.47 TJ, equivalent to 187.08 TJ/year or, converting it, 51,967 MWh/year, which corresponds to the use of 5.93 MW_{thermal} on average of the kilns capacity during the monitored period, which is less than the limit of 45 MW_{thermal} for Type I Small scale project activities.

Baseline emissions are calculated as:

$BE_y = HG_y \cdot EF_{CO_2} / \eta_{th}$	(Equation 01)
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Where:

BE_y:	The baseline emissions from steam/heat displaced by the project activity during the year y in tCO ₂ e.
HG_y:	The net quantity of heat supplied by the project activity during the year y in TJ.
EF_{CO₂}:	The CO ₂ emission factor per unit of energy of the fuel that would have been used in the baseline plant in (tCO ₂ /TJ), obtained from IPCC default emission factors ¹ .
η_{th}:	The efficiency of the plant using fossil fuel that would have been used in the absence of the project activity.

The ceramic facilities did not use to monitor the energy generated by the fossil fuel consumed. However, it is well known the amount of fossil fuel consumed as well as the amount of fuel required to burn a thousand of pieces. Therefore, this project estimated the baseline emissions through the energy generated by the real consumption of fuel oil and assuming that η_{th} is 100%.

The thermal energy generated by the fossil fuel is estimated as follows:

$HG_y = Q_{oil} \times NCV \times \rho$	(Equation 02)
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Where:

Q_{oil}:	Amount of oil (L)
NCV:	Net calorific value of oil (TJ/tonne)
ρ:	Specific gravity of oil (tonne/L)

¹ According to the source: <http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf>. Page 2.18. Table 2.3. Please see: "Residual Fuel Oil".

The amount of oil is obtained by multiplying the production of ceramic devices (parameter PR_y) by the consumption of fossil fuel per thousand of ceramic devices (parameter BF_y), as stated below:

$$Q_{oil} = (PR_y/1000) \times BF_y \quad \text{(equation 03)}$$

Where:

- Q_{oil} : Amount of oil (L)
- PR_y : Production of ceramic devices (unity of ceramic devices)
- BF_y : Consumption of fossil fuel per thousand of ceramic devices (L/thousand of ceramic devices)

Baseline emissions during the monitored period are summarized in the following table:

Table 1. Baseline emissions for Argibem, São Sebastião and Vulcão ceramics

Argibem Ceramic

Period	PR_y (thousands of ceramic pieces)	Q_{oil} (liters)	Baseline emissions (tCO ₂ e)
2008 Total	2,587.18	252,923.11	772
2009 Total	11,587.83	1,132,826.07	3,460
2010 Total	11,359.87	1,110,541.18	3,390
2011 Total	4,887.50	477,802.29	1,459
Total Monitoring Period	30,422.39	2,974,092.65	9,081

São Sebastião Ceramic

Period	PR_y (thousands of ceramic pieces)	Q_{oil} (liters)	Baseline emissions (tCO ₂ e)
2008 Total	1,741.53	348,306.80	1,063
2009 Total	9,705.98	1,941,195.40	5,929
2010 Total	10,259.87	2,051,973.60	6,268
2011 Total	5,150.72	1,030,143.00	3,147
Total Monitoring Period	26,858.09	5,371,618.80	16,407

Vulcão Ceramic

Period	PR_y (thousands of ceramic pieces)	Q_{oil} (liters)	Baseline emissions (tCO ₂ e)
2008 Total	3,975.83	502,210.94	1,534
2009 Total	15,387.86	1,943,732.29	5,940
2010 Total	15,270.24	1,928,876.01	5,894
2011 Total	7,105.78	897,573.71	2,741
Total Monitoring Period	41,739.71	5,272,392.96	16,109

Project Emissions

The applied methodology does not include any source of project emissions.

Leakage

Leakage is estimated to be 0 (zero) tCO₂e during the entire monitoring period, for all ceramics included in this bundled project.

Summary of GHG Emission Reductions and Removals

The table below summarizes the emission reductions for this monitoring period.

Table 2. Emission reductions for the monitoring period

Period	Ceramic			Total ER _y (tCO ₂ e)
	<i>Argibem</i>	<i>São Sebastião</i>	<i>Vulcão</i>	
	ER _y (tCO ₂ e)	ER _y (tCO ₂ e)	ER _y (tCO ₂ e)	
2008 Total	772	1,063	1,534	3,369
2009 Total	3,460	5,929	5,940	15,329
2010 Total	3,390	6,268	5,894	15,552
2011 Total	1,459	3,147	2,741	7,347
Monitoring period total	9,081	16,407	16,109	41,597

It was verified in the course of this verification that the above-mentioned methodology has been correctly and accurately applied in calculating the total emission reductions and the emission reduction calculation is accurate and conservative.

