

3rd VERIFICATION REPORT OF GOMES DE MATTOS CERAMIC FUEL SWITCHING PROJECT

Document Prepared By BUREAU VERITAS CERTIFICATION

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Version	3

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Summary:

BUREAU VERITAS CERTIFICATION has made the verification of Gomes de Mattos Ceramic Fuel Switching Project. This project activity was developed by Carbone Social Serviços Ambientais LTDA. (Social Carbon Company), which has recently changed its company name to Sustainable Carbon – Projetos Ambientais LTDA.

The project activity is the project of Gomes de Mattos Ceramic, which is an enterprise that produces structural ceramic units. It is located in the city of Crato – Ceará state, northeast of Brazil.

The fuel utilized in the baseline scenario to fire the ceramic units was native wood from the Caatinga biome. This type of wood is considered a non-renewable biomass, once it is not originated in areas with reforestation activities or sustainable management activities.

The project activity consists on utilizing renewable biomasses, such as native wood from forest management plan, municipal wood residues, *Algaroba* wood, sawdust, residues from cashew trees, *Babaçu* coconut husk, and sugar cane bagasse, to feed the kilns instead of using native wood from the Caatinga biome.

By utilizing renewable biomasses for effective generation of thermal energy for captive consumption, this project activity directly helps 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 three phases: i) desk review of the project design, baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and 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 04). In summary, it is BUREAU VERITAS CERTIFICATION's opinion that the project correctly applies the baseline and monitoring AMS.I-E (Switch from Non – Renewable Biomass for Thermal Application by the User) Version 01, valid from 01st February, 2008 to 08th April, 2010 and meets the relevant VCS requirements, and local legislation. In the course of the verification Corrective Action Requests (CAR) and Clarification Requests (CL) were raised and successfully closed.

As the result of the 3rd 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:

Reporting period: 01st January, 2010 to 31st July, 2011.

Period	PR _y (tons of ceramic units fired)	B _y (tonnes)	ER _y (tCO ₂ e)
January to December - 2010	70,098	39,479	57,705
January to July - 2011	42,462	23,915	34,954
Total period	112,560	63,394	92,659

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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 “Gomes de Mattos Ceramic Fuel Switching Project”.

This report summarizes the findings of the third 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 *Gomes de Mattos* ceramic, which is a medium-sized ceramic industry that produces ceramic devices, like tiles and bricks, destined for the regional market of *Ceará*.

The activity of this project consists on utilizing native wood from forest management plan, municipal wood residues, *Algaroba* wood, sawdust, residues from cashew trees, *Babaçu* coconut husk, and sugar cane bagasse, which are all renewable biomasses, to feed their kilns rather than using a non-renewable fuel like native wood.

The objective of the implementation of this project activity in the ceramics was to stop using the native wood and completely substitute it with renewable biomasses to feed their kilns and cook their ceramic devices so that they could minimize environmental impacts related to the fossil fuel consumption.

This fuel switching project is reducing greenhouse gas (GHG) emissions through the substitution of native wood for renewable biomasses to generate thermal energy.

The Crediting period is from 01st May 2006 to 30th April 2016 (full substitution of the biomass), while the project start date is 01st April 2006 (first substitution of the biomass).

The emission reductions due to the switching of non-renewable fuel (native wood) to renewable biomasses resulted in **92,659 tCO₂e** during this 3rd monitoring period from 01st January 2010 to 31st June 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

- Method and Criteria

According to the validation report issued in May 27th, 2009, by TÜV NORD CERT GmbH:

The validation scope is given as an independent and objective review of the project design, the project's baseline study and monitoring plan (based on AMS-I.E: Switch from non-renewable biomass for thermal

applications by the user - Version 01, February 1st 2008 onwards), 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
- Document Review

According to the validation report issued in May 27th, 2009, by TÜV NORD CERT GmbH:

VCS PD and proof of title submitted by Gomes de Mattos Ceramic, as well as the supporting documents were reviewed.

The VCS PD submitted by Gomes de Mattos Ceramic and background documents related to the project design and baseline were reviewed.

Furthermore, the validation team used additional documentation by third parties like host party legislation, and technical data based on the project design provided by the

- Interviews

According to the validation report issued in May 27th, 2009, by TÜV NORD CERT GmbH:

Before and during the on-site visit on October 08th, 2008, the verifier of TÜV NORD performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review.

Gomes de Mattos Ceramic's owners and Carbono Social Serviços Ambientais Ltda. consultants were interviewed.

- Site Inspections

On-Site assessment was conducted on October 08th, 2008 by TÜV NORD.

- Resolution of Any Material Discrepancy

According to the validation report issued in May 27th, 2009, by TÜV NORD CERT GmbH:

The report includes Corrective action and Clarification Requests (CAR and CR) identified in the course of this validation.

A Corrective Action Request is established if:

- mistakes have been made in assumptions or the project documentation which directly would influence the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not been met or
- there is a risk that the project would not be registered by the UNFCCC or that emission reductions cannot be verified and certified.

A Clarification Request is issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

After resolution of these CARs and CRs by the project proponent, the validator issued the (final) validation report and opinion.

29 CARs and 9 CRs were found during pre-validation. Please refer to Section 3 of the Validation report.

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

Not applicable, once this is not grouped project.

2.3 Validation Conclusion

According to the validation report issued in May 27th, 2009, by TÜV NORD CERT GmbH: Carbono Social Serviços Ambientais Ltda. Brasil has commissioned the TÜV NORD JI/CDM Certification Program to validate the project: "GOMES DE MATOS CERAMIC FUEL SWITCHING PROJECT" with regard to the relevant requirements of the VCS 2007.1 Standard.

The project activity consists of switching from non-renewable to renewable biomass fuel for end-user thermal energy generation. A risk-based approach has been followed to perform this validation. In the course of the draft validation 29 Corrective Action Requests (CARs) and 9 Clarification Requests (CRs) were raised and successfully closed.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, followup interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria.

In detail the conclusions can be summarised 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 283,420 t CO₂e is most likely to be achieved within the 10 years (renewable)crediting period.

The conclusions of this report show, 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 third verification comprises the period from 01st January, 2010 to 31st July, 2011.