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

The project proponent submitted several documents as evidences to determine emission reductions, as follows:

Refer to Section 3.2 Document Review of this Verification Report, for quality of evidence.

4.4 Management and Operational System

The management and operational system was checked by Verification team as follows:

- The management and operational system of the project is suitable. In accordance with methodologies and procedures indicated.
- An operational structure was established with responsibilities identified.
- We confirm the applicability of the structure indicated in the VCS PD.
- The quality management was clearly defined in the VCS PD.

5 VERIFICATION CONCLUSION

Sustainable Carbon – Projetos Ambientais LTDA has commissioned BUREAU VERITAS CERTIFICATION to carry out the 2nd periodic verification of the project “Argibem, São Sebastião and Vulcão Ceramics Fuel Switching Project” with regard to the relevant requirements for VCS project activities.

The project reduces GHG emissions, replacing heavy oil by renewable biomasses to generate thermal energy. This verification covers the period from October 1st, 2008 to June 30th, 2011.

In the course of the verification, 12 CARs and 6 CLs were raised. All but one CAR were successfully closed. A Forward Action Request (FAR) had to be raised, since CAR08 – regarding the internal auditing and non-conformities handling procedures – was not successfully addressed in the course of this verification. So FAR01 was raised, replacing CAR08, thus closed. The verification is based on the Monitoring Report (Version 03, dated November 09th, 2011), the VCS PD (Version 03, of May 15th, 2009), the Emission Reduction Calculation spreadsheet (Version 03, of November 09th, 2011) and supporting documents made available to BUREAU VERITAS CERTIFICATION by the project participant.

As a result of this verification, the DOE can confirm that:

- BUREAU VERITAS CERTIFICATION confirms that the project is implemented as planned and described in the Project Description. The monitoring plan is in place and the project is generating GHG emission reductions. The DOE concluded that all operations of the project are implemented and installed as planned and described as in the validated project description;
- The monitoring plan is in accordance with the applied approved CDM methodology, i.e., AMS-I.C.: Thermal energy for the user with or without electricity - Version 13;
- The monitoring system is in place and functional. The project has generated GHG Emission Reductions.

All the data and information used to elaborate this Verification Report are treated confidentially by BUREAU VERITAS CERTIFICATION.

Reporting period: October 1st, 2008 to June 30th, 2011.

Verified GHG emission reductions or removals in the above reporting period:

GHG Emission Reductions or Removals	tCO ₂ e
Baseline Emissions	41,597
Project Emissions	0
Leakage	0
Net GHG emission reductions or removals	41,597

6 VERIFIERS' CVS

BUREAU VERITAS CERTIFICATION - Lead GHG Verifier

Marcelo Porto – is graduated in Electrical Engineering, with a graduate specialization in Quality Engineering and a Master's degree in Industrial Engineering. Quality management expert and auditor, he worked in the electro-electronic, mechanical, medical devices, leather and shoes industries. ISO 9001 and SA8000 auditor, he is also trained as ISO 14001 and OHSAS 18001 lead auditor. Marcelo is qualified as Lead Verifier GHG – Green House Gases.

BUREAU VERITAS CERTIFICATION - Internal Technical Reviewer

Antonio Daraya – is graduated in Chemical Engineering with a very large experience in Industrial and Environmental management in several industrial fields. He is ISO 9001:2000, ISO 14001:2004 and OHSAS 18001 Lead Auditor and has also experience in the implementation of Quality and Environmental Management Systems. Antonio is qualified as Lead Verifier GHG – Green House Gases.

7 VERIFICATION PROTOCOL

Table 1 Verification requirements based on the Clean Development Mechanism Validation and Verification Manual (Version 01.2)