Thus verification report were prepared between 25th August, 2011(site visit) and 20th October, 2011 (ITR adjustments)

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

The verification process 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 VVM 01.2 ;
- 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 VVM 01.2 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).

3.2 Document Review

The document review was conducted based in a desk review of the Monitoring Report (MR), calculation spreadsheets and additional supporting documents submitted by the client. The relevant sections of the above-mentioned customized protocol according to the VVM 01.2 were used;

Also the desk review of the VCS PD, supporting documents and methodology AMS - I.E. v.1 were done by using the relevant sections of a customized protocol according to the VVM 01.2.

all the relevant information and evidences regarding project description and monitoring process were assessed and validated by the verification team during the site visit and documentation review.

Reference Documents:

- VCS PD CGM_v5 dated May 27th, 2009

- Validation report - Gomes de Mattos.pdf
- 1st Verification report (VERIF_REP_64_01MAY2006_30APR2009.pdf)
- 2nd Verification report (VERIF_REP_64_01MAY2009_31DEC2009.pdf)
- VCS MR CGM_period_01 01 10_31 07 11_v01.pdf
- VCS MR CGM_period_01 01 10_31 07 11_v02.pdf
- VCS MR CGM_period_01 01 10_31 07 11_v03.pdf
- VCS MR CGM_period_01 01 10_31 07 11_v04.pdf
- VCS MR Calculation CGM_period_01 01 10_31 07 11_v01.xlsx
- VCS MR Calculation CGM_period_01 01 10_31 07 11_v02.xlsx
- VCS MR Calculation CGM_period_01 01 10_31 07 11_v03.xlsx
- VCS MR Calculation CGM_period_01 01 10_31 07 11_v04.xlsx
- Internal ceramic production records for 2010 and 2011
- Documentation regarding ceramic units weight and balance calibration evidences
- Monthly biomass invoices for the: i) native wood from forest management plan, ii) municipal wood residues, iii) *Algaroba* wood, iv) sawdust, v) residues from cashew trees, vi) *Babaçu* coconut husk, and vii) sugar cane bagasse.
- Forest management plans
- Operation licences for production and clay extraction (Licença de Operação.jpg)
- Additional documents and web-sites referred in the monitoring report v.4

3.3 Interviews

Background investigation and follow-up interviews with personnel of the project developer were conducted during the site visit on August 25th, 2011,

During the site visit the Bureau Veritas Certification performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review.

The following representatives of Cerâmica Gomes de Mattos Ltda and Sustainable Carbon – Projetos Ambientais Ltda, were interviewed:

- Stephenson Ramalho de Lacerda - Responsible for Cerâmica Gomes de Mattos Ltda Monitoring Data
- Camila Vaccari from Sustainable Carbon – Projetos Ambientais LTDA.

Consultants have been 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-Site assessment was conducted in order to crosscheck all the relevant information and data provided by the PP, against to the physical documentation and registers, as well as to assess the project description, as per the MR and PD, to that observed in the field.

3.5 Resolution of Any Material Discrepancy

During the verification process any corrective action (CAR) or clarification (CL) identified by the verifier were raised in the verification protocol and submitted to the PP to be addressed before the conclusion of the verification process.

The resolution of CARs and CLs were carried out by the PP through adjustments in the project documentation, especially in the MR and calculus spreadsheet. In some cases this adjustments were supported by evidences, additional documentation or technical explanation.

In the particular case of the FAR 01 (please refer to table 2, section 7, below), raised in the previous verification, a valid license has been received by the DOE and, thus, FAR 01 has been closed.

The objective of this phase of the verification is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the GHG emission reduction calculation.

Findings established during the initial verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CAR) is issued, where:

- (a) Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- (b) Mistakes have been made in applying assumptions, data or calculations of emission reductions which would impair the estimate of emission reductions;

The Clarification Request (CL), is used if information is insufficient or not clear enough to determine whether the applicable VCS v.3 requirements have been met.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol found in the section 7, below.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

There are no pending CARs or CLs issued in the course of the verification that still needs to be properly addressed to get closed. Before issuance of the final verification report, these CARs and CLs were adequately answered by the project proponent, and are closed.

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 01/05/2006 and ends on 30/04/2016. The total Emission Reductions forecasted for that period are 283,420 tCO₂e.

This is the third monitoring period, from January 01st, 2010 to July 31st, 2011, where the emission reductions was calculated in 92,659 tCO₂e.

The two previous monitoring period encompassed the period from 2006-05-01 to 2009-04-30, generating 146,604 tCO₂e and 2009-05-01 to 2009-12-31 generating 28,117 tCO₂e.

"Gomes de Mattos Ceramic Fuel Switching Project" start date: 01/April/2003, that is the date when the project developer began employing renewable biomass, however the project activity has started in 01/May/2006, date on which the project activity totally switched from non-renewable biomass to renewable biomass.

The actual operation of the proposed project activity is the fuel switching in the ceramic facility, with the replacement of unsustainable native wood by renewable biomasses for energy supply to the kilns in the facility.

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

The total production of the monitoring period, considered as input value for emission reductions calculation, was 112,560.25 tons of ceramic units fired (or 59,850 ceramic units)

The parameters required by the monitoring plan and the way the Verification Team has verified the values in the Monitoring Report Version 4 are described below:

Data Reported in Monitoring

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.5 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 described in the receipts from the providers. The values in the receipts may be described in m³, therefore 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 is:						
	Biomass	Native wood from forest management plan / Municipal wood residues	Cashew tree wood	Sawdust	Babaçu Coconut husk	Algaroba wood	Eucalyptus Wood from management plan
	Specific gravity (tonnes/m³)	0.88	0.42	0.245	1.085	0.756	0.49
	The sources of these data are:						
	Sawdust: Masses and Dead Loads of Concrete and Other Materials- http://www.cca.org.nz/pdf/Masses.pdf Cashew tree wood: LORENZI, H. Árvores Brasileiras: Manual de Identificação e Cultivo de Plantas Arbóreas Nativas do Brasil, vol.1. 4.ed. Nova Odessa, SP: Instituto Plantarum, 2002. Native wood from management areas / Municipal wood residues: The same applied in $p_{biomass}$						

Babaçu coconut husk:

<<http://www.ipef.br/publicacoes/scientia/nr34/cap04.pdf>>

Visited on March 13th, 2009.

Algaroba wood:

The value applied is an average among all species founded in the source:

<http://www.cnpf.embrapa.br/publica/boletim/boletarqv/bolet45/pag-99_106.pdf>

Visited on March 13th, 2009.

Wood from forest management areas (*Eucalyptus*):

The value applied is an average among all species founded in the source:

<<http://www.ipef.br/publicacoes/scientia/nr23/cap08.pdf>>

Visited on March 13th, 2009.

Receipts registered like "stereo" as unit of measure was converted to "m³" using the Conversion Factors above

Conversion factor from "st" to "m ³ "	
Native Wood from forest management areas	0.3388
Algaroba and Cashew tree wood	0.3745

The sources of these data are:

Native Wood from forest management areas:

Table 13, section 5.3.3.7, of the Boqueirão Forest Management Plan. The conversion factor was calculated according to the average of the plots described in this table.

Algaroba and Cashew tree wood:

FERRAZ, Douglas Galvão. Inventário Florestal de Três Fragmentos com Candeia (*Eremanthus erythropappus*) no Município de Itajubá - MG. 2008. 26 f. Monografia (Conclusão de Curso) - Curso de Gestão Ambiental, Escola Agrotécnica Federal, Inconfidentes-mg, 2008. Available at: <http://docs.google.com/viewer?a=v&q=cache:mNfJBYKgNNMJ:www.ifs.ifsuldeminas.edu.br/pesquisas/TCC/TCC_Douglas.pdf+conver%C3%A7ao+mst+m3&hl=pt-BR&gl=br&pid=bl&srcid=ADGEESiMIDtbGvrwKnl888t->

	ddbzbKcGnc2hYaTXhq3GtXUOg1wbAbYlk1f2UWhdIIHsWCyfjYtfFgNboU_qeG8hcJf5fAzliJjIjP3Z451eltDC6xOwmnW_X7D6HN69DDfUPbjq60wes&sig=AHIEtbTwzpj3zy7n6nlZFDM3-djyemLmDg>. Last visit on: September 28th, 2011. Moreover, the registered VCS PD v.5 did not consider the conversion factor from mst to m³ for the amount of renewable biomass that arrives in mst unit (parameter Qrenbiomass). Therefore, in this Monitoring Report, the values presented in the table Qrenbiomass of the VCS PD (section 3.3) for cashew wood and native wood from management areas were corrected, according to the conversion factors presented in the section 3.2 of this Monitoring Report, table Qrenbiomass. To testify the renewability of the native wood from forest management areas is necessary the use of DOF (Forest Origin Document) to prove the regular origin of the biomass. Besides that, the Sustainable Management Plans ensure that the native wood is taken from land areas with sustainable management practices.																																	
Frequency of monitoring/recording:	Monthly																																	
Value monitored:	<table><tr><td></td><td>Period</td><td>Total (tonnes)</td></tr><tr><td rowspan="12">2010</td><td>January</td><td>480.75</td></tr><tr><td>February</td><td>546.62</td></tr><tr><td>March</td><td>467.01</td></tr><tr><td>April</td><td>409.19</td></tr><tr><td>May</td><td>550.44</td></tr><tr><td>June</td><td>530.94</td></tr><tr><td>July</td><td>538.96</td></tr><tr><td>August</td><td>641.82</td></tr><tr><td>September</td><td>578.73</td></tr><tr><td>October</td><td>482.24</td></tr><tr><td>November</td><td>552.64</td></tr><tr><td>December</td><td>1,520.56</td></tr><tr><td></td><td>Total 2010</td><td>7,299.91</td></tr></table>				Period	Total (tonnes)	2010	January	480.75	February	546.62	March	467.01	April	409.19	May	550.44	June	530.94	July	538.96	August	641.82	September	578.73	October	482.24	November	552.64	December	1,520.56		Total 2010	7,299.91
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		2011	January	577.47
			February	630.41
			March	622.12
			April	1,325.42
			May	973.92
			June	1,011.98
			July	878.94
		Total 2011		6,020.25
		Total in the period		13,320.16
		More detailed information is available in Section 5. The increase in the amount of the biomass consumed was due to a stock realized from January to July of 2011. According to <i>Stephenson Ramalho de Lacerda</i> employee responsible for the project in <i>CGM Ceramic</i> , this stock was necessary once the biomass need to be dried for a long period under the sun. Another relevant factor which can be considered is due to the biomass seasonality, which implies in the accumulation of biomass in determined months.		
Monitoring equipment:	No monitoring equipment is used to determine this parameter			
QA/QC procedures to be applied:	It was monitored through receipts of purchase from the biomass providers. The ceramic industry controls the quantity of biomass through an internal spreadsheet, which is fed with the measured values of all the biomass that arrive from the providers. These internal spreadsheets were double checked with all the receipts and invoices of biomass employed.			
Calculation method:	Not applicable			
Any comment:				

Data Unit / Parameter:	PR_y (Ceramic devices)
Data unit:	Unity of ceramic devices or tonnes of ceramic devices.
Description:	Production of ceramic pieces