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
1 Project implementation in accordance with the registered project design document					
It is assessed if there are any concerns related to the conformity of the actual project activity and its operation with the registered project design document	VVM	195			
a Are all physical features of the proposed CDM project activity proposed in the registered PDD in place?	VVM	196	Yes	OK	OK
b Have the project participants operated the proposed CDM project activity as per the registered PDD?	VVM	196	CAR03: Last paragraph of Section 2.1, MR v1, states incorrect number and initial date of monitoring period. CL01: Please, indicate the actual project start dates, in Table 1, Section 1.5, MR v1. CL02: Please, provide copies of all environmental licenses for each ceramic (i.e., LOs, water use, etc).	CAR03 CL01 CL02	OK
c Was an on-site visit conducted?	VVM	196	Yes. On 27/07/2011 (Vulcão), 28/07/2011 (Argibem) and 29/07/2011 (São Sebastião).	OK	OK
d If not, justify the rationale of the decision.	VVM	196	N/A	OK	OK
e Does the implementation or operation of CDM project activity conform with the description contained in the registered PDD?	VVM	197	Yes	OK	OK
f If not, which are the potential impacts due to these changes, according to the relevant	VVM	197	N/A	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
guidelines established by the Executive Board (EB48-§73)?					
g Was a notification or a request for approval of changes from the project activity as described in the registered PDD submitted prior to the conclusion of the verification/certification for the corresponding?	VVM	197	N/A	OK	OK
2 Compliance of the monitoring plan with the monitoring methodology					
It is assessed if the monitoring plan of the proposed CDM project activity complies with the applied methodology	VVM	199			
a Is the validated monitoring plan in accordance with the approved methodology applied by the proposed CDM project activity?	VVM	200	CAR04: Web link address, in Footnote 3, Section 1.8, MR v1, leads to an error message.	CAR04	OK
b If no, was a request for revision of the monitoring plan was done? (The DOE may request for revision of the monitoring plan covering the monitoring period under verification, for approval by the CDM Executive Board)	VVM	201	N/A	OK	OK
c Are there any monitoring aspects of the project activity that are not specified in the methodology, particularly in the case of small-scale methodologies (e.g. additional monitoring parameters, monitoring frequency and calibration frequency)?	VVM	202	No	OK	OK
3 Compliance of monitoring with the monitoring plan					
It is assessed if monitoring of reductions in GHG emissions to result from the proposed CDM project	VVM	204			

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
activity is implemented in accordance with the monitoring plan contained in the registered PDD or the accepted revised monitoring plan ^{Erro! Indicador não definido.}					
a Have the monitoring plan and the applied methodology been properly implemented and followed by the project participants?	VVM	205	CAR05: Incorrect use of word “measurement” in PR_y table, Section 3.2, MR v1. Besides, it can not be stated that “the PR_y cannot be manipulated”. Finally, last paragraph in QA/QC procedures duplicates information. CAR06: MR v1, Section 3.2, states incorrect data unit for Q_{renbiomass}. CL03: Please, in MR v1, Section 3.2, rewrite description of “Monitoring equipment” in Q_{renbiomass} table, to make it clear measurement is carried out by biomass suppliers.	CAR05 CAR06 CL03	OK
b Have all parameters stated in the monitoring plan, the applied methodology and relevant CDM Executive Board decisions been sufficiently monitored and updated as applicable, including:	VVM	205	-	-	-
i Project emission parameters?	VVM	205	There is no project emission.	OK	OK
ii Baseline emission parameters?	VVM	205	CAR07: Please, correct verbe tense (use of “will”) in Section 4.1, MR v1.	CAR07	OK
iii Leakage parameters?	VVM	205	There is no leakage emission.	OK	OK
iv Management and operational system: the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan?	VVM	205	CAR08: MR v01, Section 3.3, does not describe procedures for handling internal auditing and non-conformities. CAR09: MR v1, Section 1.4, states no other relevant project participants exist. However, as per MR VCS v3	CAR08 CAR09	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			template, information on other PPs involved in the project needs to be provided, regardless of their relevance.		

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
c Is the accuracy of equipment used for monitoring in accordance with the relevant guidance provided by the CDM Executive Board and are equipment controlled and calibrated in accordance with the monitoring plan?	VVM	205	It is in accordance with registered PD.	OK	OK
i Are monitoring results consistently recorded as per approved frequency?	VVM	205	See CL04.	CL04	OK
ii Have quality assurance and quality control procedures been applied in accordance with the monitoring plan monitoring plan?	VVM	205	See CAR05.	CAR05	OK
4 Assessment of data and calculation of greenhouse gas emission reductions					
It is assessed if GHG emission reductions achieved by / resulting from the proposed CDM project activity are calculated applying the selected methodology	VVM	207			
a Is a complete set of data for the specified monitoring period is available? (If no, i.e., only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, the DOE shall opt to either make the most conservative assumption theoretically possible in finalizing the verification report, or raise a request for deviation prior to submitting request for issuance, if appropriate).	VVM	208	CAR10: PR _y and Q _{renbiomass} data, in MR v1 and Calc spreadsheets v1, are not in accordance with the evidences checked during site visits. CAR11: Incorrect months in Table 1, Calc spreadsheets v1, <Vulcão>, cells K6, K7 and K8 (year 2008).	CAR10 CAR11	OK
b Has information provided in the monitoring report been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis?	VVM	208	CL04: Please, provide copies of the evidences of PR _y and Q _{renbiomass} data.	CL04	OK
c Have calculations of baseline emissions, proposed CDM project activity emissions and leakage, as	VVM	208	CL05: Please, adjust position of formulas in Calc spreadsheets v1, <Argibem>, since there is an	CL05	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
appropriate, been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document?			overlap with other information.		
d Have any assumptions used in emission calculations been justified?	VVM	208	Yes	OK	OK
e Have appropriate emission factors, IPCC default values and other reference values been correctly applied?	VVM	208	CAR12: Not all $NCV_{renbiomass}$ values, in Calc spreadsheets v1, are in accordance with validated VCU estimates. CL06: In MR v1, Section 4.1, please, be specific regarding data source of EF_{CO_2} value, in description after Equation 01.	CAR12 CL06	OK