Source of data:	Controlled by the project developer.																		
Description of measurement methods and procedures to be applied:	The amount was acquired by counting the total production of one year. The measurement was done by an internal control sheet monitored by the project proponent, which was daily filled. The production is a representative sample to ensure that all appliances are still in operation. The weights of the ceramic units produced in this monitoring period were measured by a calibrated scale from Federal University of Ceará¹'s Quality Laboratory. These values are used to convert production from units to tonnes. <table border="1"> <thead> <tr> <th>Ceramic device</th><th>Weight (Tonnes per thousand of ceramic units)</th></tr> </thead> <tbody> <tr> <td>Blocks with 8 orifices</td><td>1.935</td></tr> <tr> <td>Blocks with 6 orifices</td><td>1.47</td></tr> <tr> <td>Flagstones</td><td>2.541</td></tr> <tr> <td>Decor Revetment</td><td>0.286</td></tr> <tr> <td>Colonial Tile</td><td>1.282</td></tr> <tr> <td>Pressed Tile</td><td>2.836</td></tr> </tbody> </table>	Ceramic device	Weight (Tonnes per thousand of ceramic units)	Blocks with 8 orifices	1.935	Blocks with 6 orifices	1.47	Flagstones	2.541	Decor Revetment	0.286	Colonial Tile	1.282	Pressed Tile	2.836				
Ceramic device	Weight (Tonnes per thousand of ceramic units)																		
Blocks with 8 orifices	1.935																		
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Pressed Tile	2.836																		
Frequency of monitoring/recording:	Monthly																		
Value monitored:	Total amount during the this monitoring period: <table border="1"> <thead> <tr> <th>Period\Production</th><th>Total Production (tonnes)</th></tr> </thead> <tbody> <tr> <td>January 2010</td><td>6,809.18</td></tr> <tr> <td>February 2010</td><td>5,601.55</td></tr> <tr> <td>March 2010</td><td>5,749.06</td></tr> <tr> <td>April 2010</td><td>5,611.98</td></tr> <tr> <td>May 2010</td><td>5,794.97</td></tr> <tr> <td>June 2010</td><td>5,456.97</td></tr> <tr> <td>July 2010</td><td>5,656.91</td></tr> <tr> <td>August 2010</td><td>5,644.71</td></tr> </tbody> </table>	Period\Production	Total Production (tonnes)	January 2010	6,809.18	February 2010	5,601.55	March 2010	5,749.06	April 2010	5,611.98	May 2010	5,794.97	June 2010	5,456.97	July 2010	5,656.91	August 2010	5,644.71
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July 2010	5,656.91																		
August 2010	5,644.71																		

¹ National Service of Industrial Learning.

	September 2010	6,078.81
	October 2010	5,856.23
	November 2010	5,832.29
	December 2010	6,005.48
	Total 2010	70,098.14
	January 2011	5,870.18
	February 2011	6,207.47
	March 2011	6,215.19
	April 2011	6,108.84
	May 2011	5,726.39
	June 2011	6,026.37
	July 2011	6,307.67
	Total 2011	42,462.11
	More detailed information is available in Section 4.	
	The production of CGM ceramic exhibit an increase of its production during the monitoring period in order to supply the high ceramic market demand which has been increased gradually throughout the years ² .	
Monitoring equipment:	No monitoring equipment is used to determine this parameter. Production is counted by trained personnel in the ceramic.	
QA/QC procedures to be applied:	The ceramics have an internal control of the quantity of pieces produced. It was rechecked according to the biomass employed and the kiln consumption of renewable biomass.	
Calculation method:	Not applicable	
Any comment:		

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	The guarantee of acquiring renewable wood was achieved by invoices

² Available at: < <http://perfilimobiliario.com/site/?p=883>>. Last visit on: September 22nd of 2011.

measurement methods and procedures to be applied:	from the providers. The biomasses (Native wood from management plan, Algaroba wood, cashew tree wood, Babaçu coconut husk, municipal wood residues, sawdust, and sugar cane bagasse) are considered renewable as fulfilling the options described in the applied methodology.
Frequency of monitoring/recording:	Each crediting period
Value monitored:	Not directly applied for the calculation. It is considered that all biomass used is renewable.
Monitoring equipment:	No monitoring equipment is used to determine this parameter.
QA/QC procedures to be applied:	The biomass was considered renewable if it is according to the definition given by Methodology AMS-I.E: Switch from Non – Renewable Biomass for Thermal Application by the User – Version 01 valid from 01/02/2008 to 08/04/2010.
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:	Renewable biomass surplus			
Data unit:	tonne or m ³			
Description:	Amount of renewable biomass available			
Source of data:	Monitored			
Description of measurement methods and procedures to be applied:	It was used to calculate the leakage of renewable biomass. The sources of leakages predicted in methodology applied were monitored. The measurement of the leakage was based on national and international articles and database every monitoring period. The sources provided information about the biomass availability in the project activity's region. More information, please see Section 4.3 – Leakage, Part A.			
Frequency of monitoring/recording:	Annually			
Value monitored:		Biomass	Surplus	Year
		Sawdust in m ³	10,775.38	2007/2008
		Babaçu coconut husk	4,756	2007/2008

	(tonnes)			
	Wood from management areas (m^3)	4,595,695	2007/2008	
	Residues from cashew trees (tonnes)	196,625	2007/2008	
	Algaroba wood (m^3)	2,500,000	2007/2008	
	Sugar Cane Bagasse (tonne)	2,387,639	2008/2009	
	Municipal garden's residues	Not measured	2007/2008	
Monitoring equipment:	No monitoring equipment is used to determine this parameter.			
QA/QC procedures to be applied:	Data available regarding the ceramic industry 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 is compared to total biomass available, as estimated on the VCS PD.			
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:	Leakage of non-renewable biomass.
Data unit:	tCO ₂ e
Description:	Leakage resulted from the non-renewable biomass
Source of data:	Monitored
Description of measurement methods and procedures to be applied:	The three sources of leakages predicted in the applied methodology were monitored. Scientific articles, official statistical data, regional and national surveys were provided in order to ensure that there was no leakage from non-renewable biomass (or to estimate the leakage). More information, please see Section 4.3 – Leakage, Part B.
Frequency of monitoring/recording:	Annually
Value monitored:	0

Monitoring equipment:	No monitoring equipment is used to determine this parameter.
QA/QC procedures to be applied:	Data available regarding the ceramic industries fuel consumption was utilized to monitor the leakage.
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:	$f_{NRB,y}$
Data unit:	Percentage
Description:	Fraction of biomass (wood) used in the absence of the project activity that is established as non-renewable biomass using survey methods
Source of data:	Survey methods.
Description of measurement methods and procedures to be applied:	However, according to CNIP (2007)³, <i>Caatinga</i> biome has only 0.3% of its total area with sustainable use. Furthermore, considering that 0.26% of this biome has been saved by other project activities, thus, 99.4% is considered as a fraction of non-renewable biomass. It was made two sheets to calculate the amount of wood consumed. The first one encompasses the amount of wood consumed by the ceramics located at the <i>Caatinga</i> biome. The other sheet calculates the amount of wood consumed regarding only CGM Ceramic. Dividing these values by the total of wood available, it was achieved the amount of renewable biomass that has been saved by all the project activities or only by CGM project, respectively.⁴ Afterwards, summing each value with the sustainable use areas defined by CNIP (2007), it was acquired two fraction of renewable biomass. Finally, each value was subtracted from 100% to achieve the $f_{NRB,y}$. Therefore, it was taken the smaller value in order to be more conservative. These sheets are available at the VCS MR Calculation

³ Centro Nordestino de Informações sobre Plantas. Associação de Plantas do Nordeste. 2007. Available at: <http://www.cnip.org.br/planos_manejo.html>. Visited on October 21st, 2010.

⁴ According to data from project activities elaborated by Sustainable Carbon – Projetos Ambientais LTDA.

	spreadsheet.
Frequency of monitoring/recording:	Annually
Value monitored:	99.4%
Monitoring equipment:	No monitoring equipment is used to determine this parameter.
QA/QC procedures to be applied:	The monitoring of this parameter was based on national and international articles, databases, data monitored by the project developer such as project activities at the same region. The sources provided information about the sustainable use of Amazonian biome. Wood saved from projects to which the same methodology was applied, which are in the same biome and applied methodology developed by <i>Sustainable Carbon – Projetos Ambientais Ltda.</i> was considered in this fraction. CDM or VCS registered projects were also included in this fraction if placed in the same region and methodology.
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 04, with the internal records data related to biomass consumption and ceramic production. The Monitoring of the project activity is implemented in conformity with the Monitoring Plan described in the VCS PD v5. Therefore, the monitoring plan was followed properly.

No remaining issues from previous validation or verification were identified

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

The approved CDM baseline and monitoring methodology AMS-I.E (Switch from Non – Renewable Biomass for Thermal Application by the User) Version 01, valid from February 01st, 2008 to April 08th, 2010, is applied to the project activity. It comprises small thermal appliances that displace the use of non-renewable biomass by introducing new renewable energy end-user technologies. The project's emissions from the combustion of native wood are accounted in the same way as fossil fuel combustion, once it is not renewable and emits CO₂.

The project activity in this monitoring period (19 months) generated 151 TJ per year or 41,910 MWh per year, which corresponds to an installed capacity of 4.78 MW_{thermal}⁵. This is less than the small scale project activity limit, that is 45 MW_{thermal} for Type I Small scale project activities.

⁵ Thermal energy generated in 8760 hours of operation (365 days * 24 hours/day).

Baseline

$$ER_y = B_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossilfuel} \quad (\text{Equation 01})$$

Where:

ER_y : Emission reductions during the year y in tCO₂e

B_y : Quantity of biomass that is substituted or displaced in tonnes

$f_{NRB,y}$: Fraction of non-renewable biomass (wood) used in the absence of the project activity in year y that is established as non-renewable biomass using survey methods

$NCV_{biomass}$: Net calorific value of non-renewable biomass that is substituted in TJ/ton

$EF_{projected\ fossil\ fuel}$: Emission factor for the projected fossil fuel consumption in the baseline in tCO₂/TJ⁶.

B_y is determined using option (b) of the applied methodology, as follows:

Calculated from the thermal energy generated in the project activity as:

$$B_y = \frac{HG_{p,y}}{\eta_{old} \times NCV_{biomass}} \quad (\text{Equation 02})$$

Where:

$HG_{p,y}$: Quantity of thermal energy generated by the renewable energy technology in the project in year y in TJ.

η_{old} : Efficiency of the system being replaced

$$HG_{p,y} = SGE \times PR_y \quad (\text{Equation 03})$$

Where:

SGE : Specific energy which has to be generated in the process to produce one ton of ceramic units in TJ/ton of ceramic units fired.

PR_y : Amount of product produced in year y in tons of ceramic units

$$\eta_{old} = \frac{SGE}{SFE} \quad (\text{Equation 04})$$

Where:

SFE : Specific fuel energy needed for the process to produce one ton of ceramic units in TJ/ ton of ceramic units

⁶ The fossil fuel likely to be used by similar consumers is taken the IPCC default value of residual fossil fuel.

$$SFE = BF_y \times NCV_{\text{biomass}} \quad (\text{Equation 05})$$

Where:

BF_y: Consumption of non-renewable biomass per ton of ceramic units fired in year y

Using the Equations 3, 4 and 5 in the Equation 2, it results to:

$$B_y = PR_y \times BF_y \quad (\text{Equation 06})$$

As shown in the calculations above, the η_{old} is not required to calculate the Emission Reductions, thus it was excluded.

The value of BF_y was determined through historical consumption of non-renewable biomass by the ceramic. It was calculated by dividing the monthly consumption of each kiln at the baseline from the monthly production of each kiln at the baseline, in thousands. 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.

The total production of the monitoring period, considered as input value for emission reductions calculation, was 112,560.25 tons of ceramic units fired (or 59,850 ceramic units). A sampling of the ceramic production records was assessed on-site during the site visit, in order to crosscheck the values presented in the calculus spreadsheet against to the internal records. No discrepancy was found.

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

The project proponent as evidence to determine emission reductions submitted several documents, as presented in section 3.2. above.

The evidences were assessed as of sufficient quantity and appropriate quality by DOE.

4.4 Management and Operational System

The responsibilities and authorities for monitoring and reporting have been found to be in accordance with the monitoring plan, in the registered PD.

5 VERIFICATION CONCLUSION

Sustainable Carbon – Projetos Ambientais LTDA has commissioned the BUREAU VERITAS CERTIFICATION to carry out the 3rd periodic verification of the project “Gomes de Mattos Ceramic Fuel Switching Project” with regard to the relevant requirements for VCS project activities. The project reduces GHG emissions due to switching non-renewable to renewable biomass fuel for end-user thermal energy generation. This verification covers the period from January 01st, 2010 to July 31st, 2011.

In the course of the verification, Corrective Action Requests (CAR) and Clarification Requests (CL) were raised and successfully closed. There were 11 CARs (including the CAR BQA 01) and 01 CL raised. No

FARs were raised. The verification conclusion is based on the Monitoring Report (Version 4, dated 13th October, 2011) the VCS PD (Version 05, dated 27th May, 2009), Emission Reduction Calculation spreadsheet (VCS MR Calculation CGM_period_01 01 10_31 07 11_v04.xlsx) and supporting documents made available to BUREAU VERITAS CERTIFICATION by the project participant.