Table 2 Resolution of Corrective Action / Forward Action / Clarification Requests.

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
CAR01: Dates on cover do not follow the DD- <u>Month</u> -YYYY format.	MR VCS v3 template Cover	The dates were corrected on the cover of the monitoring report.	In MR v2, format of dates has been corrected on cover. CAR01 is closed.
CAR02: Incorrect project ID on cover of MR v1. Correct number is 63.	MR VCS v3 template Cover	The ID was corrected on the MR version 02, according to the VCS Project Database.	Project ID number has been corrected on cover of MR v2. CAR02 is closed.
CAR03: Last paragraph of Section 2.1, MR v1, states incorrect number and initial date of monitoring period.	VVM 196	The initial date of monitoring period was corrected on the MR version 2. <u>Second response:</u> The correction was made on in MR version 03, section 2.1.	In MR v2, Section 2.1, monitoring period's initial date has been corrected. However, its number ("third") still needs correction. <i>CAR03 is not closed.</i> <u>Second analysis:</u> Correct monitoring period (second) is stated in MR v3, Section 2.1. CAR03 is closed.
CAR04: Web link address, in Footnote 3, Section 1.8, MR v1, leads to an error message.	VVM 200	The website of the methodology was corrected on the Monitoring Report version 02.	Web link address, in Footnote 3, Section 1.8, MR v2, has been corrected. CAR04 is closed.
CAR05: Incorrect use of word "measurement"	VVM 205	The description of the parameter	In MR v2, Section 3.2, PR _y table has

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
in PR _y table, Section 3.2, MR v1. Besides, it can not be stated that “the PR _y cannot be manipulated”. Finally, last paragraph in QA/QC procedures duplicates information.		PR _y was corrected according to the VCS MR Calculation spreadsheet, version 02.	been revised. CAR05 is closed.
CAR06: MR v1, Section 3.2, states incorrect data unit for Q _{renbiomass} .	VVM 205	The data unit for renewable biomass was corrected on the VCS MR document, according to the VCS MR Calculation spreadsheet.	In MR v2, Section 3.2, data unit of Q _{renbiomass} has been corrected. CAR06 is closed.
CAR07: Please, correct verbe tense (use of “will”) in Section 4.1, MR v1.	VVM 205	The correction was made on the VCS MR report, version 02, please see section 4.1.	In MR v2, Section 4.1, verbe tense has been corrected. CAR07 is closed.
CAR08: MR v01, Section 3.3, does not describe procedures for handling internal auditing and non-conformities.	VVM 205	This information was included in Section 3.3 of the monitoring report. No internal auditing was performed on data related to this monitoring period. Procedures of handling non-conformities were also described in the monitoring report.	FAR01 is being raised, aiming at improvement on the description of procedures for handling internal auditing and non-conformities. This will be checked in the next verification. As FAR01 is being raised, CAR08 is closed. FAR01: PPs are required to better describe their procedures for handling internal auditing and non-conformities.