As a result of this verification, the DOE confirms 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 conclude, 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.E: Switch from non-renewable biomass for thermal applications by the user - Version 01 valid from February 01st, 2008 to April 08th, 2010;
- The monitoring system is in place and functional. The project has generated GHG emission reductions;

BUREAU VERITAS CERTIFICATION confirms that Emission Reduction Calculation spreadsheet (VCS MR Calculation CGM_period_01 01 10_31 07 11_v04.xlsx), is in accordance to the registered monitoring plan and all the calculations were based in reliable monitored data, in the case of non-monitored and pre-defined parameters, has correctly followed the parameters stated in the validated VCS PD Version 05, dated 27th May, 2009.

The DOE also confirms that all the data and information used to elaborate this Verification Report are treated confidentially by BUREAU VERITAS CERTIFICATION.

Reporting period: From 01-01-2010 to 31-07-2011

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

GHG Emission Reductions or Removals	tCO ₂ e
Baseline Emissions	92,659
Project Emissions	0
Leakage	0
Net GHG emission reductions or removals	92,659

The total value expected for the period was higher than that foreseen in the registered PD: 28,342 tCO₂e/year or 44,875 tCO₂e in 19 months (3rd monitored period), this because the ceramic production has increased from a predicted average of 1,478,000 to 3,150,000 ceramic devices per month, due to favourable market conditions. Also the weight of ceramic devices was adjusted based in the recent measurements.

6 VERIFIERS' CV'S

BUREAU VERITAS CERTIFICATION Lead GHG Verifier

Antonio V. 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.

BUREAU VERITAS CERTIFICATION GHG Verifier

Diego Serrano - Is forest engineer graduated at ESALQ/USP, has master degree in Energetic System Planning by UNICAMP (State University of Campinas). His abilities include coordination, elaboration, validation and verification of PDD's in the scopes 1, 4, 13 and 14. He is qualified as Lead Verifier for GHG – Green House Gases projects and ISO 14001:2004.

BUREAU VERITAS CERTIFICATION Internal Technical Reviewer

Marcelo A. Porto – Qualified as Lead GHG Verifier, he 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.

7 VCS VERIFICATION PROTOCOL

Table 1 Verification requirements based on the Validation and Verification Manual (EB55 Annex 1)

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	Yes.	OK	OK
c Was an on-site visit conducted?	VVM	196	Yes. An on-site visit was conducted on 25/08/2011.	OK	OK
d If not, justify the rationale of the decision.	VVM	196	Not Applicable.	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 guidelines established by the Executive Board (EB48-§73)?	VVM	197	Not Applicable.	OK	OK
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	VVM	197	Not applicable.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
corresponding?					
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	Yes.	OK	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	Not Applicable.	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, all the monitoring aspects of this project are specified in the methodology.	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 activity is implemented in accordance with the monitoring plan contained in the registered PDD or the accepted revised monitoring plan.	VVM	204			
a Have the monitoring plan and the applied methodology been properly implemented and followed by the project participants?	VVM	205	CAR 01 – On the front page of the Monitoring Report version 01, the monitoring period 01-01-2010 to 30-07-2011 it is not correct. It should be 01-01-2010 to 31-07-2011.	CAR 01 CAR 02	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<u>CAR 02</u> – On the 3rd paragraph of Section 1.3 of the Monitoring Report version 01, it has been informed that “The monitoring report was completed on 22/08/2011”, but on the front page the information is “Date of issue 19-08-2011”. <u>CAR 03</u> – In Section 1.6 of the Monitoring Report version 01, the information “The crediting period for this project starts on 01/05/2006 and ends on 31/04/2016” it is not correct. It should be “The crediting period for this project starts on 01/05/2006 and ends on 30/04/2016”. <u>CAR 04</u> – On the 1st paragraph of Section 4.3 of the Monitoring Report version 01, the information “for all ceramics included in this bundled project” it is not correct. This is not a bundled project.	CAR 03 CAR 04	

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
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	Yes. According to the applied methodology there are not project emissions.	OK	OK
ii Baseline emission parameters?	VVM	205	CAR 05 – As in VCS MR Calculation CGM_period_010110_310711_v01, file Production, only one type of Roof Tiles has been considered and “revestimento” has not been considered in the calculation of Total Production in tonnes, this calculation has not been accepted. CAR 06 – In Section 3.2 of the Monitoring Report version 01, the information of the table Q renbiomass Amount of renewable biomass, has not been accepted because the delivery of the supplier José Claudionor Alves de Almeida has not been included in the month of March 2011. Also, the deliveries controlled by DOFs and the purchasing receipts of Cashew tree wood are in ST, but they have been considered as m3.	CAR 05 CAR 06	OK
iii Leakage parameters?	VVM	205	CAR 07 – In Section 4.3 of the Monitoring Report version 01, the analysis of Leakage has not followed paragraph 9 of the Methodology AMS.I.E. Switch from Non-Renewable Biomass for Thermal	CAR 07	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			Applications by the User, version 01.		

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
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	The responsible for project monitoring is Mr. Stephenson Ramalho de Lacerda, from Cerâmica Gomes de Mattos. The monitoring report was completed on 22/08/2011, by Camila Vaccari, Larissa Tega da Fonseca, Mariana dos Santos Silva, Mariana Fieri, Marcelo Hector Sabbagh Haddad and Thiago de Avila Otero, from Sustainable Carbon – Projetos Ambientais Ltda.	OK	OK
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	There is no calibration of equipment used for monitoring.	OK	OK
i Are monitoring results consistently recorded as per approved frequency?	VVM	205	Yes. <u>CAR BQA 1</u> – The PP is requested to provide evidences to support the prices of: a) Algaroba wood b) Sugar Cane Bagsse c) Babacu Coconut husk d) Sawdust e) Cashew tree wood	CAR BQA 1	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			f) Municipal wood residues g) Native wood from management plan h) Non-renewable wood		
ii Have quality assurance and quality control procedures been applied in accordance with the monitoring plan?	VVM	205	CL 01 – In the table Q renbiomass of the section 3.2 of the Monitoring Report version 01, please justify why in 2010 to produce 67,440.74 tonnes of ceramic devices it has been utilized 14,101.04 tonnes of biomass, while in 2011 to produce 40,489.59 tonnes of ceramic devices it has been utilized 14,111.99 tonnes of biomass. CAR 08 – According to table 1 of Section 1.3 of the registered PD, version 05, the emission reductions estimated during the crediting period are 28,342 tCO₂e/year. Considering that the 3rd monitoring period covered the period of 19 months, the emission reductions estimated for this period are 44,875 tCO₂e. The emission reductions calculated in the Monitoring Report version 01, are 88,847 tCO₂e. It has not been explained why the difference of + 43,972 tCO₂e (+ 98%) has occurred.	CL 01 CAR 08	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			