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
			Time is given so that improved procedures can be established. Procedures do not need to be documented, however, it is likely recommended PPs do so, in order to make it easier for everyone involved to follow them correctly.
CAR09: MR v1, Section 1.4, states no other relevant project participants exist. However, as per MR VCS v3 template, information on other PPs involved in the project needs to be provided, regardless of their relevance.	VVM 205	None other entities were involved in the project. The Project Proponents (PPs) are described in the VCS MR version 02, section 1.3. <u>Second response:</u> The correction was made in the MR version 03.	Section 1.4, in MR v2, has been revised to make it clear no other entities were involved in the project. However, please, replace “None” by “No”. <i>CAR09 is not closed.</i> <u>Second analysis:</u> “None” has been replaced by “No”, in MR v3, Section 1.4. CAR09 is closed.
CAR10: PR _y and Q _{renbiomass} data, in MR v1 and Calc spreadsheets v1, are not in accordance with the evidences checked during site visits.	VVM 208	The parameters PR _y and Q _{renbiomass} were rechecked according to the evidences that were verified on the site visit. The evidences will be sent to the	PR_y and Q_{renbiomass} data have been corrected in MR v2. CAR10 is closed.

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
		validation team.	
CAR11: Incorrect months in Table 1, Calc spreadsheets v1, <Vulcão>, cells K6, K7 and K8 (year 2008).	VVM 208	The correction was made on the VCS MR Calculation spreadsheet <Vulcão>.	2008 months have been corrected in Table 1, <Vulcão>, Calc spreadsheets v2. CAR11 is closed.
CAR12: Not all NCV _{renbiomass} values, in Calc spreadsheets v1, are in accordance with validated VCU estimates.	VVM 208	The NCV _{renbiomass} were corrected on the MR Calculation spreadsheet, according to the validated VCU estimates.	NCV _{renbiomass} values have been corrected in Calc spreadsheets v2. CAR12 is closed.
CL01: Please, indicate the actual project start dates, in Table 1, Section 1.5, MR v1.	VVM 196	The project start date is described according to the VCS PD, version 03. The correction was made on the VCS MR document section 1.5.	Actual project start dates have been indicated in MR v2. CL01 is closed.
CL02: Please, provide copies of all environmental licenses for each ceramic (i.e., LOs, water use, etc).	VVM 196	All the environmental licenses of <i>Argibem</i> , <i>São Sebastião</i> and <i>Vulcão</i> will be sent to the validation team as requested. <u>Second response:</u> Vulcão's clay extraction license	Copies of the environmental licenses have been provided. Vulcão's clay extraction license has not been provided. <i>CL02 is not closed.</i> <u>Second analysis:</u>

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
		will be send to the validation team. The ceramic requested the renewal of Clay Extraction License in April 2009 according. The new License hasn't been emitted by the Environmental Institute of Rio de Janeiro State – INEA.	Vulcão's clay extraction license has been provided as well as the relevant request for renewal, dated four months prior to the license's expiration date. CL02 is closed.
CL03: Please, in MR v1, Section 3.2, rewrite description of "Monitoring equipment" in $Q_{renbiomass}$ table, to make it clear measurement is carried out by biomass suppliers.	VVM 205	The description of "Monitoring equipment" was rewritten in the VCS MR document, version 02.	$Q_{renbiomass}$ table has been revised in MR v2. CL03 is closed.
CL04: Please, provide copies of the evidences of PR_y and $Q_{renbiomass}$ data.	VVM 208	All the evidences of PR_y and $Q_{renbiomass}$ data will be sent to the validation team.	Copies of the evidences of PR_y and $Q_{renbiomass}$ data have been provided. CL04 is closed.
CL05: Please, adjust position of formulas in Calc spreadsheets v1, <Argibem>, since there is an overlap with other information.	VVM 208	The adjust was made on the VCS MR Calculation spreadsheet. <u>Second response:</u> The correction was made on the Calculation spreadsheet version 03.	Position of formulas in Calc spreadsheets v2 still need to be adjusted. Note that correction is needed in the sheets of all ceramics. <i>CL05 is not closed.</i> <u>Second analysis:</u>

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
			Position of formulas has been corrected in Calc spreadsheets v3. CL05 is closed.
CL06: In MR v1, Section 4.1, please, be specific regarding data source of EF _{CO2} value, in description after Equation 01.	VVM 208	In the MR version 02, section 4.1 data source of EF _{CO2} value was specified. <u>Second response:</u> The correction was made in the MR version 03, section 4.1.	Expression "...fuel <u>that used</u> ..." still needs correction. Besides, the IPCC web link address does not work. <i>CL06 is not closed.</i> <u>Second analysis:</u> Expression has been corrected, as well as IPCC web link address, in MR v3, Section 4.1. CL06 is closed.
FAR01: PPs are required to better describe their procedures for handling internal auditing and non-conformities. Time is given so that improved procedures can be established. Procedures do not need to be documented, however, it is likely recommended PPs do so, in order to make it easier for everyone involved to follow them correctly.	VVM 205	No response at this time.	To be verified by DOE in next verification.