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
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	Yes.	OK	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	Yes. Information provided in the monitoring report has been checked with: Purchase records, Environmental Licenses, Instituto Brasileiro do Meio Ambiente e dos Recursos Renováveis –IBAMA, VCS Project description Version 05, Emission Reduction Calculation spreadsheet Version 3, Production data sheets.	OK	OK
c Have calculations of baseline emissions, proposed CDM project activity emissions and leakage, as appropriate, been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document?	VVM	208	Refer to <u>CAR 05</u> , <u>CAR 06</u> , <u>CAR 07</u> , <u>CAR 08</u> and <u>CL 01</u> .	CAR 05 to CAR 08 CL 01	OK
d Have any assumptions used in emission calculations been justified?	VVM	208	There were no assumptions.	OK	OK
e Have appropriate emission factors, IPCC default values and other reference values been correctly applied?	VVM	208	Yes.	OK	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
FAR 01: A request for a renewal of the environmental license was done on 2009-04-27, but the environmental authority – SEMACE – did not issue a new license until now. The license issued by SEMACE shall be requested during the first verification to ensure that the project complies with all environmental requirements.	-	The environmental authority – SEMACE – issued the environmental license, which is valid until 17-August-2012. This license will be sent to the validation team.	OK, the license and its conditions were presented and found ok by the validation team. FAR 01 is closed
CL 01 – In the table Q renbiomass of the section 3.2 of the Monitoring Report version 01, please justify why in 2010 to produce 67,440.74 tonnes of ceramic devices it has been utilized 14,101.04 tonnes of biomass, while in 2011 to produce 40,489.59 tonnes of ceramic devices it has been utilized 14,111.99 tonnes of biomass.	VVM 205	The increase in the amount of the biomass consumed was due to a stock realized from January to July of 2011. According to <i>Stephenson Ramalho de Lacerda</i> employee responsible for the project in CGM Ceramic, this stock was necessary once the biomass need to be dried for a long period under the sun. Another relevant factor which can be considered is due to the biomass seasonality, which implies in the accumulation of biomass in determined months.	OK, the PP has explained the discrepancy between the biomass consumption and ceramic production in 2011 compared to 2010, the biomass consumption in 2011 has increased in order to meet the seasonality and the biomass preparation needs (drying). Once this parameter is not critical for the emission reduction calculation, the Validator understands that this explanation is enough to close this CL CL01 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
CAR BQA 1 – The PP is requested to provide evidences to support the prices of: a) Algaroba wood b) Sugar Cane Bagsse c) Babacu Coconut husk d) Sawdust e) Cashew tree wood f) Municipal wood residues g) Native wood from management plan h) Non-renewable wood	VVM 205	All prices were updated according to evidences of each renewable biomass utilized in this monitored period, as described at MR Calculations spreadsheet. Regarding the non-renewable biomass, the price was updated according to local surveys. For more information we are sending the evidences to the audit team.	All data used in the analysis was based on company reports and local surveys. The validation was able to attest and verify that all assumptions have been used in a proper manner in order to determine the project`s additionality. All calculations have been checked and it was verified that they are correct. Based on that the validation team assures that the project is still additional. CAR BQA 01 is closed
CAR 01 – On the front page of the Monitoring Report version 01, the monitoring period 01-01-2010 to 30-07-2011 it is not correct. It should be 01-01-2010 to 31-07-2011.	VVM 205 VVM 208	Date related to the Monitoring Period was corrected on the front page of the Monitoring Report.	Ok, the monitoring period date was corrected. CAR 01 is closed
CAR 02 – On the 3rd paragraph of Section 1.3 of the Monitoring Report version 01, it has been informed that “The monitoring report was completed on 22/08/2011”, but on the front page the information is “Date of issue 19-08-2011”.	VVM 205	Date related to the Issue of Monitoring Report was corrected on the front page and in the in the Section 1.3 of the Monitoring Report version 02. The correct date to the Monitoring Report version 01 was 22-08-2011 but was updated to 22-09-2011 in the version 02.	Ok, the monitoring report date of completion and issue was corrected. CAR 02 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
CAR 03 – In Section 1.6 of the Monitoring Report version 01, the information “The crediting period for this project starts on 01/05/2006 and ends on 31/04/2016” it is not correct. It should be “The crediting period for this project starts on 01/05/2006 and ends on 30/04/2016”.	VVM 205	Date related to the Crediting Period of the project was corrected in the Section 1.6 of the Monitoring Report version 02 as requested.	Ok, the crediting period was corrected. CAR 03 is closed
CAR 04 – On the 1st paragraph of Section 4.3 of the Monitoring Report version 01, the information “for all ceramics included in this bundled project” it is not correct. This is not a bundled project.	VVM 205	The sentence “for all ceramics included in this bundled project” was excluded of the Monitoring Report version 02, Section 4.3.	Ok, the wrong sentence regarding bundled project, was excluded from the monitoring report v.4. CAR 04 is closed
CAR 05 – As in VCS MR Calculation CGM_period_010110_310711_v01, file Production, only one type of Roof Tiles has been considered and “revestimento” has not been considered in the calculation of Total Production in tonnes, this calculation has not been accepted.	VVM 205 VVM 208	The VCS MR Calculation CGM_period_010110_310711_v02, file Production, was corrected. It was considered, two types of bricks (8 and 6 holes), one type of Flagstone, two types of roof tiles (colonial and pressed) including the “decor revetment”. The weight of all the ceramic units produced in the monitoring period was also updated. We are sending evidences of the produced units	Ok, the list of ceramic devices was reviewed and the documentation regarding the ceramic production were provided. The data crosscheck was done during the site visit, based in the internal production registries. Also, the subsequent versions of the MR and calculation spreadsheet (v.2, v.3 and v.4) the weight of ceramic devices was adjusted based in the recent measurements. Thereby the total plant production has increased from 107,930

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		in a CD by mail.	to 112,560 tonnes. Devices weight and balance calibration evidences were provided. CAR 05 is closed
CAR 06 – In Section 3.2 of the Monitoring Report version 01, the information of the table Q renbiomass Amount of renewable biomass, has not been accepted because the delivery of the supplier José Claudionor Alves de Almeida has not been included in the month of March 2011. Also, the deliveries controlled by DOFs and the purchasing receipts of Cashew tree wood are in ST, but they have been considered as m3.	VVM 205 VVM 208	The VCS MR Calculation CGM_period_010110_310711_v0 2, file Biomass Consumption, was reviewed and some points was corrected as well as the table in the Section 3.2 of the Monitoring Report version 02. We are sending evidences of the biomass consumption compiled in a CD by mail.	To avoid discrepancy between documentation the supplier José Claudionor Alves de Almeida was excluded from the calculus spreadsheet. Once this parameter (Q renbiomass) is not critical for the emission reduction calculation, this addressment was accepted by the verification team. Regarding to the second part of the CAR 06, the PP has correctly converted the input value (that are in st meters), to m3, as presented in the "VCS MR Calculation CGM_period_010110_310711_v02" CAR 06 is closed
CAR 07 – In Section 4.3 of the Monitoring Report version 01, the analysis of Leakage has	VVM 205 VVM 208	The Section 4.3 of the Monitoring Report version 02 was corrected.	As presented by the PP, the project activity is not supposed to generate

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not followed paragraph 9 of the Methodology AMS.I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User, version 01.		It was included in the analysis two topics that were missing “B) <i>Leakage relating to the non-renewable biomass shall be assessed from ex-post surveys of users and areas from where biomass is sourced</i> ” and “C) <i>If the equipment is transferred from another activity or if the existing equipment is transferred to another activity, leakage is to be considered</i> ” according to the paragraph 9 of the Methodology AMS.I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User, version 01.	leakage by displacing the use of renewable biomass for non-renewable biomass of a non-project user, once no scarcity of renewable biomasses was indentified in the region. the explanation and values presented in the section 4.3 were crosschecked and found ok. CAR 07 is closed
CAR 08 – According to table 1 of Section 1.3 of the registered PD, version 05, the emission reductions estimated during the crediting period are 28,342 tCO ₂ e/year. Considering that the 3rd monitoring period covered the	VVM 205 VVM 208	The production of CGM ceramic exhibit an increase of its production during the monitoring period in order to supply the high ceramic market demand which	Ok, indeed the increasing of emission reductions was caused by the increasing in the ceramic production, that has increased from 1,478,000 ceramic devices per month (value

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period of 19 months, the emission reductions estimated for this period are 44,875 tCO₂e. The emission reductions calculated in the Monitoring Report version 01, are 88,847 tCO₂e. It has not been explained why the difference of + 43,972 tCO₂e (+ 98%) has occurred.		has been increased gradually throughout the years. For more information please check the website < http://perfilimobiliario.com/site/?p=883>.	presented in the registered PD), to 3,107,000 in 2010 and 3,223,000 in 2011, as per the MR Calculation CGM_period_01 01 10_31 07 11_v02.xlsx. CAR 08 is closed
CAR 09 according to the AMS-I.E v. 1, The biomass from forest areas is renewable when: <i>"(a) The land area remains a forest; and</i> <i>(b) Sustainable management practices are undertaken on these land areas to ensure, in particular, that the level of carbon stocks on these land areas does not systematically decrease over time"</i> However, the large amount of native wood biomass supplied by Faz. Boqueirão in 2011 (11,145 mst) and Faz.Pau D' Arco. in 2010		The Management Plans, Boqueirão and Pau D'Arco, were sent by e-mail to the audit team, as requested. These documents comply with the methodology AMS-I.E v.1.	Ok, based in the two Forest Management Plans of the two main native wood suppliers (faz. Boqueirão and faz. Pau d'arco), was possible to confirm that the forest management plans were designed in solid bases. The harvesting cycles respect the time for the natural regeneration to restore its previous biomass stock. In both cases the harvesting rotation cycles and the size of annual harvesting plots were designed in accordance to the mean annual increment of the biomass and the total size of the area under management, thus can be considered sustainable and applicable under the AMS-I.E v.1 requirements .

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(7,190 mst), <u>suggests</u> that this biomass could not be produced under a "<i>Sustainable management practices</i>" basis, but perhaps, from cleaning area for agricultural purposes. Thus, the DOF alone is not enough to ensure compliance with the <u>renewable biomass definition</u>, as stated by the AMS-I.E v. 1, in other words, the DOF ensures that the biomass is not from illegal deforestation, but does not provide any guarantee regarding to the "<i>Sustainable management practices</i>". More evidences are required (e.g.: the management plan for biomass extraction), to prove that the native biomass used by the PP meets, indeed, the renewable biomass definition, as per the AMS-I.E v. 1.			CAR 09 is closed
CAR 10: the conversion factor used to convert mst of native wood to m³ (0,8) is not in accordance with the conversion factor used in the forest management plan to quantify the biomass stock (0,34 - please refer to "quadro		The registered VCS PD v.5 did not consider the conversion factor from mst to m³ for the amount of renewable biomass that arrives in mst unit (parameter	Ok, in both, the PD and the MR v.4 biomass values (cashew, algarroba and native woods) were adjusted based in a more adequate conversion factor for mst/m³, thus the estimative of biomass

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13" section 5.3.3.7 of the FMP faz. Boqueirão). Also, considering the characteristics of the cashew, municipal wood residues and algaroba wood, the conversion factor presented in the FMP is supposed to be more adequate than that used by the PP for biomass weight calculation.		Qrenbiomass). Therefore, in this Monitoring Report, the values presented in the table Qrenbiomass of the VCS PD (section 3.3) for cashew wood and native wood from management areas were corrected, according to the conversion factors presented in the section 3.2 of this Monitoring Report, table Qrenbiomass.	consumption (in tonnes) is now more accurate and closed to the reality. CAR 10 is closed